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Student Perceptions Of Online Education At Community Colleges: A Review Of The Literature

George Joseph Ellefson

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**STUDENT PERCEPTIONS OF ONLINE EDUCATION AT COMMUNITY
COLLEGES: A REVIEW OF THE LITERATURE**

By

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A Dissertation

Submitted to the Graduate Faculty

of the

University of North Dakota

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Doctor of Philosophy

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2015

This dissertation, submitted by George Joseph Ellefson in partial fulfillment of the requirements for the Degree of Doctor of Philosophy from the University of North Dakota, has been read by the Faculty Advisory committee under whom the work has been done and is hereby approved.

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April 30, 2015

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Degree Doctor of Philosophy

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George Joseph Ellefson
April 30, 2015

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ABSTRACT

There is a need to identify and discuss community college student perceptions of online education as a window to an array of challenges that these institutions face. Student perspectives can confirm, or disconfirm, the impressions and accounts of other community college stakeholders and decision makers.

The purpose of this study was to provide a comprehensive review of the literature from 1995-2015 that answered the primary research question, “What are the student perceptions of online education at community colleges in the United States?” Extensive strategies were used to locate information for review. Analysis of the literature yielded a framework for formulating findings. That heuristic consisted of input elements interacting within a context to yield an outcome, and for some interactions, also a product.

This research produced six findings: 1) early distance education and Internet technology interacted within the context of a community college yielding online education infrastructure, 2) student attributes and online education infrastructure interacted within the context of open access at community colleges yielding learning opportunities for students, 3) online education infrastructure and learning opportunities interacted within a context of instruction resulting in student perceptions of online education at community colleges, 4) interactions among course content, the instructor,

and the students within the context of online education yielded the potential for learning which produced student perceptions of online education, 5) cognitive, social, and teaching presence interacted within the context of a community of learners yielding the potential for learning which produced student perceptions of the quality of online education, and 6) currently, there are no reports of student-identified best practices that are essential for student satisfaction, learning, and success in online education at community colleges.

There is only a small body of literature on student perceptions of online education at community colleges—much of which offers conflicting findings which make it difficult to formulate generalizations. Further, for the case studies of online courses, disciplines, or a single college there are yet no follow-up investigations that test the verification, reliability, and generalizability of the findings. Both qualitative and quantitative research are needed in the areas identified in this study.

CHAPTER I

INTRODUCTION

Background

Over the past two decades there has been a steady increase in the growth of online delivery of higher education. In 1995 the National Center for Education Statistics (NCES) conducted its first survey on distance education courses offered by higher education institutions (Greene & Meek, 1998). In declaring that “distance education is emerging as an increasingly important component of higher education” (p. 1), Greene and Meek reported that during academic year 1994–95, an estimated 25,730 distance education courses with different catalog numbers were offered by higher education institutions. Of those courses, 45% were offered by public 4-year institutions, 39% by public 2-year institutions, and 16% by private 4-year institutions. About half of the institutions that offered distance education courses had offered 10 or fewer courses in academic year 1994–95, with 24% offering one to four courses, and 21% offering five to ten courses (Greene & Meek, 1998). Further, the 1995 NCES data showed that of 14.3 million students enrolled in higher education institutions in the fall of 1994, about 758,640 were formally enrolled in distance education courses.

Longitudinal data reported in 2007 showed that, whereas online education had increased substantially at all types of institutions of higher education, there were some

clear leaders. Two-year institutions granting associate's degrees had the highest growth rates and accounted for more than half of all online enrollments for the previous five years (Allen & Seaman, 2007). From fall 2007 to 2008 there was a 22% increase in distance education enrollments at community colleges, according to Mullins (2013).

By 2012, 87% of higher education institutions offered some form of online learning (Allen & Seaman, 2013) enrolling 7.1 million students in at least one online course in 2013 (Allen & Seaman, 2014a). In the fall of 2012, 12.8 million students were enrolled in one of the 1,132 community colleges in the United States (American Association of Community Colleges, 2014a). These community college students constituted 46% of all undergraduate students in the U.S. (Community College Research Center at Columbia University, n.d.). Of these community college students, 26.5% were enrolled in at least one online course, according to 2012 NCES data (Lokken & Mullins, 2014).

Online enrollment patterns have drawn both internal and external attention to community colleges over the past 20 years. During this time numerous academic, economic, social, and technological issues (Austin, 2010; Mullins, 2013; Western Interstate Commission for Higher Education, 2014) have impacted community colleges and their online students as these institutions have sought to achieve their missions and goals of education and service (Ashford, 2013; Seymour, 2013). Some of the matters currently claiming the attention of community college stakeholders include:

- the institutional need for revenue-generating enrollment and, therefore, competitive marketing and recruitment efforts relative to online education (Dean Heimberg, 2014; Folkers, 2005; Mullins, 2013);

- the implications of soaring tuition (Chakrabarti, Mabutas, & Zafar, 2012; Mallory, 2009) and financial aid fraud rings (Mullins, 2013; Office of Inspector General, 2011);
- the availability of an up-to-date technology infrastructure; technology personnel with necessary expertise; and faculty and student technology training needed for 1) blended, hybrid, Web-assisted, Web-enhanced, and Web-facilitated classes 2) MOOC's (massive online open courses); 3) eTextbooks and 4) open education resources (Austin, 2010; Lokken, 2013; Mullins, 2013);
- the demands for open access concurrent with debates and criticism among politicians, the public, university faculty, and students about the readiness and qualifications of admitted students (Austin, 2010; Proper, 2011; Tucciarone, 2007; Tucker, 2013);
- the calls for the expansion and improvement of student support systems and services (Dean Heimberg, 2014; Murphey, 2006; Nodine, Jaeger, Venezia, & Bracco, 2012) and for student authentication in online learning (Lokken, 2013; Mullins, 2013; Office of Inspector General, 2011);
- the pressing need identified by distance education administrators to address course quality & design and faculty training & preparation (Keengwe & Kidd, 2010; Pennington, Williams, & Karvonen, 2006); course assessment; and improvements in student readiness and retention (Lokken, 2013; Western Interstate Commission for Higher Education, 2014) in an environment of negative images of the quality of community college education (Proper, 2011; Tucciarone,

2007); and the preparation and knowledge of program-completing students (Tucker, 2013); and

- the lack, on many community college campuses, of compliance with the accessibility requirements for online education outlined in sections 504 and 508 of the Rehabilitation Act (Lokken, 2013, Mullins, 2013).

Need for and Importance of the Study

Community college students are, obviously, centered in the academic, socioeconomic, and technological contexts identified above. Further, the community college perspective on these issues is being constantly updated and articulated by administrators (e.g., Ashford, 2013; Austin, 2010, Lokken & Mullins, 2014), special interest organizations (e.g., the American Association of Community Colleges and the Community College Research Center at Columbia University), foundations (e.g., the Community College Foundation and the Kresge Foundation), and government agencies (e.g., the Center on Budget and Policy Priorities and the Department of Education). However, what is lacking is a comprehensive view of community college student perspectives and perceptions about their online education experiences relative to their personal characteristics; their goals; their cognitive, social, and educational needs; their learning preferences; their satisfaction and dissatisfaction; and their insights about best practices in online education. Numerous researchers and stakeholders in higher education, exemplified by the following sample from the past five years, have identified both a need and purpose for further study of such student perceptions.

For example, Smith Jaggars and Bailey (2010) reacted to a major meta-analysis commissioned by the U.S. Department of Education and released in 2009. Based on the

government study, the Commission concluded that student learning outcomes in hybrid-online and fully online courses were equal to or better than those in traditional face-to-face courses. Smith Jaggars and Bailey objected to this generalization, in part, because of the inclusion of both hybrid-online (p. 5) and fully online courses with an associated focus on well-prepared and advanced students in the studies selected for the meta-analysis. Further, these researchers argued that the meta-analysis was flawed due to its under representation of low-income and academically underprepared students (a high percentage of the enrollees at community colleges, p. 13) with their associated access (p. 14), course completion (pp. 11, 13), and academic success issues (p. 13).

This meta-analysis and the Smith Jaggars and Bailey response are introduced here because they demonstrate the ongoing need to keep comprehensive descriptions of the diverse characteristics of online students before the community of scholars studying online education in higher education. This present review of literature addressed that need and other gaps in the literature described in the following documents.

In her article, Proper (2011) stated that “Community colleges are often stigmatized throughout America. . . . The status of attending a community college is not judged favorably by mainstream society. However, there is a remarkable lack of study about how the students of these institutions view their college” (p. 1)

Also in 2011, Ostrum, Bitner, and Burkhard created a lengthy monograph for the Center for American Progress in which they proposed that students in higher education, including community colleges, be considered “valued customers” and “active participants” in improvement and innovation initiatives. These strategists stated that “this means that the student is the center, the student’s experience is the foundation for

analysis, and the student is a co-creator of his or her educational experience and ultimately the value received” (p. 2). These writers went on to recommend that “pulling from their [students’] experiences, they can then offer important ideas and perspectives on service improvement and innovation that can...have a profound positive impact on the service that is ultimately delivered to customers” (p. 18).

Concerned that “successful completion of online courses by community college students is an issue both at the national and local level,” Morris (2011, Abstract) explored the perceptions of 144 community college students about their online learning in five courses. In addition to her findings about the success factors of cognitive, social, and teaching presence, Morris stated that these results “provide a basis for additional studies related to student perceptions...in which self-reported satisfaction and predictions of success can be [identified]” (p. 40).

In an introductory comment to the Morris (2011) article on community college student perceptions of online learning, the editor of the *International Journal of Instructional Technology and Distance Learning* provided an “Editor’s Note: Student feedback provides valuable guidance to those who design and those who implement distance learning programs.” This contention was also the central premise of companion studies (Completion by Design, 2012; Nodine et al., 2012) conducted by Completion by Design, a Bill and Melinda Gates-funded foundation initiative. In those investigations, 15 two-hour focus groups of 161 currently enrolled and former (i.e., completer and non-completer) students identified their perceptions of their education at community colleges in Florida, North Carolina, Ohio, and Texas. The procedures and findings in that research

were intended as an example of a “student-centered” focus to inform the current national efforts to improve student learning and success at community colleges.

Community colleges are in the national policy spotlight. Colleges around the country are reviewing their institutional practices and gathering groups of education stakeholders to design and then implement changes in advising, developmental education, programs of study and curricula, student service delivery, transfer and articulation, and more...To this end, keeping students’ voices and experiences at the center of reform plans can enhance the legitimacy of proposed reforms, their effectiveness, and their sustainability. (Completion by Design, 2012, “Introduction”)

Two later companion studies (Kuo, Walker, Belland, & Schroder, 2013; Kuo, Walker, Schroder, & Belland, 2014) provided additional support for the discovery of student perceptions as a window into potential approaches to meeting online student educational needs. These researchers investigated predictors of student satisfaction using student perceptions of learning experiences and perceived value of a course. Further, they suggested that “self-reports are the most practical method of collecting the data” consisting of the student perceptions (Kuo et al., 2014, p. 32).

This sample of articles, monographs, the editor’s note, and the companion studies identifies the relevance and utilization of student perceptions about their online community college education. Likewise, student perceptions identified and discussed throughout this document may provide new insights that inform strategies, processes, practices, and/or policies designed to address the academic, economic, social, educational, and technology issues that these institutions are currently facing. Further, student perspectives have the potential to confirm, or disconfirm, the experience-based impressions and anecdotal accounts of other community college stakeholders and decision makers.

Other Reviews of Literature

This study consists of a review of literature published during the past 20 years. During this period, there have been other published reviews of the literature on distance and online education. This dissertation does not replicate, duplicate, nor extend existing published reviews of literature that were found during a thorough search of existing research on distance and online education. This study provides a unique focus on and interpretation of its identified topic.

For example, in 2006, Larreamendy-Joerns and Leinhardt selected 294 published sources “including research articles, descriptions of experiences, anecdotal accounts, statements of policy, and review and analytical papers” (p. 569) that referred to online education, distance education, or both. These investigators analyzed their sources 1) “in light of concerns and promissory notes” (p. 569); 2) their reference, explicit or implicit, to three historical themes—democratization, liberal arts education, and educational quality; and 3) three current educational visions—the presentational view, the performance-tutoring view, and the epistemic-engagement view. By contrast the current study focuses on literature about student perceptions regarding their online education experiences in community colleges in the U.S.

Tallent-Runnels et al. (2006) conducted a review of the research on teaching courses online. The overall focus of the review was on identifying the subject matter (i.e., topics) and the research methods, not the findings and conclusions, of individual reports on online teaching. These investigators organized their study into four topics: course environment, learners’ outcomes, learners’ characteristics, and institutional and administrative factors. By contrast, student perceptions of learning outcomes and the

characteristics of online community college students are two topics presented in the present study.

Tallent-Runnels et al. (2006) did refer to student perceptions but not for the purpose of reporting what the perceptions were, but for describing the topics or methods of qualitative or quantitative research on online teaching (pp. 95, 104, 108, and 110) and online faculty needs for support (pp. 110 and 114). Although “learner characteristics” were identified as one of the four topics of the Tallent-Runnels et al. review of literature, the focus was not on demographic or other characteristics, per se, but rather on “characteristics” generically as the topic of the research reports identified in this review. The authors concluded, “We have found that research has begun to address the subtle questions regarding who is using these systems and why” (p. 112). Only one of the 76 articles on which the Tallent-Runnels et al. review was based included “community college” in its title, and the review itself made no reference to community colleges. These researchers did recommend “continued research...to inform learner outcomes, learner characteristics, course environment, and institutional factors related to delivery system variables in order to test learning theories and teaching models inherent in course design” (p. 93). And, they stated that “further research is needed to better understand the way in which online interactions—student-to-student or faculty-to-student—enhance thinking and learning” (p. 93). The present study addressed both of these recommendations.

In 2009, Rourke and Kanuka published their review of literature on learning in communities of inquiry (CoI). The proposed study and the Rourke and Kanuka research have two commonalities: three procedural steps (see the Method section provided later in this chapter) and a consideration of learning in CoIs. The Rourke and Kanuka research

was essentially a qualitative meta-analysis of 48 “empirical reports.” The purpose, and singular focus, of their study was to investigate learning within CoIs as described in their selected reports (“data base”). A report was included in the data base if it addressed one or more of the elements of a CoI: cognitive presence, social presence, or teaching presence. Therefore, their study did not focus on student perceptions, nor on online learning, or on any single level of education or type of educational institution.

In this dissertation, learning within a CoI is only one of numerous interactional aspects with potential for impacting student satisfaction. Hence, the existence of the Rourke and Kanuka review of literature does not preclude the need for the present research.

Gikandi, Morrow, and Davis (2011) provided a review of the international literature on online formative assessment in higher education. These researchers reported their key findings that 1) “effective online formative assessment can foster a learner and assessment centered focus through formative feedback and enhanced learner engagement with valuable learning experiences” and 2) “ongoing authentic assessment activities and interactive formative feedback were identified as important characteristics that can address threats to validity and reliability within the context of online formative assessment” (“Abstract” para. 1). These researchers referred to “learner perceptions” in three sentences (“4.1.3 Dishonesty; Appendix A”) for the purpose of identifying the content of their selected references. Community colleges were not identified in the text or in the references of this document.

Therefore, although the content of the proposed study will include student perceptions about formative assessment and summative evaluation of their performance

and learning in their online education at a community college, that content was not included in the Gikandi et al. review of literature. Again, an existing review of the literature on online education does not negate the need for this dissertation research.

Purpose of the Study

It is the purpose of this study to provide a comprehensive review of the literature on student perceptions of online education at community colleges.

Research Questions

The following primary and secondary research questions were addressed.

Primary Research Question

What are the student perceptions of online education at community colleges in the United States?

Secondary Research Questions

1. What are the characteristics and demographics of students enrolled in online courses at community colleges in the U.S.?
2. What are the needs and goals of students enrolled in online courses at community colleges in the U.S.?
3. What are student perceptions regarding the nature and quality of the design and content, student and instructor interactions, teaching and learning, assessment and evaluation, technology, and student support services of online education at community colleges in the U.S.?
4. What instructional practices do community college students perceive as necessary for their satisfaction, learning, and success?

Method

To achieve the purpose and answer the research questions, this study reviewed the literature included in scholarly journals, scholarly books, and scholarly reports. These sources were accessed as physical publications, as publications in authoritative electronic databases, and as publications on the Internet.

Several strategies were used to locate information for review and determination of relevance: 1) searches of university library databases¹ by topic, author, or title; 2) topical Internet searches; 3) author-based Internet searches; 4) searches for references cited in other scholarly publications; and 5) searches for reports posted to pertinent Web pages. Of particular relevance to this review of literature were data-based Web reports of national research groups (e.g., the Babson Survey Research Group and Noel-Levitz, Inc.); professional organizations (e.g., the American Association of Community Colleges and the Center for Community College Student Engagement); government agencies (e.g., the National Center for Educational Statistics and the Department of Education); University Research Centers (e.g., Community College Research Center at Columbia University and The Office of Research and Leadership at the University of Illinois); and Higher Education Foundations (e.g., the Community College Foundation and the Kresge Foundation).

Procedures

Three of the “steps” used by Gikandi et al. (2011) and Rourke and Kanuka (2009) in their research studies are cited among the following seven author-developed

¹ For example, Educator’s Reference, Education Resource Information Center (ERIC), Dissertation Abstracts; Academic Search Premiere, Psych Info, EBSCOhost Academic Search Prenmeir, EBSCOhost Professional Development Collection, Gale Cengage Expanded Academic ASAP, and Google Scholar

procedures applied in the current research. These procedures resulted in the collection, analysis, synthesis, and evaluation of literature on the chosen topic:

1. Define the focus of the review (also used by Rourke & Kanuka);
2. Formulate the purpose and research questions that will guide the current study;
3. Compose a preliminary research- and experience-based outline of potential content of the proposed review of literature;
4. Search for relevant literature (also performed by Gikandi et al.; Rourke & Kanuka);
5. Revise and expand the outline as the literature review continues to reveal new relevant information;
6. Convert the outline into text—identified as “writing” by Gikandi et al. (p. 2235);
and
7. Analyze the emerging review for findings, generalities, and conclusions.

In accordance with step one of the procedures for this dissertation, an initial review of literature on 1) online higher education, 2) online education at community colleges, and 3) student perceptions of online higher education was undertaken. On the basis of this cursory review, the focus of the present study was defined. Second, in accordance with step two of the procedures, the purpose and research questions were formulated for this study. Third, using the purpose and research questions and the preliminary review of literature, the third step of the procedures was implemented. A preliminary research- and experience-based outline was created. Implementing step four of the procedures, an ongoing review of relevant literature was used to refine the outline, the main topics of which are included in table 1 below. Step five of the procedures was implemented as a

continuing review of literature revealed new and relevant information based on the rationale included in table 1. Step six of the procedures was implemented. As the review of literature continued, generalities and conclusions began to emerge. Additional literature was sought to support these findings.

As individual documents were reviewed, if their content contributed to one or more of the following topics that content was included. As the review continued a point of information saturation was reached. Therefore, additional articles or reports were excluded, with the following exceptions: 1) more recent publications and information replaced earlier publications and information when it was duplicative and 2) all information on student perceptions of online education at community colleges was included in this document – none was excluded because there is so little data-based research available it is not duplicative at this time.

Table 1. An outline of the major topics in Chapter II with rationale for inclusion and exclusion of selected literature.

Outline of Content in Chapter II	Rationale for Inclusion of Selected Literature	Rationale for Exclusion of Selected Literature
I. Online Education	Core topic	Beyond scope of core topic
A. Distance and Online Education: History and Definitions	Formed background and context	Duplication; excessive detail
II. Online Higher Education	Core topic	Beyond scope of core topic
B. Online Education: Its Institutional Growth	Formed background and context	Duplication; excessive detail
C. Quality of Online Higher Education	Formed background and context	Duplication; excessive detail
D. Evaluation of Online Higher Education	Formed background and context	Duplication; excessive detail
III. Community Colleges and Online Education	Core topic	Beyond scope of core topic
A. Community Colleges: A Brief History	Formed background and context	Duplication; excessive detail

Table 1 (cont.)

Outline of Content in Chapter II	Rationale for Inclusion	Rationale for Exclusion
----------------------------------	-------------------------	-------------------------

	of Selected Literature	of Selected Literature
B. Community College Missions	Formed background and context	Duplication; excessive detail
C. Institutional Rationale	Formed background and context	Duplication; excessive detail
D. Student Rationale	Related to core topic	Duplication; excessive detail
E. Challenges and Changes	Formed background and context	Duplication; excessive detail
F. Programs and Services	Formed background and context	Duplication; excessive detail
G. Technology	Formed background and context	Duplication; excessive detail
IV. Student Characteristics and Demographics	Core topic	Beyond scope of core topic
A. Age of Online Students	Formed background and context	Duplication; excessive detail
B. Gender of Online Students	Formed background and context	Duplication; excessive detail
C. Ethnicity/Race of Online Students	Formed background and context	Duplication; excessive detail
D. Location of Online Students	Formed background and context	Duplication; excessive detail
E. Socioeconomic Status of Online Students	Formed background and context	Duplication; excessive detail
F. Employment of Online Students	Formed background and context	Duplication; excessive detail
G. Marital Status and Dependents of Online Students	Formed background and context	Duplication; excessive detail
H. Preparedness of Online Students	Formed background and context	Duplication; excessive detail
V. Community College Student Perceptions of Online Education	Core topic	Beyond scope of core topic
A. Needs and Goals for Online Education	Answers research question	Duplication; excessive detail
1. Student needs for online education at community colleges	Answers research question	Duplication; excessive detail
2. Student goals for their online education at community colleges	Answers research question	Duplication; excessive detail
B. Online Education, in General	Answers research question	Duplication; excessive detail
C. Online Course Content	Answers research question	Duplication; excessive detail
Table 1 (cont.)		
Outline of Content in Chapter II	Rationale for Inclusion of Selected Literature	Rationale for Exclusion of Selected Literature
1. Community college student perceptions regarding online course	Answers research question	ALL research included

content		
2. Future course content in line education? Or not	Answers research question	ALL research included
D. Online Learner-Instructor Interaction	Answers research question	Duplication; excessive detail
1. Community college student perceptions regarding online learner-instructor interaction	Answers research question	ALL research included
E. Online Learner-Learner Interaction	Answers research question	Duplication; excessive detail
1. Community college student perceptions regarding online learner-learner interaction	Answers research question	ALL research included
F. Online Teaching and Learning	Answers research question	Duplication; excessive detail
1. Cognitive presence, social presence, and communities of inquiry (CoI)	Answers research question	ALL research included
2. Community college student perceptions regarding online CoI	Answers research question	ALL research included
3. Self-regulated learning	Answers research question	ALL research included
4. Self-efficacy and learning	Answers research question	ALL research included
5. Community college student perceptions regarding online teaching and learning	Answers research question	ALL research included
6. Student characteristics and perceptions of teaching and learning	Answers research question	ALL research included
G. Assessment and Evaluation in Online Education	Answers research question	ALL research included
1. Community college student perceptions regarding assessment and evaluation in online education	Answers research question	ALL research included
H. Technology in Online Education	Answers research question	Duplication; excessive detail
1. Online technology and student self-efficacy	Answers research question	ALL research included

Table 1 (cont.)

Outline of Content in Chapter II	Rationale for Inclusion of Selected Literature	Rationale for Exclusion of Selected Literature
2. Student demographic characteristics and perceptions of self-efficacy for technology	Answers research question	ALL research included
3. Community college student perceptions regarding technology in online education	Answers research question	ALL research included
I. Online Student Support Services	Answers research	Duplication; excessive

	question	detail
1. Community college student perceptions regarding online student support services	Answers research question	ALL research included
J. Best Practices for Online Education	Answers research question	No research available

Delimitations

This study was limited to reviewing literature of the past 20 years—1994 to 2014—unless earlier information establishes a foundational context for explaining student perceptions of online education at community colleges during the past two decades. Then such earlier information was included.

CHAPTER II

REVIEW OF LITERATURE

Introduction

Chapter I established the need and described the methodology for further research on student perceptions of online education in community colleges. Chapter II provides a review of literature that answers the research questions posed in this study. This chapter is divided into five main sections: 1) online education, 2) online higher education, 3) community colleges and online education, 4) student characteristics and demographics, and 5) community college student perceptions of online education. Chapter II becomes the basis for Chapter III, which formulates, summarizes, analyzes, and interprets the implications and significance of the student perceptions identified in this chapter.

Online Education

Distance and Online Education: History and Definitions

Distance education is, at least, 160 years old with its “roots” in correspondence study, according to Schlosser and Simonson (2010). These authors identified an 1833 Swedish newspaper as the source of “...an opportunity to study ‘Composition through the medium of the Post’” (p. 7). They traced the expansion of correspondence study and the early institutions that it spawned in England, Germany, and later, Boston in 1873. New York State authorized academic degrees at Chautauqua College of Liberal Arts to students who completed required correspondence courses and summer institutes between

1883 and 1891 (p. 7). Correspondence courses were the primary method for delivering distance learning until the middle of the twentieth century when instructional radio and television became more popular (Imel, 1998).

One of the earliest forms of distance education at the two-year colleges (later to become community colleges) in the upper Midwest was not technology-based (R. Landry, personal communication, July 17, 2013). As early as 1970, professors and instructors drove or were flown to sites remote from the host institutions to provide continuing education or undergraduate and graduate coursework. The method of delivery was face-to-face interaction. It differed from on-campus education only in that 1) it was administered through an Office, Department, or College of Distance Education; 2) it was offered at an off-campus location, and 3) its time of presentation was the mutual availability of the faculty members and the students, usually employed individuals or Military Service personnel, according to Landry.

In the late 1970s and early 1980s cable and satellite television became available for the projection of telecourse offerings (Bebawi, n.d.). But, the communication was one-way only, limiting students' interpersonal communication to mail correspondence (Imel, 1998; Sumner, 2000). During this same era videotape and audiotape recordings of on-campus classes and continuing education workshops were mailed for playback to students at remote sites (Mahmood, Mahmood, & Malik, 2012). The videotape method of delivering distance education was being used as recently as 2004 (New Mexico Institute of Mining and Technology, 2010).

As this brief discussion of the early history of education delivery methods shows, the earliest distance education can be defined as education or training courses delivered

to remote (off-campus) locations via a postal service, traveling instructors, or audio and video technologies. Parsad, Lewis, and Tice (2008) observed that the terms *distance education* and *distance learning* have been used interchangeably in the literature.

In 1988, Perraton (as cited in Teaster & Blieszner, 1999) wrote, “the term *distance learning* has been applied to many instructional methods; however, its primary distinction is that the teacher and the learner are separate in space and possibly time” (p. 741). In 1995 Keegan stated that “distance education and training result from the technological separation of teacher and learner which frees the student from the necessity of traveling to a fixed place, at a fixed time, to meet a fixed person, in order to be trained” (p. 7). Imel (1998) reported, “Education in which teachers and learners are separated by time and distance has usually been referred to as *distance education*” (p. 1).

Greenberg (1998) stated that the term *distance education* “has varied in meaning over the past 25 years because of changes in technology used to deliver distance education to the learner” (p. 36). He went on to provide “a contemporary definition” as “a planned teaching/learning experience that uses a wide spectrum of technologies to reach learners at a distance and is designed to encourage learner interaction and certification of learning” (p. 36).

During the past 20 years the descriptors that identify methods of delivering education have expanded to include standard use of *online education*, *online learning*, and *online courses* for what was earlier called *distance education* or *distance learning*. These *online* terms were born out of the use of the Internet to deliver education, and they are related, therefore, to a definition of the Internet.

Online Education and Technology

According to Leiner et al. (2014) on October 24, 1995, the Federal Networking Council agreed that

The term “Internet” refers to the global information system that -- (i) is logically linked together by a globally unique address space based on the Internet Protocol (IP) or its subsequent extensions/follow-ons; (ii) is able to support communications using the Transmission Control Protocol/Internet Protocol (TCP/IP) suite or its subsequent extensions/follow-ons, and/or other IP-compatible protocols; and (iii) provides, uses or makes accessible, either publicly or privately, high level services layered on the communications and related infrastructure described herein. (“History of the Future,” para. 1)

Although distance education began in the corporate world in the 1980s when companies used computer-based programs to train new employees, the limitations of then current technology provided only narrow applications (Holmberg, 1986). However, when knowledge of and infrastructure for the Internet spread beyond university and government laboratories, it became available to commerce and education. Companies could and did train new employees who lived in remote locations, communicating with their employees online. As commercial entities realized the financial benefits of the indirect, online training process, their use of the Internet expanded rapidly to other aspects of their operations (See Imel, 1998; Leiner et al., 2014).

Meanwhile, in education CALCampus was founded in 1982 in Rhode Island as the first Computer Assisted Learning Center for adults. Integrating the World Wide Web into its mission, in 1994, that distance learning organization introduced the first entirely online curriculum. Following CALCampus’s lead, more and more colleges and universities began forming their own online education programs (Leiner et al., 2014). However, this early online education was not efficient; the Internet-accessible materials

were lessons and lectures consisting almost entirely of text. There were few images, and almost all of them were tiny and poor quality with students needing to print and mail their assignments to the professor (Bebawi, n.d.).

With increasing sophistication and affordability of technology came rapid growth of distance education at the college level. From the mid-1990s through the early 2000s, advances in technology (e.g., the Internet, personal computers, webcams, and internal and external microphones) enhanced the production, accessibility, and efficiency of online communication (Schlosser & Simonson, 2010). In this age not only text-based lessons, but images, videos, and virtual classrooms became available. For example, in the fall of 1995, 57% of institutions offering distance education used two-way video, and 52% used pre-recorded video. About one fourth of these institutions used two-way audio with one-way video (Greene & Meek, 1998).

While higher education institutions employed a variety of technologies, by 1997-1998 more institutions used video and Internet technologies than any other modes of delivery according to a survey conducted by the National Center for Education Statistics (Lewis, Snow, Farris, & Levin, 1999). Now, according to Smith (2014, p. 1), “Contrary to the popular image of online classes consisting largely of video from a camera planted at the back of the lecture hall, Harvard [exemplifying ‘prestigious’ universities] is increasingly using mini-documentaries, animation, and interactive software tools to offer a far richer product.”

Technology has also impacted the labeling and categorization of online education (Browne, 2010, para. 2). Browne described live online learning as real time in nature using technologies like video conferencing and online classrooms and providing students

with interaction with the instructor and fellow students. Browne also identified *asynchronous* online education which does not occur in real time and consists mostly of materials posted to the Internet where it is stored for students to access at their convenience. Likewise, Parsad, Lewis, and Tice (2008) had stated that *synchronous* Internet-based courses refer to simultaneous or “real-time” computer-based instruction, while *asynchronous* Internet-based technologies are used for courses that are not based on simultaneous computer-based instruction.

Other ways in which technology-based courses have been identified (e.g., Allen & Seaman, 2013; Parsad et al., 2008) included these five formats of online courses: 1) adult online education that teaches basic skills and fights illiteracy; 2) hybrid education that combines online and face-to-face instruction within individual courses; 3) online continuing non-degree education that advances specific skills; 4) online distance education that consists of online courses that in combination with face-to-face courses could be applied to a degree; and 5) higher education that consists only of online courses that, like their face-to-face counterparts, lead to associate’s, master’s, and doctoral degrees. Lokken (Instructional Technology Council, 2013) found growth in the use of courses identified as blended, hybrid, Web-assisted, Web-enhanced, and Web-facilitated.

Technology has enabled students to engage in coursework beyond the classroom walls, and many of them have completed their education without ever stepping into a face-to-face classroom (Allen & Seaman, 2011). Today’s students, having grown up with technological advantages, are very aware of how technology plays a major role in modern life (Martinez & Harper, 2008). The growing use of Web 2.0 and social networking is changing patterns of interaction and may impact instruction by helping students make

connections and by influencing their interactions, collaboration, and knowledge creation (Tarantino, McDonough, & Hua, 2013).

Online Higher Education

Online Education: Its Institutional Growth

Nearly every article and research report written on distance education or online learning in the 1990s and 2000s starts with a comment and statistics on the growth of non-face-to-face methods of delivering instruction. Most of the statements address the increases in the numbers and types of institutions offering online coursework; the numbers and types of courses offered; and the numbers, academic levels, and demographics of the students enrolled in distance or online education.

In 1995, the National Center for Education Statistics (NCES) conducted its first survey on distance education courses offered by higher education institutions (Greene & Meek, 1998). In declaring that “distance education is emerging as an increasingly important component of higher education” (p. 1), Greene and Meek reported the 1994-1995 data gathered by the NCES “to provide information about distance education on a national scale” (p. 1). In that study, distance education was defined as “education or training courses delivered to remote (off-campus) locations via audio, video, or computer technologies” (p. 1).

NCES sought to answer “How extensive are distance education course offerings?” Greene and Meek reported that during academic year 1994–95, an estimated 25,730 distance education courses with different catalog numbers were offered by higher education institutions. Of these courses, 45% were offered by public 4-year institutions, 39% by public 2-year institutions, and 16% by private 4-year institutions. Then, in Fall

1995 about half the institutions that offered distance education courses had offered 10 or fewer courses in academic year 1994–95, with 24% offering one to four courses, and 21% offering five to 10 courses (p. 1).

Greene and Meek (1998) went on to identify the number of students and which “audiences” were being served. They reported that of about 14.3 million students enrolled in higher education institutions in fall 1994, about 758,640 students were formally enrolled in distance education courses. Undergraduate and graduate students were seen as target audiences more than other types of students. Eighty-one percent of the institutions reported offering courses designed primarily for undergraduate students; 34%, for graduate students. Thirteen percent offered courses designed primarily for students in professional continuing education, and 6% or fewer offered courses designed primarily for each of the following: elementary/secondary students, adult basic education students, other continuing education students, and other types of students.

Of the representative sample of public and private two-year and four-year institutions surveyed in this 1995 NCES study, one third offered distance education courses, another quarter planned to offer such courses in the next 3 years, and 42% did not offer, and did not plan to offer, such courses in the next 3 years. A much greater percentage of public than of private institutions offered distance education courses: 58% of public 2-year and 62% of public 4-year institutions, compared with 2% of private 2-year and 12% of private 4-year institutions.

Comparing data from the 1994-1995 academic year with that of 1997-1998, the second NCES study of online education (Lewis et al., 1999) showed an increase from 33% to 44% of the nation’s 2-year and 4-year postsecondary institutions offering distance

education courses through 1,661,100 enrollments including 1,363,670 enrollments in college-level, credit-granting distance education courses. Comparing these 1997-98 figures to the 1994-95 NCES data indicated that the distance education enrollments and number of course offerings had approximately doubled since fall 1995.

In 2002, according to Ferguson & DeFelice (2010), more than 1,000 colleges and universities reported online learning to be a significant strategy for their long-term planning. Just one year later 49% of those colleges and universities had acted on this part of their strategic plans. By 2005, this number had increased to 56% of those universities using the online method of delivering their coursework (Allen & Seaman, 2007). Administrators of colleges and universities were recognizing that competitive marketing of their online offerings would be necessary if they were to gain and retain a substantial portion of the students enrolling in higher education (Austin, 2010).

By 2012, the “Survey of Online Learning” conducted by the Babson Survey Research Group revealed that the number of students taking at least one online course had surpassed 6.7 million (Allen & Seaman, 2013, p. 17). This was an increase of 572,000 students over the previous year and compared to only 1.6 million in 2002, when about 72% of colleges offered some form of online learning, and that number had steadily increased to nearly 87% in 2012 (Allen & Seaman, 2013). According to the Sloan Consortium (Allen & Seaman, 2007), whereas most types of institutions of higher education had shown substantial growth in online education, there were some clear leaders. Two-year institutions granting associate’s degrees had the highest growth rates and accounted for more than half of all online enrollments for the previous five years.

Further numerical details of the growth in online education from 1995 through 2007 can be traced in the NCES studies reported by Greene and Meek (1998); Lewis et al. (1999); Waits, Lewis, and Greene (2003) and Parsad et al. (2008). However, in more recent years direct comparisons of the statistics have become difficult to impossible because of changing definitions or lack of specific definitions. For example, the NCES changed its definition of distance education in its 2006–07 study.

First, the definition no longer included a criterion for instructional delivery to off-campus or remote locations because online courses could be accessed on campus at a convenient time and place (e.g., between classes and in a computer lab). Second, the definition included correspondence courses and distance education courses that were designated by institutions as hybrid/blended online courses. (Parsad et al., 2008, p. 1)

However, the data and data comparisons offered in this section are sufficient to support the observation by Smith (2014), who stated,

Online coursework is booming...Even prestigious schools like Harvard have tossed their hats into the online ring, according to a May 18 article in The Boston Globe. Quietly, Harvard has built what amounts to an in-house production company to create massive open online courses, or MOOCs, high-end classes that some prestigious universities are offering for free to anyone in the world, generally without formal academic credit...The digital trend is opening the doors of higher learning for a variety of students with different needs and lifestyles than face-to-face students. (“Online coursework is booming,” para. 1-3)

Quality of Online Higher Education

The expansion of online education throughout higher education during the past 10 to 15 years has been accompanied by changing perceptions and concerns about the quality of online education compared to face-to-face education among administrator, faculty, and student stakeholders in higher education (e.g., Allen & Seaman, 2011; Allen & Seaman, 2014a; Austin, 2010; Parker, Lenhart, & Moore, 2011). The valuing, or devaluing, of online education by institutional, decision-making leaders; teaching faculty;

and students themselves may impact how students view their needs, goals, and concerns as well as their satisfaction with, learning from, and success in completing their online education at community colleges. Therefore, the nature of the perceptions of those stakeholders is of interest here as a foundation with possible implications for understanding and explaining student perceptions.

Administrator perceptions. In 2003, 42.8% of chief academic officers reported that they considered the learning outcomes for online instruction to be inferior to those of face-to-face teaching (Instructional Technology Council, 2008). However, the valuing of the quality of online instruction has improved considerably over time with the proportion of academic leaders considering online to be inferior to face-to-face instruction dropping to about 33% by 2011 (Allen & Seaman, 2011). In 2013 there was a 12% increase in the number of administrators who believed online outcomes are inferior to those in face-to-face courses. However, this increase occurred among institutions that do not have online offerings (Allen & Seaman, 2014a).

By contrast with those negative perceptions, Swan (2003b) found that 57.2% of academic leaders surveyed rated online learning outcomes the same or higher than face-to-face learning outcomes. These positive perspectives had increased to 62% of surveyed academic leaders in 2006 (Tallent-Runnels et al., 2006).

In the Wickersham and McElhany (2010) study of the administrators at a single Texas institution, all of the institution's administrators considered online instruction to be a quality learning experience for students. However, some of these leaders indicated that quality for some online courses depended on the instructor, the design of the course,

and/or implementation of some method of continuous improvement to ensure standards of quality are being met.

By 2011, over two-thirds of academic leaders believed that online education is “just as good as or better” than face-to-face education (Allen & Seaman, 2011, p. 13). A year later, “over three-quarters of academic leaders believed online is just as good as or better than face-to-face courses relative to learning outcomes” (Allen & Seaman, 2013, p. 24). However, again according to Allen and Seaman (2014a), chief academic officer ratings of learning outcomes in online education as the same or superior to those in face-to-face education fell to 74.1% in 2013.

Using a criterion of educational value of online courses, Parker et al. (2011) reported that about half (51%) of the college presidents surveyed in their large national study perceive that online courses offer an equal value compared with courses taken in a classroom. In 2011, Allen and Seaman reported that according to chief academic officers throughout public and private higher education institutions, in seven surveys administered by the Babson Survey Research Group between 2002 and 2011, faculty acceptance of the “value and legitimacy of online education” varied between 27.6% (2002) and 33.5% (2007) with 32.0% agreeing in 2011 (p. 17). In summary, whether reported as a negative perception of “inferior to” or a positive stance of “equal or superior to,” more than half of the sampled administrators in higher education indicated favorable perspectives on the quality, value, or learning outcomes of online education compared to face-to-face education.

Faculty perceptions. Mixed positive and negative perspectives have also characterized the reactions of many faculty members to online education. In both the

Guidera (2004) and Wingard (2004) studies of the effectiveness of online instruction, faculty reported online education to be effective relative to student engagement and active learning (Wingard) and seven principles of effective undergraduate education (Guidera).

Seaman (2009a) reported the results of a survey of 10,700 faculty members from 69 colleges and universities across the country. The general findings included one that “faculty are not uniform in their opinions toward online learning. Faculty with experience developing or teaching online courses have a much more positive view towards online instruction than those without such experience. Faculty with no online experience remain relatively negative about online learning outcomes” (“Executive Summary,” para. 2). However, well over 80% of faculty with any experience teaching or developing an online course have recommended online courses to students.

In an extensive study comparing instructor and student perceptions of the effectiveness of online courses in community college settings, “course effectiveness was analyzed along the following composites: flexibility, user interface, navigation, getting started, technical assistance, course management, universal design, communications, online instructional design, and content” (DaCosta, Kinsell, Seok, & Tung, 2010, “Purpose,” para. 1). The descriptive results of this study “indicated that, overall, students and instructors had positive perceptions of online course effectiveness. Findings, generally speaking, are in line with past studies investigating the perceptions of instructors and students with regard to online courses.” (DaCosta, et al., 2010, “Conclusion,” para. 1)

Based on a 2013 “Inside Higher Education Survey of Faculty Attitudes on Technology,” Halfond (2013) reported that, regardless of rank, type of institution, and first-hand experience, 21% of all the faculty respondents agreed or strongly agreed that

“online courses can achieve student learning outcomes that are at least equivalent to those of in-person courses” [according to response levels ranging from] 17% of tenured faculty to 25% of part-time faculty and 59% of Technology Administrators.... All faculty groups, though, think more highly of their own institution’s capability for quality online courses, with agreement growing to 26%. And those who themselves have taught online are twice as positive as those who only teach in-person. In short, the closer professors are to the actual experience, the more favorable they are. (Halfond, 2013, “Lack of familiarity breeds contempt,” para. 1)

Research studies of faculty perceptions of the quality of online education are limited. The criteria by which “quality” is perceived are highly varied making it extremely difficult to reconcile and generalize from the existing research results.

Student Perceptions. According to DaCosta et al. (2010) overall findings from studies examining student perceptions of online course effectiveness have been positive. Whereas such early studies as O’Malley and McGraw (1999), Koohang and Durante (2003), Jurczyk, Benson, and Savery (2004) do report favorable student perceptions, these research reports do not provide a comparative review of student perceptions about online versus face-to-face education.

In a study of undergraduate, part-time, adult students enrolled in both face-to-face and online courses, Hannay and Newvine (2006) found that students “strongly” preferred the online courses to the face-to-face classroom. Over half of the students reported that they felt they learned more in the online environment than in the face-to-face classroom, that they were more likely to read for their online courses than for the face-to-face courses, that they spent more time on these classes, and that these classes were more

difficult yet of higher quality than face-to-face classes. Hannay and Newvine concluded that students strongly prefer distance education because it allows them to balance their other commitments more easily while not sacrificing a quality education for the convenience of utilizing distance learning.

Dobbs, Waid, and del Carmen (2009) studied student perceptions of online courses comparing the questionnaire data from 180 surveys completed by undergraduate students enrolled in face-to-face courses in criminology and criminal justice (CRCJ) with that of 100 students enrolled in an online CRCJ degree program at the same university. Using items with reversed agreement/disagreement scales on different versions, these investigators found that both those students who had taken online courses and those who had not, generally agreed that face-to-face courses are easier than online courses and disagreed that online course are easier than face-to-face courses. While both groups tended to view face-to-face courses as easier, they also agreed that students learn more in face-to-face courses while disagreeing that students learn more online. Dobbs et al. (2009) suggested “while one might suppose that students would think that they would learn less in courses they identify to be easier, perhaps the difference lies in their outlook regarding the effort online courses take” (p. 21). Students in both groups generally agreed that it takes more effort to complete an online course. This increased effort is possibly what students are equating with lack of ease.

Regarding the overall quality of online courses, Dobbs et al. (2009) also found that students

who had taken an online course disagreed that the quality of online courses was lower than face-to-face courses, while those who had not taken an online course agreed with this item. Further, those who had taken

five or more online courses more strongly disagreed with this item than did those who had taken one or two to four online courses. Similarly, those who had taken five or more courses disagreed that students learn more in face-to-face courses, while those with one or two to four online courses agreed that this was the case. (p. 21)

In their study of the value of “online learning,” Parker et al. (2011) found that approximately one-in-four college graduates (23%) report that they have taken a class online. However, the proportion doubles to 46% among those who have graduated in the past ten years. Relative to perceptions of the value of online education by these former students, Parker et al. found that among all adults who have taken a class online, 39% say the format’s educational value is equal to that of a course taken in a classroom.

In 2011, Allen and Seaman suggested that while the level of student satisfaction is clearly not a measure of quality, it is one dimension that academic leaders believe is equivalent for both online and face-to-face courses and has been since their reports first examined this aspect in 2004. The most recent results (2011) confirm this, with nearly two-thirds of all academic leaders surveyed reporting that they believe that the level of student satisfaction is “about the same” for both online and face-to-face courses. However, “a small number believes that satisfaction is higher with online courses, while a slightly larger number say it is higher for face-to-face courses” (p. 14).

Evaluation of Online Higher Education

As online education burgeoned throughout higher education during the past two decades, the need for assessment and evaluation of various aspects of online education has been recognized by faculty and administrators. The following sample of reports typifies research-based support for that need.

Community College Professor Murphey (2006) stated that institutions that establish a distance education vision in their strategic plan are the most successful. Institutional commitment to self-evaluation that effectively assesses an institution's current level of online student support services is critical. He warned that institutions need to become aware, through self-evaluation, of their strengths, weaknesses, opportunities for improvement, and threats from diminished services because a lack of commitment and evaluation is detrimental to the quality of distance education programs.

Fike and Fike (2008), stated that community colleges tend to enroll more underprepared students than do universities because of open-door policies at community colleges versus selective admission standards at most universities. With an interest in student retention, professors Fike and Fike analyzed predictors of fall-to-spring and fall-to-fall first-year student retention in community colleges. These researchers concluded that, for the 9,200 students they studied, research-based best practices in developmental education, mandatory assessment and placement, systematic program evaluation, and emphasis on professional faculty development should be implemented.

President of Technology and Instructional Services, Austin (2010) stated that at her central Michigan community college regular assessment and related improvements remain a high priority. Austin identified an issue that centered on ensuring student success through developing a system for online student evaluation of full-time online faculty members. A system was being developed to conduct student evaluations every semester for adjunct faculty who teach online courses, but some full-time faculty members did not support the same system being applied in their online classes because the evaluation practice would differ from their on-site student evaluations. Regardless of

the politics of the individual situation, the reality is that evaluation was recognized as a need.

Using in-depth interviews of administrators and faculty at a Texas institution “experiencing tremendous growth in online course design and offerings,” Wickersham and McElhany (2010, p. 2) identified evaluation and assessment as essential elements needed for quality online education. However, when administrators were asked if they were aware of institutional quality standards by which their online courses were evaluated, the majority of administrators said they were not aware of any. A few department heads reported that the quality standards they were using were those provided by the accrediting bodies for their disciplines. The faculty in this study identified assessment and evaluation as faculty development needs. Based on their findings, professors Wickersham and McElhany concluded that there was a need for implementing best practices for assessment of learning and evaluation of programs in online education at this institution.

“Chronic problems” and “pressing needs” in online education were identified in 2013 by Lokken, Associate Dean at a Truckee, California community college. Lokken identified online course quality, course evaluation, and accreditation-based assessment as three of those problems and needs.

While faculty and administrators were identifying the research-based need for evaluation of online education, other investigators in higher education were developing and implementing methodologies for responding to that identified need. A number of studies are briefly reviewed below to demonstrate the researcher response to the need for program and course evaluation. These particular studies were selected for review here

because they all pursued evaluation using perception data, the type of information of key interest in the present dissertation research.

For example, an early response was that of O'Malley and McGraw (1999). These investigators developed a 128-item, 7-point Likert-type survey questionnaire which they administered to students in a variety of business courses at a single university. The purpose of their study was to investigate student perceptions of the effectiveness of distance and online learning to determine which dimensions of online learning provided advantages relative to traditional methodologies.

Seeking to evaluate a hybrid "distance learning" program, Koohang and Durante (2003) created a 10-item, Likert-type instrument based on instructional objectives. These investigators collected student perceptions of web-based distance learning activities and the assignment portion of the hybrid program.

Three studies in 2004 advanced the evaluation of online higher education. Guidera (2004) investigated the perceptions of faculty at both public and nonprofit private institutions in the United States—including 2-year institutions, 4-year colleges, and universities—on the effectiveness of online instruction in terms of seven principles of effective undergraduate education. Jurczyk, Benson, and Savery (2004) used a standards-based approach to measure student perceptions in web-based courses in an effort to develop a process for evaluating perceptions. Wingard (2004) employed a perceptions-based methodology to evaluate the effect of faculty preparation of learning resources on the Web. His dependent variables were student engagement and active learning.

Recognizing the need for the evaluation of online instruction, Seok conducted a series of four studies from 2006-2008 (see DaCosta et al., 2010) in which she identified

and validated 99 indicators for transformation into item scales and subscales on instruments to be used to evaluate processes and productivity of online instruction. In the DaCosta et al. (2010) study instructor and student perceptions of the effectiveness of online courses were compared in community college settings. “Course effectiveness was analyzed along the following composites: flexibility, user interface, navigation, getting started, technical assistance, course management, universal design, communications, online instructional design, and content” (“Purpose,” para. 1). Seok’s series of studies represents a comprehensive response to evaluating online education using perception data.

Summary

As online higher education programs, courses, and enrollments have grown rapidly over the past two decades, front-line stakeholders have questioned the quality and the evaluation of the quality of their online education ventures. This section has provided reviews of literature that address online education relative to 1) its growth, 2) its quality, and 3) the need for its evaluation in higher education. These three topics have been developed using, primarily, the perceptions of institutional administrators, teaching faculty, and online students as reported in that body of literature. This section serves as a general foundation on which to launch a consideration of online education in one specific type of institution of higher education, the community college.

Community Colleges and Online Education

This section of Chapter II provides an overview of community colleges and online education at community colleges. The purpose of its inclusion is to provide background, context, and points of reference for identifying and discussing student perceptions of

online education at community colleges, the primary focus of this study. This section addresses seven main topics: 1) a brief history of community colleges; 2) missions of community colleges 3) rationale for institutions to offer online higher education; 4) rationale for students to enroll in online higher education; 5) challenges and changes instilled by online higher education; 6) online higher education programs and services, and 7) technology in online higher education.

Community Colleges: A Brief History

Although the roots of the modern community college were grounded in general liberal arts studies offered by two-year junior colleges first founded in 1901, the evolution of this responsive and resilient institution was characterized by a comprehensive mission of addressing the socio-economic and educational needs of the residents in its locale (American Association of Community Colleges [AACC], 2014b; Cohen & Brawer, 2003). Becoming a national network of 457 public community colleges in the 1960s (AACC, 2014b), the *Community College* name was derived from the fact that these institutions were intended primarily to attract and accept students from their local communities (Burr, 2006).

The AACC (2014d) suggested that one impetus for the development of community colleges in the early 20th century was the challenge to the U.S. posed by global economic competition.

National and local leaders realized that a more skilled workforce was key to the country's continued economic strength—a need that called for a dramatic increase in college attendance—yet three-quarters of high school graduates were choosing not to further their education, in part because they were reluctant to leave home for a distant college. (AACC, 2014d, para. 1)

The missions of community colleges began then to include any or all of five areas of instruction (Deegan & Tillery, 1985): 1) career education and preparation of students for an occupation, 2) compensatory education and enhancement through remedial studies, 3) community education and reaching out with extended services, 4) collegiate functions and new directions for the liberal arts, and 5) general education and the development of an integrated curriculum. “The typical early community college was small, rarely enrolling more than 150 students. It nevertheless offered a program of solid academics as well as a variety of student activities” (AACC, 2014d). Community colleges also appeared in rural America in the early 1960s as one answer to higher education needs of that population (Burr, 2006). Historically,

A distinctive feature of the institutions was their accessibility to women, attributable to the leading role the colleges played in preparing grammar school teachers. In such states as Missouri, which did not yet require K-8 teachers to have a bachelor’s degree, it was common for more than 60 percent of community college students to be women, virtually all of them preparing to be teachers (AACC, 2014d, para. 4).

Community colleges have continued throughout their history to address the societal need for a well-trained labor work force (Baker, 1994; Radford, 2011). Even in the presence of great technological advancement in recent decades, labor jobs are still very much in demand. Career and technical education has long been viewed as a fast track to a practical career, but it is widely recognized and understood today that students require training beyond high school to prepare for entry into the workforce (Rodriguez, Hughes, & Belfield, 2012). One indication of the response of community colleges to the need for an expanded workforce has been the increase of the number of career and technical education instructors by 21,400 from 2011 to 2012 (Bureau of Labor Statistics, 2014).

Throughout their history, community colleges (and their progenitors—junior colleges) responded to national crises. For example, as described by the AACC (2014b), during the Depression of the 1930s community colleges began offering job-training programs as a way of easing widespread unemployment. After World War II, the conversion of military industries to producers of consumer goods required trained employees to fill the new, skilled jobs. The AACC (2014b) report continued by making the following two points. Responding to this workforce need, along with the GI Bill, led community colleges to transformational change in the higher education options they developed. Then in 1948, the Truman Commission recommended the creation of a network of public, community-based colleges to serve local needs.

Today, the 1,166 institutions in the United States (AACC, 2014b), many with multiple campuses, are facing internal challenges as well as continuing external pressures to provide an “educational marketplace” of opportunities to meet the demands of the diverse populations that people our rural, suburban, and urban communities. Burr (2006) suggested that in the near future, the very strength of community colleges—their multi-faceted mission—will also be their greatest weakness—a mission too comprehensive to be effective in all things. It will be incumbent on community college faculty and administration to evaluate the utility of their academics and services to local communities, states, and society as a whole. They will need to follow through making hard choices about how to expend their limited resources.

Community College Missions

In 2005 Rosenfeld stated that “Community colleges have become many things to many people over their century-long transformation from junior colleges into

comprehensive learning environments” (p. 1). He went on to discuss community college “efforts in delivering education and training, supporting industrial development, and serving all—including the poorest, newest, and underachieving segments of the population” (p. 1) as a success story based on the ability and willingness of these institutions “to take on missions and serve people that other sectors of education could not or would not” (p. 1).

In telling the “Community College Story,” Vaughn (2006) described the broad mission of community colleges as the provision of access to postsecondary education programs and services that lead to stronger, more vital communities (“The Mission,” para. 1). In excerpting from Vaughn’s story, the AACC (2014d) reported that

In simplest terms, the mission of the community college is to provide education for individuals, many of whom are adults, in its service region. Most community college missions have basic commitments to: serve all segments of society through an open-access admissions policy that offers equal and fair treatment to all students, [provide] a comprehensive educational program, serve its community as a community-based institution of higher education, [and provide] teaching [and] lifelong learning. (Link to “Mission”)

Whereas the commitment of community colleges, in general, is essentially the same, each community college has its own mission statement, and those statements portray highly varied views of these institutions’ intentions. In his address to the AACC 2013 annual convention, Seymour, a visiting professor at California State University-Channel Islands, reported that “Harper College in Illinois has the world’s most succinct mission statement. It is just one word—‘Finish’—while another institution’s mission statement is over 400 words” (Ashford, 2013). The single-word mission statement was most certainly consistent with Ashford’s premise, “mission, vision and values: keep them short and sweet” (“A crucial exercise,” para. 4).

In his address, Seymour also said that he found it odd that “remedial” and “developmental” are rarely found in mission statements, although they are among the chief purposes of community colleges. Conversely, “the words most often used are ‘vocational,’ ‘technical,’ ‘career,’ and ‘workforce’” (Ashford, 2013, “A crucial exercise,” para. 5).

“Although having effective mission, vision and values statements are [*sic*] crucial for a community college to spell out its noble ambitions” (Ashford, para. 1), according to Seymour (2013) “community colleges must re-imagine their purposes and practices in order to meet the demands of the future” (“A blueprint for the 21st century,” para. 4).

Institutional Rationale

From the perspective of a vice president of technology and institutional services, Austin (2010) identified “factors” that drove the development of a “quality, robust online program” at a three-campus central Michigan community college in the 1990s. Those factors included 1) the provision of post-secondary education to unserved and under-served potential students and 2) the need for a viable method to increase enrollments thereby providing a long-term revenue stream in the presence of an ongoing out-migration and decrease in the state’s population and declining birth rates.

Student needs. As has been true historically in education, meeting students’ needs and demands is still a key to success in achieving institutional strategic goals and plans (Ferguson & DeFelice, 2010). Numerous sources have suggested that post-secondary institutions have added online courses and programs as an alternative to classroom-based education in response to students’ perspectives (Austin, 2010; Mitchell, 2009; Noel-Levitz, 2011).

Lei and Gupta (2010) suggested that a rationale of many higher education institutions for adopting out-of-the-classroom learning approaches had been accommodation of specific student groups, especially those working full-time, those with complex schedules, and those with special needs. Leist and Travis (2010) indicated that like their urban and suburban counterparts, many rural community colleges were incorporating online courses into their certificate and degree programs to “improve their educational reach” (p. 17). In their ruralism, these community colleges were seeking to serve individuals dispersed over large geographical expanses often spanning multiple counties and thousands of square miles.

In an in-depth case study of online education and organizational culture of a large, suburban community college, Mitchell (2009) contended that an “overarching belief” among community college administrators was that online education was a necessary way for their institutions to reach out to expand and support their student base, to provide community outreach, and to expand or enhance the college mission. At her institution, which was serving about 60,000 students in 2009 and that was offering all of its courses and programs in an online format, an administrator interviewee concurred. “We always did try to provide alternate delivery systems, personalized options, community-based learning.... It’s a community college, so we try to reach the community in any way that we can” (Mitchell, 2009, “Structural Changes Regarding Online Changes,” para. 7). Mitchell concluded that “the challenge to community colleges in the 21st century is not to decide why they should have an online distance learning program, but to decide how to design and implement such a program” (“Vision and Plans,” para. 6).

Fiscal Considerations. The impetus for many institutions to implement online higher education was fiscal. The budgets of nearly all institutions of higher education decreased over the past 15 years. Community colleges, like other institutions, have been experiencing an era of reduced funding (Mallory, 2009; Oliff, Palacios, Johnson, & Leachman, 2013). As a share of total revenues, state and local appropriations have fallen every year over the past decade, dropping from 70.7% in 2000 to 57.1% in 2011 (Chakrabarti, Mabutas, & Zafar, 2012). In the past five years, state cuts to higher education funding have been severe and almost universal (Oliff et al., 2013).

According to Chakrabarti et al. (2012), state and local support for public higher education per student (excluding loans) fell by 21%, from \$8,257 to \$6,532 (numbers adjusted for inflation and reported in 2011 dollars) between 2000 and 2010. However, funding patterns differed across the states. For example, from 2009 to 2010 the percentage change in public funding per student decreased 11.6% in California and 7.5% in New York but increased in North Dakota by 16.7% and by 6.6% in Texas (Chakrabarti et al., 2012).

Faced with dwindling state funding in most states, public institutions of higher education have been forced to find ways to shift their costs or raise revenue on their own (Chakrabarti et al., 2012). “The situation is not as frantic or dire as it was several years ago, but since tuition does not pay for all of the operation costs at a community college, the decrease in state funding has meant that colleges continue to struggle to address chronic problems” (Mullins, 2013, para. 3). The impact of decreased external funding on institutional budgets continues to have colleges and universities cutting spending, raising tuition, promoting enrollment increases, and seeking internal strategies to cover the gap

between costs and funding (Hiltonsmith & Draut, 2014; Mallory, 2009; Oliff et al., 2013.) One of those strategies has been the offering of online education, deemed a viable revenue source by decision makers in higher education (Austin, 2010).

Student Rationale

In the late 1990s, reports indicated that students were seeking the opportunities online education offered via “anytime, anywhere” accessibility, flexibility that enabled students to work at their own pace, and the time afforded students to reflect on materials and their replies before responding (Berge, 1997; Jiang, 1998; Matthews, 1999). Later, three student needs frequently identified were accessibility to students at locations often far from the source of the instruction, flexibility in program structure to accommodate students’ work schedules, and cost effectiveness (Leonard & Guha, 2001; Richardson & Swan, 2003; Vaughn, 2007).

In the survey for the *2011 National Online Learners’ Priorities Report* (Noel-Levitz, 2011) students were asked why they had chosen online education. In the order of student ratings of importance, their reasons included: convenience, flexible pacing for completing a program, student work schedule, program requirements, reputation of institution, cost, financial assistance available, ability to transfer credits, future employment opportunities, distance from campus, and recommendations from an employer.

According to a 2012 collaborative study by the Babson Survey Research Group and the College Board (Mlot, 2012), the following percentages of their respondents identified these benefits from online learning: 68% could better juggle family and work responsibilities with school, 64% were better able to do school work anywhere at any

time, 37% valued the availability of accelerated courses, 30% identified lower cost overall, 18% were able to complete their course of study quicker, 12% appreciated access to a larger variety of programs, 9% identified more effective learning methods, and 2% provided other reasons.

According to the findings of the Babson and Quahog Research Groups (Allen & Seaman, 2013), the following primary reasons for taking an online course were offered by the percentage of the respondents indicated: convenience—57.3, same class on campus was full—7.7%, good past experience—6.2%, travel prevented on-campus attendance—4.4%, easier than on-campus class—3.6%, curiosity—3.2%, extra online course helped student graduate sooner—2.2%, self-paced classes—2.2%, had the course recommended by someone—1.4%, and other responses—12%.

The Aslanian and Clinefelter (2013) data from their national sample of 1500 online students yielded the following self-reported student reasons, identified here with associated percentages of respondents. Of the participants in this study, 92% identified a career-related rationale. Other reasons included: to balance work, family, and social responsibilities—68%; to study anytime and anywhere--64%; to access—accelerated, fast-track courses—37%; to lower costs—30%; to achieve faster program completion—18%; to access a greater variety of programs—12%; to access certain credentials—9%; and to experience a more effective learning method—9%.

Although participants in the enterprise of higher education at community colleges have identified numerous reasons for institutionalizing online education, they, along with researchers, have also described the challenges involved in developing and implementing online education programs at community colleges. The next section of this study

discusses those challenges as well as both planned and unplanned institutional changes associated with online education.

Challenges and Changes

Both the initial development and the subsequent implementation of a quality online education program at a community college require transformational change (Austin, 2010; Mitchell, 2009). Such changes include physical, organizational, and programmatic modifications with an inevitable shift of resources (Levy, 2003) and creative use of assets (Torres & Viterito, 2008). During the initiation of online education programs in the 1990s and early 2000s, institutional personnel discovered numerous internal and external challenges (Austin, 2010). Resolving these issues resulted in substantial structural and procedural changes (Austin, 2010; Leist & Travis, 2010; Levy, 2003; Mitchell, 2009) as well as culture shifts (Mitchell, 2009; Torres & Viterito, 2008) involving finances, personnel, pedagogy, and students. Two issues that arose across all of these challenges were program quality and evaluation/assessment.

Finances. Implementation and maintenance of online education has its start-up and ongoing costs. The online mode of delivering instruction brings with it, at least, expenses associated with providing 1) new and/or revised curriculum; 2) faculty and staff training and support; 3) student training and support services; and 4) technology infrastructure and staff (Bartley & Golek, 2004; Cedja, 2007; Levy, 2003; Lokken, 2014; WICHE, 2010, 2014). However, as Lokken (2013) pointed out, there are also costs associated with the chronic problems of student retention, course quality, ADA compliance, lack of student preparedness, and accreditation-based assessment.

In proposing strategies to address the challenges associated with the costs of online education in an environment of financial stringency, Levy (2003) concluded that online education can “undoubtedly” be a costly venture for any institution. Addressing those costs requires “appropriate” planning if that college is to use its limited resources effectively, efficiently, and wisely.

To assist in the determination of a cost-to-benefit ratio of online education, Bartley and Golek (2004) developed a matrix with which the costs of online education and training could be tabulated and/or compared with the costs of the traditional education. These researchers selected analysis, design/development, implementation, evaluation, and grand total as variables for which to calculate both one-time and per session costs of either or both online and face-to-face “training” (p. 173). Bartley and Golek concluded that their model would be useful to institutions needing to demonstrate financial justification for the conversion to online education programs.

Another strategy for addressing these challenges has been the resource sharing afforded by organizations like WICHE. This consortium has “helped institutions conserve precious fiscal resources” (WICHE, 2010, p. 7) with such activities as: 1) brokering comprehensive property insurance; 2) contracting for copying, printing, and document management services; 3) developing, evaluating, and disseminating materials and processes related to Web accessibility for use by institutions and accrediting bodies; and 4) developing and testing a Web-based tool allowing institutions to benchmark themselves as they create an accessible Web presence and chart their progress from year to year.

Regardless of the funding inadequacies for online education in the past and at present, looking forward, academic leaders do not seem to perceive that limited funding will be as pervasive in its effects. Allen and Seaman (2014a) reported that 60% of the academic leaders responding in a large national Babson Research Group study indicated that it is “Likely” or “Very Likely” that in the next five years, online courses will be considerably less expensive than face-to-face courses. Further, these institutional representatives were asked about the likelihood of continued growth in online enrollments (at the time of the survey one-third of all higher education students were taking at least one online course). These leaders were asked how likely it would be that this fraction would grow to become a majority of students over the next five years.

Nearly two-thirds responded that this was “Very Likely,” with an additional one-quarter calling it “Likely.” Only 1% said that it was “Not at all likely” that a majority of students would be taking at least one online course in the next five years. (p. 20)

Personnel-related challenges and changes. A shortage of faculty and a lack of both faculty development and instructional technology staff with online education expertise have been challenges (Austin, 2010; Instructional Technology Council [ITC], 2007; Leist & Travis, 2010; Levy 2003; Mitchell, 2009). In some rural and small community colleges where a faculty member often functions as the only instructor for a given discipline (Leist & Travis, 2010), the workload involved in designing and then implementing a program can be overwhelming. A lack of technology support staff, essential to the development and delivery of online courses, has also characterized most small and rural community college programs (Austin, 2010; Leist & Travis, 2010). The

development of quality online courses requires experienced instructional designers and greater assistance with video and multimedia components (Austin, 2010; Mitchell, 2009).

Issues of workload, training, and credentials of online instructors as well as the need to regularly update their skills have been debated, audited, and negotiated in efforts to implement changes and, thereby, provide quality online education at community colleges (Austin, 2010; ITC, 2007; Leist & Travis, 2010; Levy 2003; Mitchell, 2009). Since the availability of funds to finance significant changes is a common denominator among these issues, the literature offers no quick fixes. Instead, restructuring of academic and service units (Levy, 2003), realignment of responsibilities (Leist & Travis, 2010), and elimination of rare occurrences of duplication and low priority services (Murphey, 2006) have been implemented in various combinations to effect change. Relative to online faculty credentials and qualifications, Mitchell (2009) emphasized the importance of establishing selection criteria appropriate for online instructors. “It can’t just be somebody who wants to spend their time at home teaching in their jammies. It’s got to be somebody who understands the online process” (“Mentoring,” para. 2).

Another personnel issue has been stakeholder acceptance of online delivery of education (Austin, 2010; ITC, 2009; Mitchell, 2009). According to Austin, initial professional “consternation” about program implementation occurred among both administrators and faculty. Austin described faculty resistance to providing additional information that students needed when considering an online course or program. She found that some academic advisors were suspicious of the online format and told students, particularly first-year students, to “steer clear of online courses.” Even at a community college with a well-established, highly successful online program, Mitchell’s

(2009) case study showed that “although it is acknowledged that the majority of the college is in favor of online education, some still fear and distrust this type of education ” (“Challenges of Integrating Online Education”, para. 1). In the Seaman (2009) study of 10,700 faculty members from 69 colleges and universities across the country, the perceptions of the faculty revealed that significant challenges must be resolved before online learning will be universally accepted across the academy. Teaching in the online environment is dramatically different from teaching in a face-to-face setting. Getting faculty members to change their methods to address those differences has been a prevalent challenge at community colleges (Austin, 2010; ITC, 2007; Mitchell, 2009) ranking fourth among the greatest challenges for online faculty (ITC, 2007). A closely related challenge for administrators has been helping faculty accept the professional development necessary to support pedagogical change (Austin, 2010; Mitchell, 2009).

Yet another challenge at community colleges has been the additional investment of time that online education demands of already overextended faculty, part-time instructors, and adjunct faculty (Allen & Seaman, 2013; Lei & Gupta, 2010; Mitchell, 2009; Sampson et al., 2010). “Driving faculty concerns is the pervasive belief that teaching or developing an online course requires more time and effort than for a comparable face-to-face offering. Instructors rate this issue as the most important barrier to teaching and developing online programs” (Seaman, 2009, p. 3). Of special concern has been the need for time-consuming, performance-based assessment administered by part-time and adjunct faculty members with limited teaching and assessment experience and skills (Lei and Gupta, 2010).

Keys to addressing these personnel issues, including changing faculty and staff opinions about online education, have been professional development, staff training and support, and collaborative planning and problem solving (Austin, 2010; Leist & Travis, 2010; Levy 2003; Mitchell, 2009). Instructors have needed training and support, including mentoring and shadowing (Mitchell, 2009), in order “to be willing to adopt this new teaching paradigm” (Levy, 2003, “Staff Training and Support,” para. 1) and to gain insights of how their course(s) would be implemented in the new environment. The distance education staff at one community college (Austin, 2010) realized that more education was needed concerning the online format. So, they began assisting with registration and started delivering information for students and student services personnel in an online orientation course.

As the understanding of online services and procedures grew, resistance lessened, and better-informed registration and advising processes were developed (Austin, 2010). Further, the belief that all personnel involved in online education need to regularly update their knowledge and skills in order to provide a rich educational experience for students fostered ongoing conversations and planning among various college units (Austin, 2010; Mitchell, 2009).

In reporting the successful transformation into online education by the institution in her case study, Mitchell (2009) described administrator and faculty collaboration that created the initial policies and procedures regarding online education. Further, both groups continued to have input into how online education functioned. Mitchell’s study showed that this type and level of participation fostered buy-in from employees and, as described earlier by Levy (2003), such involvement afforded insight into how online

education supported institutional mission, vision, and core values. Mitchell concluded that for institutionalization of quality online education to occur, faculty members, staff members, and administrators involved in online education must be part of the process of collaboratively establishing guidelines and procedures.

Likewise, Austin (2010) described the successful collaboration of her faculty and distance education staff as they researched best practices and subsequently incorporated newly-identified strategies into online classes. The collaborators discovered that these best practices would also prove to be useful for on-site courses.

Pedagogy-related challenges and changes. Existing as both a personnel- and a pedagogy-related challenge, there has been strong initial resistance to and on-going questioning of necessary changes to everyday practices that an online education program requires (Austin, 2010; Mitchell, 2009; Seaman, 2009). Transitioning from classroom teaching to online instruction has challenged early-career instructors to abandon their conceptions of teaching and learning founded on their personal academic experiences. Meanwhile experienced, later-career faculty members have had to buy into retooling to meet the different requirements of online education (Gikandi, Morrow, & Davis, 2011; Lei & Gupta, 2010; Seaman 2009).

Among the especially taxing requirements are the need for greater structure and effective communication in online courses in order to promote appropriate levels of control and quality (Lei & Gupta, 2010; Mitchell, 2009). Clarity in the written communication and transmittal of course documents, course content, assignments, and assessments is critical. The absence of face-to-face student contact with its nonverbal visual cues and the immediacy and economy of verbal instructor-student clarifying

feedback exists as a very high hurdle. In online delivery it is more difficult to achieve 1) student understanding of basic course management information, 2) group construction of meaning, and 3) higher-order learning (Lei & Gupta, 2010).

Student-related challenges and changes. Four current issues have been historically challenging in online education: 1) online student support services; 2) student retention; 3) assessment of student preparedness, participation, engagement, and learning; and 4) academic dishonesty.

Online Student Support Services. Online student support services have drawn the critical attention of stakeholders both internal and external to the institutions that offer online programs (Austin, 2010; Hatchey, Wladis, & Conway, 2014; Levy, 2003; Mullins, 2013; Murphey, 2006; Torres & Viterito, 2008). According to Levy, in 2003 many community colleges were in a student support service crisis because of a lack of planning the services and supporting them with adequate resources. Success would require consideration of access, equity, and continued support (Austin, 2010).

Researchers have found that both rural (Austin, 2010; Murphey, 2006; Torres & Viterito, 2008) and urban (Levy, 2003; Mitchell, 2009) students need an array of services if they are going to succeed in an online environment. If that need is going to be met, administrative support based on 1) an understanding of the requirements of quality online education and 2) a willingness to advocate for online student support services throughout institutional budgetary processes is imperative (Mitchell, 2009; Murphey, 2006; Torres & Viterito, 2008).

Murphey (2006) and others (Austin, 2010; Levy, 2003; Mitchell, 2009) identified institutional commitment, administrative support, a distance education committee,

technical support, and the online availability of all student services as key strategies for addressing the challenges associated with providing adequate student services for online students. In their articles and reports, these researchers, administrators, and faculty members identified the types of services needed as admissions (including online registration), orientation (including traditional and online), financial aid, counseling, academic advising (including student readiness for online learning), special services, testing, bookstore services, library services, student activities, health assessment, tutoring, mentoring, and student technical support.

In 2007 “adequate student services for distance education students” was identified as the second greatest challenge facing community colleges (ITC, 2007, “Chart 1”). Examples of student training and support services (also identified in the literature as student enrollment, academic, and technology services) were listed by the percentage of community colleges that indicated in a 2007 survey that they offered the service (ITC, 2007, “Chart 2”).

Torres and Viterito (2008) reported on the successful strategies employed at eight community and tribal colleges in four persistently poor rural regions of the county. In case studies of these institutions, Torres and Viterito found (as did Hatchey, Wladis, & Conway, 2014) that as a general approach, colleges enhanced student success by disaggregating and analyzing student enrollment and assessment data to identify specific student needs. Major data-based changes included creating infrastructure to support student services and improve student skills. Infrastructure changes included creating or improving Internet connectivity, increasing off-campus, reservation and rural distance education classrooms, and wiring of campus and off-campus sites for interactive

television. Specific strategies implemented to improve student basic skills included 1) the development of campus centers of excellence to provide tutorial services for distance, online, and on-campus courses including developmental education courses; 2) increasing the number of students with graduate equivalency diplomas enrolled in the college programs; and 3) changing personnel to promote an enhanced, student-focused and student-success oriented climate (Torres & Viterito, 2008).

In 2007, the ITC reported that regional accrediting agencies had begun requiring colleges to offer the same student services and support to their distance education and traditional campus-based students. At that time, with rapidly growing numbers of online students, community college administrators recognized the need to introduce or expand existing student services and support to both online and traditional students (Austin, 2010, Levy, 2003; Mitchell, 2009). However, “in 2011, providing adequate support services for distance education students emerged as the number one challenge and retains this distinction in 2012. This may be because budget cuts have forced many campuses to reduce student services staff” (Mullins, 2013, “Administrative Questions,” para. 1).

In fact, ITC (2013) data for community colleges showed that the availability of online student services had declined over the past several years. This trend was attributed to the budget and staff reductions that many community colleges experienced as a result of the 2008 recession. By 2012 college administrators were hoping to re-establish these services as a priority as budgets and staffing were returning to pre-recession levels, “especially since accreditors increasingly expect online student services to be equivalent or superior to the college’s face-to-face, on-campus offerings” (ITC, 2013, “Observations and Trends,” bullet 7).

Student retention. Student retention has been an ongoing concern (Austin, 2010; Berge & Huang, 2004; Horn & Nevill, 2006; ITC, 2013, 2014; Lokken, 2013, 2014; Mitchell, 2009). In spite of efforts over time to provide student support services, retention (also discussed from the perspectives of *persistence*, *completion*, and *dropping out*) of distance and online education students has been a historical challenge and concern of educators (Austin, 2010; Berge & Huang, 2004; Horn & Nevill, 2006; ITC, 2013, 2014; Mitchell, 2009). Berge and Huang estimated in 2004 that the percentage of students who drop out of “brick and mortar higher education” has held constant at 40-45% for the past 100 years with a 10-20% higher rate for distance education students. Citing student persistence as a long-term concern to educators and policymakers, Horn and Neville (2006) compared completion rates for a cohort of first-time freshmen who enrolled in community colleges in 1995–96 with a cohort who enrolled in four-year colleges and universities. Of the community college students, 48% had either completed a credential (36%) or transferred to a four-year institution (12%) six years after first enrolling. In the comparison group of four-year college students, 63% had completed a bachelor’s degree, and another 18% were still enrolled or had completed an associate’s degree or certificate.

The rates of completion had not improved a decade later. Juskiewicz (2014) reported national community college data for a 2007 cohorts of students. Those whose enrollment was exclusively full-time had the highest completion rate at their starting institutions—42.9% using a six-year timeframe. The rate of completion for exclusively part-time students was 19.9%, with 17.7% completing at their first institution. The completion rate for mixed enrollment students was 36.5%, with 22% completing at their first institution (Figure 1, p. 5).

Allen and Seaman (2014a) reported that there is growing concern among academic leaders about the issue of student retention. In 2004, 27% of these administrators agreed that retaining students was a greater problem for online courses than for face-to-face courses. That statistic rose to 28% in 2009 and 41% in 2013.

Berge and Huang (2004) developed a model of student retention that takes into account personal, circumstantial, and institutional factors, as well as the interconnectedness of these factors. The authors suggested that their model of sustainable student retention could provide useful guidance for institutional and, to some extent, student personal decision making. Further, these developers described their model as customizable for any delivery mode—online, blended, or in-person—at any institution of higher education. Even with the existence of the Berge and Huang model and earlier models that they reviewed, literature reporting data-based studies of effective interventions for increasing retention is scarce.

Based on an examination of data-based literature, Willging and Johnson (2009) concluded that the reasons given by online students for dropping out of a program were not very different from those typically given by undergraduate dropouts from traditional face-to-face programs. However, three reasons were unique to online learning: technology issues, the lack of human interaction, and communication problems. Willging and Johnson concluded students' reasons for dropping out of an online program were varied and unique to each individual. The earlier results of Schuetz and Barr (2008) were in agreement with this finding. Those scholars reported that “the quick answer” advanced in most community college studies is that factors mostly beyond the control of the college are responsible. “Attrition, academic underachievement, and other negative student

outcomes are a function of students' lack of academic preparation, lack of commitment to educational objectives, or excessive work and family responsibilities" ("Editors' Notes," para. 4).

Leeds et al. (2013) reported on their empirical study of the impact of student retention strategies for second-year undergraduate online students at a state university. Under carefully controlled conditions, these investigators used engagement, learning communities, student services, and learner-centered environments with two experimental class sections but not with two control sections of an information systems course. The treatment procedures included calling and emailing students, quizzing students on the syllabus, developing course contracts, steering students through the virtual classroom processes, encouraging them to develop personal connections with classmates, and creating small groups (i.e., learning communities) for discussions and team projects.

The retention strategies implemented in this study did not have a statistically significant effect on student retention rates. These authors concluded that retention strategies may not impact retention rates. In an interview for the Chronicle of Higher Education Blog site, two of the Leeds et al. (2013) co-authors talked about their study prior to its publication (Parry, 2010). Campbell was quoted: "If someone was going to drop out of the class, they were going to drop out of the class." However, during that interview, Leeds suggested that the next step is "to look not at the structure of the class, but at the students themselves...to pinpoint particular traits that are tied to success in online classes, such as time-management skills and motivation."

In a follow-up study, Cochran, Campbell, Baker, and Leeds (2014) focused on individual characteristics of students. However, they studied a sample of undergraduate

students (n=2,314) enrolled in online classes at a large state university. The Cochran et al. results were difficult to generalize to community colleges. Prior performance in college classes (i.e., cumulative GPA) and class standing (i.e., senior vs. non-senior) were significantly related to student retention in online classes for all students. Other factors that were significantly related to retention rates for students with certain characteristics or within certain majors included previous withdrawal from online courses, gender, and receipt of academic loans. Practical (but not novel) implications of this study that may apply to online students at community colleges included: 1) develop policies and guidelines to provide increased support for and monitoring of freshmen and sophomores, who are enrolled in online courses; 2) develop policies and guidelines for students with lower cumulative GPAs who enroll in online courses with more analytical or technical content, such as business, science, and math; 3) be aware of gender differences in withdrawal rates in fields that have predominant gender roles as those in the minority are more likely to withdraw; and, 4) follow-up with students when they first withdraw from an online class to mitigate future withdrawals.

Hatchey, Wladis, and Conway (2014) conducted a records audit study of 962 online students at a community college that enrolls approximately 10,000 of its 23,000 annual students in distance education courses. The results seemed to suggest that

students who have no previous online experience have success and retention rates that increase linearly with G.P.A., but students with prior online course experience have success and retention rates which are determined primarily by the success of their prior online courses (regardless of student G.P.A.). Prior online course experience is strongly correlated with future online course success and retention, and seems to be a much stronger predictor of online course success than G.P.A. alone, for students who have previously taken an online course. (“5. Results and Discussion,” para. final)

Professional organizations in higher education have joined institutional representatives and researchers in a quest for answers. For example, in a call to action, the American Association of Community Colleges (AACC) hosted a meeting on student retention with five other organizations (Juszkiewicz, 2011). Using focus group methodology, the organization representatives addressed four issues: 1) commitment and how to get it, 2) accountability for outcomes, 3) completion toolkit, and 4) obstacles and how to overcome them. The results of the meeting are summarized in the Juszkiewicz report.

Two other consortia that exemplify the commitment of educational organizations to study and strategize the retention of online students are the Western Interstate Commission for Higher Education (WICHE) and The Adult College Completion Network (ACCN). WICHE is a regional consortium of 15 Western states and the Commonwealth of the Northern Mariana Islands. The ACCN is a learning consortium that unites organizations and agencies working to increase college completion by adults with prior college credits but no degree. WICHE recently sponsored five ACCN webinars, presented several of its own seminars, and devoted its 2014 annual meeting to the issues of student retention and attrition (Western Interstate Commission for Higher Education, 2014).

In summary, the challenges posed by poor retention and high attrition of students enrolled in online courses and programs have by no means been resolved. The problem is even more prevalent and challenging for community colleges than for other institutions (Aslanian & Clinefelter, 2013; Austin, 2010; Lokken & Mullins, 2014; Mullins, 2013). The question of what, if any, changes can be made at community colleges to assuage

these issues is being addressed from several perspectives by concerned stakeholders (Juszkiewicz, 2011; Hatchey et al., 2014; Lokken & Mullins, 2014).

Student assessment. Another student-related issue for implementers of online education has been the assessment of student preparedness, student participation, student engagement, and student learning (Austin, 2010; Baglione & Nastanski, 2007; Gikandi, Morrow, & Davis, 2011; Lei, 2008, Lei & Gupta, 2010; Murphey, 2006). Murphey suggested that in addition to in-house assessments of student preparedness for online coursework, there are diagnostic tools (e.g., Readiness for Education at a Distance Indicator—now called SmarterMeasure Learning Readiness Indicator) and checklists (e.g., Panola College checklist—now called eLearningChecklist) available for purchase (see Murphey, 2006, “Technology,” para.1 for hot links). At a central Michigan community college, program developers of the institutional online education program there recognized that a system was needed for assessing student readiness for online courses and for training advisors who placed students in online courses. Faculty and distance education personnel responded by developing measures to determine student readiness for online study (Austin, 2010).

Baglione and Nastanski (2007) studied the perceptions of online faculty regarding the use of instructor analyses of 1) bulletin board threaded discussions of assigned readings and projects and 2) transcripts of group discussions as means of tracking participation and engagement. They found that about 75% of their 122 experienced faculty participants believed that the online environment facilitates more substantive discussion than does a face-to-face classroom. Further, in general, these faculty members

perceived the analysis of discussions to be a productive approach to assessing student participation and engagement.

The assessment of the learning of online students has been particularly challenging, as it is with students in face-to-face courses (Baglione & Nastanski, 2007; Gikandi, Morrow, & Davis, 2011; Lei, 2008; Lei & Gupta, 2010). Students' written responses constructed for assessment purposes are genuinely difficult to evaluate since those responses vary considerably from one student to another (Lei & Gupta, 2010). Further, performance-based assessments tend to vary with instructors' level of degree and amount of teaching experience with the resulting subjective evaluations lacking reliability and equality in scoring (Lei, 2008).

Lei and Gupta (2010) also offered insights for improving the assessment of online student learning. Based on survey results these researchers recommended 1) participation in faculty workshops for understanding various classroom assessment techniques, 2) utilization of more diversified assessment techniques, 3) more verbal and written feedback from instructors who use frequent objective exams, 4) determination of student achievement of instructional objectives to be provided in addition to final semester grades, and 5) instructor clarification of how they assessed the achievement of course objectives.

Gikandi et al., (2011) found in their review of the literature that ongoing authentic assessment activities and interactive formative feedback were used within the context of online formative assessment. These researchers identified self-tests, peer-assessments, and instructor assessments of discussion forums and e-portfolios as authentic methods to measure student engagement in online learning experiences.

In a comparison study, Lei (2008) found that full-time instructors emphasized attendance and participation, quizzes, laboratory activities, cooperative learning, research reports and projects, and learning journals more so than did adjunct instructors. The full-time faculty also used objective exams significantly less compared to adjunct instructors. Doctorate-level faculty placed significantly more emphasis on attendance and participation, laboratory activities, and research projects than did the non-doctorate instructors in Lei's study.

The Lei and Gupta (2010) investigation showed that, for online courses, instructors and students relied heavily on written communication and visual layout for the assessment of learning and instructional effectiveness. These researchers warned that poor writing skills can confound interactive and performance-based assessment. Therefore, they recommended a course-development change, indicating that it is imperative for web-based instructors to distinguish between the assessment of students' acquisition of course content and students' ability to communicate in writing about that course content.

In addressing the challenge of assessing online students' analytic and critical thinking, Baglione and Nastanski (2007) described processes that supplement the typical written quizzes and exams. These investigators identified instructor analyses of students' threaded discussions and group discussions.

In summary, the literature offers a collage of needs and recommendations regarding the assessment of community college student preparation for, engagement and participation in, and learning from higher education delivered online. An issue ancillary

to the assessment of online student learning is student dishonesty during graded online student assessments.

Academic Dishonesty. Online education has its own special “brands” of dishonesty and fraud. The challenges of student authentication, cheating, and fraud rings have drawn the attention of community colleges, accreditation agencies, and the U.S. government, all of whom have responded with changes designed to address these issues (Austin, 2010; ITC, 2008, 2013; Lei & Gupta, 2010; the U.S. Office of Inspector General, 2011).

Authentication of students in an online environment is of interest not only to college employees but also to the Higher Learning Commission and to federal and state governments (Austin, 2010). Like community colleges, the federal government is pressing for institutional methods that assure the identity of the individuals logging into online courses. For student and institutional accountability and for program evaluation and student assessment, there is a need to authenticate online student identity (Austin 2010; ITC 2008, 2013). The government is also interested in having community colleges develop systems that track the amount of time students spend reading and completing online course work as indications of online seat time—a concern relative to state and federal financial support of students (Austin, 2010). By 2012, the response of community colleges was that nearly every distance education program was authenticating its distance learning students by requiring them to use a unique username and passcode (ITC, 2013).

In a national survey of a representative sample of community colleges, the ITC (2008) reported that cheating was ranked seventh among the greatest challenges administrators faced regarding online students. Cheating during quiz, examination, and

individually-graded assignment times requires that instructors be aware of how their students are receiving and processing written assessment measures online during those periods (Lei & Gupta, 2010). Since online education does not typically support the presence of instructors to proctor the assessment of student performance and learning, students may have someone present to help them or substitute for them in completing assessment activities (Lei & Gupta, 2010). Therefore, a key issue for many colleges is to what extent they should require students to take proctored tests as a means to eliminate cheating. In the 2008 ITC study, 93% of the respondents allowed faculty to offer online and on-campus testing for blended/hybrid courses; 55% percent allowed faculty to offer exclusively non-proctored online testing; and 40% required only on-campus proctored testing.

In September of 2011, the U.S. Office of Inspector General (OIG) issued a memorandum on financial fraud involving distance education. The OIG had conducted numerous investigations and “identified a serious vulnerability in distance education programs” (“Memorandum,” para. 1) regarding individuals receiving Federal Student Aid funding to pay for their tuition in programs being delivered solely on the Internet. Almost none of the participants in the fraud rings as well as numerous other individuals, including incarcerated inmates, met the basic requirements for enrollment in certificate, credential, or degree programs. The OIG report described the fraud rings, their recruitment and compensation of “straw students,” and their fraudulent fiscal interactions with unsuspecting institutions. The fraud rings primarily target community colleges because of their open enrollment policies, their relatively simple application and

enrollment processes, and the absence of a requirement for an in-person appearance of the enrollee at any point in the process.

The OIG proposed a corrective action plan to be implemented by Title IV programs receiving Federal Student Aid funds. That plan addressed the issues of verifying student identity, reducing/eliminating cost-of-attendance reimbursement (e.g., for room and board), preventing awards to ineligible inmates, improving detection of fraud rings, and improving remedial action against financial aid fraud rings (Mullins, 2013; Office of Inspector General, 2011). However, the ITC community college survey results for 2013 still indicated that—with regard to student honesty issues, federal rules and regulations that deal with student financial aid fraud—state authorization and student authentication command greater administrative attention and resources (ITC, 2014).

In summary, regarding the challenges and changes associated with online education at community colleges, this section has offered a review of many facts and perspectives. It has presented the major issues related to personnel, practices, and students along with the over-arching concerns and strategies regarding program quality and student assessment. In further constructing a foundation on which to build the core structure of this document—the student perceptions of online education at community colleges in the U.S.—the next subsection section reviews literature describing the programs and services in online education at community colleges.

Programs and Services

In the earlier section of this document entitled “Online Education and Technology” five types of formats of online courses in higher education were identified. Those formats apply to programs and services offered at community colleges, as well.

Described by numerous sources (e.g., Allen & Seaman, 2013; Parsad et al., 2008), those formats include: 1) adult online education [a program] that teaches basic skills and fights illiteracy [services]; 2) hybrid education that combines online and face-to-face instruction within individual courses [a method of delivery]; 3) online continuing non-degree education [a program] that advances specific skills [a service]; 4) online distance education that consists of online courses that in combination with face-to-face courses [a program] that could be applied to an associate's degree [a service]; and 5) online higher education [a program] that consists only of online courses that lead to an associate's degree [a service].

Another way of depicting online courses and programs, regardless of the institution of higher education at which they are offered, is by their length. Ferguson and DeFelice (2010) contended that “students will be attracted to a program (or format) that will accomplish what they need in the shortest amount of time” (“Introduction,” para. 11). Smith (2014) confirmed this contention reporting that 37% of the respondents in a large national survey indicated that fast-track courses motivated them to enroll in an online setting. Ferguson and DeFelice focused on five-week versus full-semester online courses but also described programs that were self-paced versus ones that required completion in accordance with a timeline, usually dictated by when constituent courses would be available online.

In a large national study that included community colleges along with other institutions of higher education, Allen and Seaman (2014a) took another approach by discussing “prototypical” online courses classified by proportion of content delivered online: 1) traditional—0% online technology used, 2) Web facilitated—1-29% web-based

technology used to facilitate face-to-face instruction, 3) blended/hybrid—30-79% content delivered online, and 4) online—80-100% with most of the content delivered online and no face-to-face meetings.

Allen and Seaman also described Massive Open Online Courses (MOOCs) in accordance with the Oxford Dictionaries Online definition as “A course of study made available over the Internet without charge to a very large number of people” (Allen & Seaman, 2014a, p. 7). MOOCs typically differ from “regular” online courses in that participants are not registered students at the host institution. Further, MOOCs are designed for unlimited participation with open access via the Web and with no tuition charged and no credit given for completion of the MOOC.

Educational researchers who are also community college administrators, faculty, and institutional support staff (e.g., Austin, 2010; Levy, 2003; Lokken, 2013; Mitchell, 2009; Murphey, 2006) commonly identify online education programs by academic areas (e.g., an online program in mathematics or criminal justice) or by outcome (e.g., continuing professional education, midcareer degree program, and lifelong learning). These personnel refer to services with such operational labels as admissions, orientation, financial aid, counseling, academic advising special services, testing, bookstore services, library services, student activities, health assessment, social services, tutoring, mentoring, and technical support.

Austin (2010) identified community college online career programs as those also referred to as technical or vocational education. These programs provide students with the necessary skills and related knowledge to qualify for skilled, technical, and semiprofessional positions in business, industry, and the allied health fields, according to

Austin. Online program completion commonly results in student acquisition of a certificate or license.

Garcia (2014) described societal, economic, and business workforce needs for stackable credentials. As the President and CEO of the Texas Association of Community Colleges, Garcia challenged more community colleges to develop stackable credential programs. Garcia stated that these programs:

...form a pathway for students to acquire credentials along a trajectory that can lead to a baccalaureate and beyond but that has exit and entry points designed in a way to allow students to pick up wherever they left off in route to the next level of achievement. (para. 3)

Garcia went on to draw a comparison to associate's degrees leading to bachelor's degrees leading to master's degrees which he said are stacked credentials. Garcia (2014) stated, "The wrinkle in today's approach is that the initial stacks are sliced thinner, typically starting with an industry certification or the completion of a course sequence that provides the student with a marketable skill" (para 4).

Another type of program that supports student online education at community colleges is not institutional or instructional but rather organizational in nature. These programs are exemplified here by two that are offered by the WICHE. Among its current programs (WICHE, 2010, 2014) are the WICHE Internet Course Exchange (ICE) and the WICHE Cooperative for Educational Technologies (WCET).

ICE enables students, through their home institutions, to access online courses and programs offered by other two- or four-year ICE member institutions. Through these programs students enroll, obtain advising, and use financial aid from their home campus, which transcripts the course. ICE is based on a three-tier model in which seats, courses, or programs are exchanged.

In the seat exchange, members with excess capacity in online courses offer seats in them to other members at an agreed-upon common wholesale price. With the course exchange, members contract with other members to create and supply a new online course or an entire section of an existing online course. And in the program exchange, members may contract with others to jointly develop and deliver a full program. (WICHE, 2010, p. 5)

Faculty members at ICE institutions also may work together to expand the online offerings in their disciplines through a set of ICE collaborative initiatives.

The WCET programmatic agenda includes: “tracking learning technology trends; policy research and advocacy (federal, state); technology implementation and integration; faculty development; research and good practices; and networking among peers” (WICHE, 2010, p. 13).

Quality and Rigor

Still, even with these laudable collaborative consortia efforts, there are very different perspectives on the quality and rigor of online education at community colleges. The following review of three studies exemplifies this point.

Wickersham and McElhany (2010) identified rigor as an aspect of quality and reported that the rigor of online courses and programs was a concern to both the administrators and faculty in their study. Both subject groups questioned whether rigor can be achieved and maintained in an online format. The subjects identified three obstacles to achieving rigor in online education. First, there is an absence of, but necessity for, institutional standards of quality customizable to all content areas. Second, there is a lack of faculty development that provides orientation to “the true online learning experience and the characteristics one must possess in order to be successful online” (p. 10). Third, there is a need for pre-enrollment orientation that dispels students of the notion that online courses are easier than traditional classroom courses and makes

students aware of minimum technological requirements “such as Internet access and speed and hardware and software capabilities” (p. 10). Wickersham and McElhany concluded that it would require effective participation, cooperation, and communication among administrators, faculty, and students to reconcile divided group perspectives on how to address and solve these issues related to the rigor of online education.

In the Tucker (2013) investigation, two panels of experts—one on mathematics and the other on English—equated rigor with levels of mathematical proficiency and English language literacy that high school graduates need for first year success in community colleges. In this research based on empirical studies of mathematics and English requirements, the findings showed that “our schools do not teach what their students need, while demanding of them what they don’t need; furthermore, the skills that we do teach and that the students do need, the schools teach ineffectively” (p. ii).

In addition to the inadequacy of high school student preparation, Tucker reported that many of the deficits in secondary school instruction are being replicated rather than remedied in community college teaching. The high school mathematics curriculum is now a sequence of Geometry, Algebra II, Pre-Calculus and Calculus leading to Calculus. “However, fewer than five percent of American workers and an even smaller percentage of community college students will ever need to master the courses in this sequence in their college or in the workplace” (pp. 4-5).

Many community college career programs demand little or no use of mathematics. To the extent that they do use mathematics, the mathematics needed by first year students in these courses is almost exclusively middle school mathematics. But the failure rates in our community colleges suggest that many of the students do not know that math very well. (p. 4)

The reading and writing currently required of students in initial credit-bearing courses in community colleges is not very complex or cognitively demanding, according to Tucker's (2013) findings. Further, Tucker also found that while the information load of community college texts is higher than that of high school texts, students are not expected to make much use of those texts in community colleges. And finally, "the requirements for writing assigned in community college courses are marginal at best; students' writing skills are rarely assessed; and expectations for student writing, especially of arguments, are low" (Tucker, 2013, p. 9).

The third study in this triad on the rigor of community college offerings is the *Implementation Guide* for empowering community colleges to build the nation's future (AACC, 2014c). The strategists convened by AACC formulated two recommendations that focused on broad strategies for impacting the rigor of community college programs across the U.S. Recommendation #4 calls for a refocusing of the community college mission and redefinition of institutional roles. Centered on the societal demand for students to meet 21st-century education and employment needs, this recommendation was designed "to ensure that students learn what they need to learn" (p. 24). To accomplish this rigor, the AACC report advised community colleges:

...to move toward a more open learning environment in which students can access services from a network of colleges, customize their learning, and choose from multiple modes of delivery. At the same time, institutions must explore new partnerships, staffing patterns, and business models, including consortium arrangements. (AACC, 2014c, p. 24)

The seventh AACC recommendation was for community colleges to "implement policies and practices that promote rigor, transparency, and accountability for results in community colleges... [and to] implement data systems to track students on their

educational and career pathways” (p. 34). Further, this recommendation directed community colleges to implement the Voluntary Framework of Accountability² and to improve measurement of student learning and employment-related outcomes in their quest to promote rigor and accountability nationwide.

As this recent literature demonstrates, researchers representing highly varied groups of stakeholders negatively perceive the rigor of education at community colleges, including online courses and programs. Further, whether the investigators focused on faculty; administrators; curriculum; or the missions, policies, and practices of community colleges, the research all resulted in detailed recommendations for improving the quality and the outcomes of education at community colleges.

In summary, this subsection identifies and describes the online programs and services available to students at community colleges. These programs range from single short-term courses offered to students seeking to upgrade their basic skills or pursue job training to multi-year curricula terminating in associate’s and bachelor’s degrees. The student services described in these paragraphs offer personal, academic, social and technical assistance. But, beyond the mere existence of these programs and services, apparently stakeholders in the enterprise of delivering online higher education still need to address the issue of rigor.

Technology

Since technology is the vehicle by which online education is conveyed, both technology and the discussion of it are pervasive throughout online education. Therefore, technology has been addressed in numerous subsections of this document. However, the

² See American Association of Community Colleges (2014d, p. 34) for a brief description of the development and rationale for the Voluntary Framework of Accountability.

focus in this subsection is the impact of technology on community colleges and the online education at these institutions.

Instruction and technology. During the first decade of the 21st century online instruction increased dramatically, enabled by technological gains in the Internet and course management systems (Beqiri, Chase, & Bishka, 2010; Wang, 2007; Wonacott, 2002). In 2003, Waits, Lewis, and Greene reported that among distance education technologies employed by public community colleges, Internet delivery had become dominant with 95% of those institutions using asynchronous Internet as the primary technology for instructional delivery of distance education. Cedja (2007) declared that the Internet had become an essential part of society.

In supporting their observation that “distance-learning technology” had transformed instructional delivery at colleges in profound ways, Lei and Gupta (2010) made the point that a significant online technological contribution was the way that the former constraints of time and space had largely been removed by networking capabilities. Leist and Travis (2010) added that advances in technology in the form of online courses had afforded rural community colleges great potential for delivering courses to even the most isolated reaches of the nation. Austin (2010) reasoned that technology made possible the design, development, and implementation of online courses and programs at community colleges which altered the processes of teaching, learning, and administering with associated challenges and rewards at her institution. Lei and Gupta (2010) also pointed out that technology made possible students’ discovery and use of the vast resources available on the World Wide Web, which according to Draves “has

caused the biggest change in education and learning since the advent of the printed book a little over 500 years ago” (as cited in Levy, 2003, “Visions and Plans,” para. 4).

Access and technology. However, what some scholars had overlooked or did not know was that in some rural areas the lack of availability of computers and/or access to the Internet was a reality prohibiting the reception of online education offered by area community colleges (Burr, 2006; Cedja, 2007; Leist & Travis, 2010). Cedja (2007) reported that fewer rural residents use the Internet than suburban and urban residents. Based on his review of literature, Cedja concluded that “some of the differences between Internet usage in rural areas and other locations can be explained by demographics such as age, income levels, and educational attainment” (p. 88). He also reported two other factors that explain this rural-urban discrepancy—“digital divide”—in Internet usage: a greater number of rural residents had only one Internet Service Provider and less than one-fourth of rural residents had broadband connection. The reasons for this low rate of broadband connectivity were not determined, but various sources report that broadband was not available outside rural towns or the fees for broadband access in rural areas were too expensive. An additional issue identified by Cedja was his finding that student access to computers in 2007 was identified by 93.6% of 125 chief academic officers at rural community colleges as the most pressing technology issue at their institutions. Cedja (2007) concluded that:

Rural communities have yet to benefit from affordable high-speed Internet access, and rural community colleges do not have the necessary resources to bridge this gap. Until state and federal policy addresses the disparity between urban and suburban and rural areas, most rural community colleges and their constituencies will not realize the full potential of distance education.

Three years later, Leist and Travis (2010) identified that Internet connectivity for purposes of online education was still a technology challenge of significance to rural community colleges. Citing a discussion of the level of the quality and reliability of the connection for access to the Internet in Alaska, Leist and Travis described issues such as the availability of only dial-up Internet service. These researchers stated that bandwidth concerns continued to be a major planning problem for online courses at rural community colleges.

In 2011, Hawaiian Senator Daniel K. Inouye (2012) testified on “closing the digital divide by connecting Native Nations and communities to the 21st century” in a hearing before the U.S. Senate. He testified that:

Historically, native communities had less access to telecommunication services than any other segment of the United States population. The lack of good, reliable and affordable telecommunications infrastructure impedes economic development, educational opportunities, language retention and preservation, and access to healthcare and emergency services. According to the most recent data, less than 70 percent of the households on tribal lands have basic telephone service, compared to the national average of approximately 98 percent....Further, it is estimated that broadband reaches less than 10 percent—less than 10 percent—of tribal lands compared to 95 percent of households nationwide.

In a research article on the inadequacy of rural high-speed Internet infrastructure, Howley, Kellie, and Kane (2012) stated that “one fourth of all U.S. students attend a rural school and in recent years rural enrollment growth has outpaced growth in all other school locales” (p. 1). These investigators went on to warn that inadequate connections for rural schools will become a growing problem if steps are not taken now. Without adequate high-speed Internet infrastructure and the associated connectivity, rural schools and the students they serve will be left behind.

Bates (2012) identified special populations for whom limited or no access to the “information superhighway” denies or interrupts opportunities to access online education. Identifying them as “niche populations,” he discussed: 1) remotely deployed and special operations personnel; 2) Native Americans living in remote areas on reservations, particularly the southwest and Alaska; 3) individuals living or working in remote areas or in migratory or highly mobile professions; 4) student-athletes with extended periods of off-campus competition; and 5) institutionalized individuals, including prisoners. This Bates research led to the discovery of unique Air Force, community college, university, tribal, and prison distance education programs. Bates described education being disseminated via online, offline, and hybrid delivery strategies using CD, DVD, MP3, iPod, iPad, and i-Tunes-based instruction. In some of the settings, cars or trucks were being used as a power source.

Concern about the availability of a free internet and of high speed access to the internet has also been expressed by President Obama. In advance of his 2015 State of the Union Address, “President Obama outlined his administration’s plans to expand high-speed Internet access around the country by pre-empting state laws that restrict the expansion of city-owned and other locally-developed broadband networks,” (Trujillo, 2015, para. 1). Further, he stated in Cedar Rapids, IA, that in “19 states we’ve got laws on the books that stamp out competition, and make it really difficult for communities to provide their own broadband...” according to Trujillo (2015, para. 4).

In his State of the Union Address, President Obama stated, “I intend to protect a free and open Internet, to extend its reach to every classroom, and every community -- (applause) -- and help folks build the fastest networks, so that the next generation of

digital innovators and entrepreneurs have the platform to keep reshaping our world,” (Obama, 2015).

The literature and testimony cited here are sufficient to alert all community college leaders to an existing challenge. If they wish to reach rural, low-socioeconomic, tribal residents, and other “niche” groups, even now in 2015, academic leaders need to explore, and not assume, the availability of the technology infrastructure for receiving online education.

Summary

This section on “Community Colleges and Online Education” has reviewed the literature on the history, missions, rationale, challenges, programs, services, and technology relative to online education at community colleges in the U.S. This review included the perspectives, needs, concerns, contributions, and recommendations of institutional administrators, faculty members, and staff members, as well as researchers and professional organizations and consortia with community college members. This content provides a context for the following findings on “Characteristics of Online Community College Students” and “Community College Student Perceptions of Online Education.”

Community College Student Characteristics and Demographics

With the ongoing rapid increase in online education³ during the past 15 years, there has been a commensurate growth in interest in the characteristics (i.e., non-numerical, verbal descriptions) and demographics (i.e., the numerical and statistical

³ Throughout this section the terms *distance education* and *distance students* are used when citing authors who used those terms. *Online education* and *online students* are used when citing works in which those terms were used or when writing from this researcher’s point of view.

descriptions) of the students choosing to access this mode of coursework delivery. This section offers a review of those characteristics and demographics as reported by the U.S. Department of Education, academic scholars, and administrators of education programs.

This section has eight subsections organized in the following manner. First, three subsections present the demographics for the variables of age, gender, and race/ethnicity of students enrolled in online education courses and programs at institutions of higher education, including community colleges. The fourth subsection reports the geographic location of online education students relative to the institutions at which they are enrolled for their online coursework. The final four subsections review literature on the socioeconomic status, employment status, marital status and family situation, and academic preparedness/educational risk levels of online education students. These final four subsections are grouped together because they consist of information extracted from the same body of literature.

In the first three subsections, tabled data and discussions reveal considerable variability in some of the demographics, even those obtained by the same investigators during one- and two-year time frames. One reason for this variability may be that the data were obtained almost exclusively through surveys of students. So, as Radford (2011) pointed out, these data were self-reported and not verified. A second reason for the variability may be the manner in which *online learning* and *online courses* were, or were not, defined for the survey respondents in the different studies. A third reason is that the numerical ranges of the category choices offered to respondents differed across studies. For example, some surveys requested the respondent's age (e.g., Mlot, 2012); whereas others offered a few categories—23 or younger, 24-29, and 30 or older (e.g., Radford,

2011); and yet others used several categories—18-24, 25-29, 30-34, 35-39, 45-49, 50-54, and 55+ years (e.g., Academic Technology Center, 2007; Aslanian & Clinefelter, 2013).

Because of the variety of response categories used to report some of the demographics presented below, tables are used to provide more easily visualized comparisons and to reduce the length of narrative descriptions.

Age of Online Students Enrolled in Community College Courses and Programs

Table 2 provides an overview of data on the age of community college students enrolled in online education with some comparisons with students enrolled in *traditional* (used in this section to refer to non-online education programs, courses, and students) higher education.

Date	Online Students	Traditional Students	Source
1990s	25-30 yrs. majority		Tallent-Runnels et al. (2006)
2000	19% 20 yrs. or less 34% 21-29 yrs. 25% 30-39 yrs. 22% 40 or older		Bower & Kamata (2000)
1999-2007	25-30 yrs. majority		Schneider & Germann (1999); Tallent-Runnels et al. (2006); Wang (2007)
2006	24.0 yrs. average	22.6 yrs. average	Office of Institutional Research and Assessment (2006)
2004-2008	35-55 yrs. majority		Abdulla (2004); Allen & Seaman (2007); Eduventures, Inc. (2008)
2007	45% under 30 yrs. 13% 30-34 yrs. 13% 35-39 yrs. 12% 40-44 yrs. 8% 45-49 yrs. 9% 50 yrs. & over		Academic Technology Center (2007)

Table 2 (cont.)			
Date	Online Students	Traditional Students	Source
2008	48% 18-25 yrs. 52% 26 yrs. & older		Instructional Technology Council (2008)
2011	15% 23 yrs. or younger 26% 24-29 yrs. 30% 30 yrs. or older		Radford (2011)
2011	15% 24 yrs. and under 30% 25-34 yrs. 28% 35-44 yrs. 20% 45-54 yrs. 7% 65 yrs. and older		Noel-Levitz (2011)
2012	33 yrs. typical		Mlot (2012)
2013	37.4% 15-23 yrs. 28.2% 24-29 yrs. 34.5% 30 yrs. & older	59.7% 15-23 yrs. 17.3% 24-29 yrs. 23% 30 yrs. & older	Allen & Seaman (2013)
2013	19% 18-24 yrs. 20% 25-29 yrs. 15% 30-34 yrs. 13% 35-39 yrs. 11% 40-44 yrs. 10% 45-49 yrs. 8% 50-54 yrs. 4% 55+ yrs.		Aslanian & Clinefelter (2013)

As pointed out in a report of the Academic Technology Center (ATC, 2007), most research from the 1990s and early 2000s indicates that online students, in general, tend to be, on average, older than typical students in traditional campus programs. That observation was supported later by the Allen and Seaman (2013) data. However, this trend may be changing as more traditional students also enroll in online courses. For example, 13% of all American post-secondary students are enrolled in a mixture of on-campus and online courses, with those percentages steadily increasing (Ginder & Stearns,

2014). Further, both the personal observations of this author and the anecdotal accounts of colleagues indicate an increase in 15 to 22-year old online education students as dual-enrollment high school students and higher education students (especially athletes) choose hybrid programs of study.

Gender of Online Students Enrolled in Community College Courses and Programs

Table 3 provides an overview of data on the gender of online education students at community colleges with some comparisons with traditional students.

Table 3. Gender reported by date and source for online education students at community colleges with available related data for traditional students.

Date	Online Students	Traditional Students	Source
1990s	Majority: Females		Tallent-Runnels et al. (2006)
2000	67% Female:33% Male		Bower & Kamata (2000)
2006	23.3% of all females enrolled at institution 18.4% of all males enrolled at institution	76.7% of all females enrolled at institution 81.6% of all males enrolled at institution	Office of Institutional Research and Assessment (2006)
2008	60% Female:40% Male		Instructional Technology Council (2008)
2009	59% Female:41% Male		Center for Community College Student Engagement (CCCSE, 2009)
2011	67% Female:33% Male		Noel-Levitz (2011)
2012	57% Female:43% Male		CCCSE (2012)
2012	Typical: Female		Mlot (2012)
2013	75% Female:25% Male		Academic Technology Center (2007)
2013	53% Female:47 % Male	57% Female 43% Male	Allen & Seaman (2013)
2013	70% Female:30% Male		Aslanian & Clinefelter (2013)
2013	53% Female:47 % Male	57% Female 43% Male	Allen & Seaman (2013)

In most online higher education programs in North America, students have been, and continue to be, predominately female. Different studies indicate that between 60%

and 77% of students were females as reported by the ATC (2007). As shown above, that range is from 53% to 75% females and from 25% to 47% males. The two CCCSE (2009 & 2012) studies of community college students show that the percentage of community college females is toward the lower end of the range of female online student data.

Ethnicity/Race of Online Students Enrolled in Community College Courses and Programs

Table 4 provides data on the ethnicity/race of online education students at community colleges with some comparisons with traditional students. These data were collected from large samples of general—usually national—student populations. That is, none of the studies below provide data exclusively from historically black institutions or tribal colleges, which would, obviously, afford very different proportions of students.

The data in Table 4 show that over time in the 1990s and 2000s the majority of the online education students in higher education were White/Caucasian. The second largest group of enrollees was either Black/African American or Hispanic/Latino. The least represented ethnic/racial groups were Asian American/Pacific Islander and Native Americans.

Also, over time the percentage of White/Caucasian students has generally decreased as the percentages of Black/African American and Hispanic/Latino students have increased. These findings parallel the change in the demographics of the general population of the U.S. (Pew Research Center, 2010; U.S. Census Bureau, 2010).

The CCCSE (2009 & 2012) studies provided the demographics for two very large samples of community college students—“more than 400,000” (2009, p. 23) and “nearly 444,000” (2012, p. 30)—from 663 and 669 participating community colleges. Based on these data, it appears that the relative demographics (i.e., magnitude and rank of the

percentage data) for community college student race/ethnicity are not substantially different from the data generated in the other research cited in Table 4.

Table 4. Ethnicity/race reported by date and source for online education students at community colleges with available related data for traditional students.

Date	Online Students	Traditional Students	Source
1990s	Majority: White		Tallent-Runnels et al. (2006)
2000	82% White 6% African American 5% Latino 2% Asian American 1% Native American		Bower & Kamata (2000)
2009	58% White 14% Latino/Hispanic 13% Black 6% Asian 1% Native American 8% Other		CCCSE (2009)
2012	54% White 18% Latino/Hispanic 14% Black 6% Asian/Pacific Islander 1% Native American 10% Other		CCCSE (2012)
2012	Typical: White		Mlot (2012)
2013	46.6% White 24.8% Black 20.8% Hispanic 3.2% Asian 4.6% Others	62% White 14% Black 6% Hispanic 2% Others	Allen & Seaman (2013)

Location of Online Students Enrolled in Community College Courses and Programs

More than any other determinant, Cohen and Brawer (2003) contended that accessing higher education depended on proximity. These investigators defined a mature state educational system as one in which 90 to 95% of a state's population lived within approximately 25 miles of a college or university. According to Aslanian and Clinefelter

(2013), “The largest proportion of online students (about 70%) lives within 100 miles of the closest campus or service center of the institution in which they enrolled” (p. 17).

By contrast, in 2007, the ATC reported that whereas in the past distance higher education programs at all institutions had attracted students whose geographic distance from a college campus prevented their enrollment in campus-based classes, increasingly online education students were living within commuting distance of the college at which they were enrolled. According to ATC, students were choosing to take online courses because of the convenience, not the location.

Ginder and Stearns (2014) stated that “one of distance education’s cited benefits is wider geographical access to higher education, in that students have flexibility to attend institutions outside of their state of residence” (p. 2). These authors provided extensive data for all higher education institutions as a whole, as well as for institutions offering two-year, four-year, and graduate degrees. Community colleges were not identified apart from other two-year colleges. The Ginder and Stearns data were gathered on distance education enrollments by the National Center for Education Statistics (NCES).

One data set (Ginder & Stearns, Table 11) identified the location of students enrolled exclusively in distance education courses in fall 2012. Specifically, this table shows whether students were located 1) in the same state as the institution in which they enrolled, 2) in a different state or U.S. jurisdiction, 3) outside the United States, or 4) at an unknown location.

For public two-year colleges (community colleges were not specifically identified in the Ginder & Stearns study), of 674,134 total students enrolled exclusively in distance education, 90.7% (n=611,704) were located in their same state or jurisdiction; 4.9%

(n=32,928) were located in a different state or jurisdiction; 0.6% (4,204) were enrolled from outside the U.S. The location of the remaining 3.8% (n=25,298) enrolled students was unknown.

The Ginder and Stearns NCES data for public four-year institutions revealed that of the 574,709 students enrolled exclusively in distance education, 73.2% (n=420,801) were attending programs in the same state or jurisdiction as their location. Another 19.6% (n=112,732) were located in a different state or jurisdiction; 1.6% (9,073) were enrolled from outside the U.S. The location of the remaining 5.6% (n=32,103) enrolled students was unknown.

These same NCES data showed that at historically black colleges and universities, of 11,616 students enrolled exclusively in distance education, 90.5% (n=10,510) had chosen programs located in the same state or jurisdiction; 6.4% (n=741) were located in a different state or jurisdiction; 0.4% (n=91) were enrolled from outside the U.S. The location of the remaining 2.7% (n=318) enrolled students was unknown.

At tribal colleges and universities, of the 495 students enrolled exclusively in distance education, 84.0% (n=416) were located in the same state. The remaining 16.0% (n=79) were located in a different state or jurisdiction.

Of all the undergraduate students represented by the NCES data for 2012, those who were degree/certificate seeking numbered 1,807,860. Of these students 51.8% (n=936,201) were located in the same state or jurisdiction as their program; 44.1% (n=797,386) were located in a different state or jurisdiction; 1.0% (17,520) were enrolled from outside the U.S. The location of the remaining 3.1% (n=56,673) enrolled students was unknown.

Of 192,594 non-degree/certificate seeking students, 77.0% (n=148,303) were located in the same state; 13.4% (n=25,874) were located in a different state or jurisdiction; 1.3% (2,492) were enrolled from outside the U.S. The location of the remaining 8.3% (n=15,925) enrolled students was unknown.

Whereas the institutional, commercial, and government information and data across this subsection do not directly corroborate each other, it is possible to generalize that the majority of online undergraduate-level students and potential students have access to and are accessing online education at locations within the state or jurisdiction that they live. Student reasons for their choices will be identified and discussed in a later section of this document.

Socioeconomic Status of Online Students Enrolled in Community College Courses and Programs

The socioeconomic status of potential higher education students affects both their ability to access and their ability to continue productively in online education (Burr, 2006; Johnston, 2009). Both Burr and Johnston focused specifically on rural America and community colleges.

Burr (2006) declared that “rural America struggles as a socioeconomic entity” (p. 69). He described demographic and economic changes that have contributed to the challenging need for post-secondary education in rural settings. Farms are larger and more efficient, and in 2006 less than 10% of people lived on a farm, and only 14% of the rural workforce was employed in farming. Therefore, farm households depended more on off-farm income, and rural communities sought non-farm sources of economic growth.

Citing 2006 labor and education data, Burr stated that growing numbers of Hispanics settling in rural America accounted for over 25 percent of the non-metro

population growth during the 1990s. “The influx of Hispanic populations into rural America creates additional concerns. Typically, Hispanic immigrants are less educated than their rural American counterparts which throws the pendulum of education disparity even further in the wrong direction” (p. 70).

Johnston (2009) identified a “troubling aspect of rural education” as lack of college access and participation. He wrote that

- College enrollment is lower in rural areas than in all other locales for both 18-24 year olds and for 25-29 year olds. Rural adults are also less likely than adults in other locales to take work-related courses or university credential programs.
- The percentage of adults with a bachelor’s degree is lower in rural areas than nationally.
- Rural parents are less likely than parents in all other locales to indicate that they expect their children to attain a bachelor’s degree or higher.
- Rural high schools are less likely to offer students access to college-level/college credit classes. (Johnston, 2009, “Special Conditions of Rural Education and Poverty,” para. 4)

Although Johnston went on to discuss indicators of poverty at pre-college levels of education for two additional ethnic/racial groups, the information certainly generalizes to the wider populations. He stated that

Eighty-seven percent (87%) of African American and 79% of American Indian/Native Alaskan students attend a moderate to high poverty remote rural school, compared to 78% and 62%, respectively, in cities. In fact, more than three-quarters of African American students and nearly half of American Indian/Native Alaskan students attend remote rural schools where more than 75% of students qualify for free or reduced-price lunches. (“Special Conditions of Rural Education and Poverty,” para. 2)

In a 2009 study conducted by the Center for Community College Student Engagement (CCCSE), one survey item designed to determine barriers to community college students' returning to college was "How likely is it that the following issues would cause you to withdraw from class or from this college?" A "lack of finances" (p. 6) was identified by 46% of the students as a *likely* or *very likely* reason for dropping out. In 2012 the CCCSE reported that of 432,734 respondents to the same item, 49% identified lacking finances as a reason for withdrawing.

According to data reported by Allen and Seaman (2013), income levels for 74.3% of online community college students were less than \$40,000 per year with the remaining 25.7% having incomes of more than \$40,000. Comparatively, 47% of traditional students had incomes less than \$40,000 per year, and 53% had more than \$40,000 annual incomes.

In summary, the income levels and socioeconomic status of both rural and non-rural post-secondary U.S. residents have implications for their enrollment and persistence in online higher education. For many community college students the resources to pursue online higher education include their employment income.

Employment of Online Students Enrolled in Community College Courses and Programs

As early as 2000, Dibiase reported that many distance learners at all levels were different from traditional undergraduates in that they were already in professions, suggesting they were also employed while pursuing further education. Then, in 2003, Sikora and Carrol reported more specifically that students enrolled in web-based courses tended to be employed full time. By 2007 the ATC concluded that several studies indicate that more than half of distance learning students hold full-time jobs outside of

the home, with some programs reporting as many as 90% of their students being employed full-time.

Radford (2011) agreed that in 2007-08, participation in distance education also varied by undergraduates' work obligations. Of all undergraduate students working full time, 34% of them were distance education students—27% were enrolled in a distance education class and another 7% were enrolled in a distance education degree program. Respectively, these rates were about 10 and 4 percentage points higher than the combined groups of students who were not working or were working part time. Of all the undergraduates enrolled in a distance education class, 45% were employed full time, and of all undergraduates enrolled in a distance education degree program 62% were employed full time.

In 2012, Mlot reported that the “typical” online college student was working full time for an employer that offered tuition reimbursement. Then, in 2013 according to Allen and Seaman, the majority (81%) of the online degree-seeking student body was employed. Only 16% of that group were traditional students; 84% were non-traditional students (Allen & Seaman, 2013). Employment status according to Aslanian and Clinefelter (2013) was 60% of online students employed full-time, 20% employed part-time, 12% not employed but looking, 7% not employed and not looking, 1% retired.

In a national survey of community college students the CCCSE (2009) found that more than half (54%) of community college students work 20 or more hours per week, while more than one-third (36%) work more than 30 hours per week. Additionally, more than one in five full-time students work more than 30 hours per week. According to the CCCSE, to juggle their complex schedules, 28% of the community college students

reported having taken online courses. Further, in both this study and one released by the CCCSE in 2012, community college students were asked the likelihood that working full-time would cause them to withdraw from class or from this college. In 2009, 37% responded with *likely* or *very likely*. In 2012, 38% of the 434,142 respondents indicated those same two likelihoods.

In summary, these studies support a general conclusion. A higher percentage of students enrolled in online education are employed compared to students in the general population of undergraduate students.

Marital Status and Dependents of Online Students Enrolled in Community College Courses and Programs

The ATC (2007) concluded that more than half of all distance learning students were married with dependents, which meant that they were often juggling a family and a job with their coursework. In 2013, Aslanian and Clinefelter supported this generalization stating that the average online student was concerned about balancing the responsibilities of having a family and completing schooling.

According to Radford (2011) in a 2007-08 NCES study, students who had a dependent or were married also participated in online education classes or degree programs more often than other students. For example, “29% of students with one or more dependents, and 32% of married students took a distance education class, in contrast to 18% of students without these characteristics” (p. 12). Whereas 18% of all undergraduates were married, 40% of all undergraduates in an online education program were married. In addition, though 25% of all undergraduates had one or more dependents, 55% of all undergraduates in an online education degree program had at least one dependent, according to Radford.

In 2009 and 2012, community college students were asked, “How likely is it that the following issues would cause you to withdraw from class or from this college?” The response of “Caring for dependents” was identified as a *likely* or *very likely* reason by 28% of the respondents in 2009 and by 28% of the 433,003 students surveyed in 2012 (CCCSE, 2009, 2012, p. 6 and p. 7, respectively).

In summary, since 2007 about half of online education students have had dependents, and/or spouses, who have impacted student decisions regarding continuation in their academic pursuits.

Preparedness of Online Students Enrolled in Community College Courses and Programs

Community colleges serve a diverse mix of students with dramatically varying goals and levels of academic preparation. Some are returning from the workforce to learn new skills. Many are first-generation college students who have never been to a college campus. Most have significant demands on their time as they juggle personal, academic, and financial challenges (CCCSE, 2009, p. 5).

According to Horn and Nevill (2006) and Noel-Levitz (2014) community college students were, and still are, particularly attracted to the flexibility of online learning. However, when compared to traditional undergraduate students, these community college students tended to be older than the traditional age of 18–22, declared financially independent, worked at least 35 hours a week, had family commitments, and were academically at risk and in need of developmental coursework (Capra, 2013; Horn & Nevill, 2006; Schuetz & Barr, 2009). These student characteristics have led researchers (Levy, 2003; Smith Jaggars & Bailey, 2010; Tucker, 2013) to question whether online education was even appropriate for this “academically weak population” (Capra, 2013, p. 108). But in the generally open access community college educational system, there has

also been ongoing administrator concern about how best to assess and meet the needs of those students at risk for dropping out or failing to achieve their personal goals (Austin, 2010; Burr, 2006; Lokken, 2013; Murphey, 2006).

In the 2009 CCCSE study, the survey item designed to determine barriers to students' returning to college was "How likely is it that the following issues would cause you to withdraw from class or from this college?" "Being academically unprepared" (p. 6) was identified by 19% of the students as a *likely* or *very likely* reason for dropping out.

In 2012, the CCCSE reported that of 75, 587 students who were entering community colleges and were tested in the fall of 2010, 66% reported that their placement tests indicated that they needed developmental coursework in at least one area. In the spring of 2011, of 121,114 students who took a placement test, 56% reported that the test indicated that they needed developmental education in at least one area.

In that same 2012 CCCSE study, 433,639 community college students were asked in the spring of 2011 about their plans after the current semester. Of the respondents 22% reported that they had no plan or were uncertain about their future plans (17%). Asked "How likely is it that the following issues would cause you to withdraw from class or from this college," of the 431,316 respondents, 19% indicated *likely* or *very likely* to "Being academically unprepared" (p. 7). This was the same response percentage as that elicited by this item in the 2009 CCCSE survey.

Student preparation for online education has been discussed both here and in four earlier subsections of this chapter. The pervasive nature of this issue has made it a concern for students, faculty, administrators, accrediting agencies, governments, professional organizations, and funding foundations as cited throughout this document.

Summary

This review of literature on the characteristics and demographics of online education students supports the following generalizations. The majority of undergraduate online students are in-state, female, white/Caucasians, who are older, lower in socioeconomic status, more often married with dependents, more often employed, and less often prepared for higher education than their traditional education peers. However, around this generalization, which serves somewhat like a verbal median, lays a range of variation on each characteristic. Bragg and Durham, (2012) and Gross and Kleinman (2013) pointed out that “because the majority of community colleges maintain an open admissions policy, they serve as the primary mode of access to higher education for underserved groups including racial and ethnic minorities, immigrants, low-income students, and students of nontraditional age” (Gross & Kleinman, 2013, p. 3).

The information in this section will be used throughout the remainder of this document to inform the selection, analysis, interpretation, and discussion of literature on student perceptions about online education at community colleges.

Community College Student Perceptions of Online Education

A student’s perceptions provide a window to that individual’s reality (Dobbs, Wade, & del Carmen, 2009). The impressions, insights, and views that constitute perceptions are the bases on which students make decisions and take action (Proffitt, 2006; Witt, 2011). One type of perception that leads to action is the impression that needs or expectations have (or have not) been met. This type of perception is referred to as

*satisfaction*⁴ (or *dissatisfaction*). Stated another way, satisfaction is the perceived state of having been provided with that which is needed or desired (Merriam-Webster, n. d., “Satisfaction”) or having achieved outcomes of success (Keller, 1983).

According to Noel-Levitz (2011), the congruence or “fit” between online students’ expectations for their educational experience and their satisfaction with what they perceive as the reality of that experience determines the likelihood that they will persist and be successful in their online courses and programs. Further, “the opposite effect also applies: with greater incongruence or lack of fit comes higher attrition and poor performance” (p. 3).

This section provides a review of literature on community college student perceptions of numerous aspects of online education. It includes subsections on community college student perceptions regarding 1) needs and goals for online education; 2) online education, in general; 3) online course content; 4) online learner-instructor interaction; 5) online learner-learner interaction; 6) online teaching and learning; 7) assessment and evaluation in online education; 8) technology in online education; 9) online student support services; and 10) best practices in online education. However, each of these subsections begins with a brief overview of the perceptions of undergraduate students, in general, regarding their online education. These overviews provide context, clarification, and, sometimes, definitions for the community college student perceptions presented in the latter portion of each subsection.

⁴ Throughout the remainder of this document an anchor on a scaled survey item will be reported in italics, whereas that same anchor will be enclosed in quotation marks when it designates a student’s response to a survey item. When an anchor-type term (e.g., “satisfaction”) is a part of the ongoing text generically identifying a perception, the term will be unmarked.

A type of online education about which there is yet very little published student perception data is massive open online courses (MOOCs). Online courses “only became a newsworthy phenomenon in the summer of 2012, when professors at several big name institutions ...[began] to offer free online courses to as many as 160,000 students per course” (Mullins, 2013, p. 2). Percy (2014) offered a brief history of MOOCs in a biographical sketch of his experiences with online education as a student, a teacher, and a professor.

Research is scarce. However, Aslanian and Clinefelter (2013) described MOOCs to their 1500 online student survey participants as “free online courses being offered by some institutions, and while these courses often do not carry college credit, they can provide students with a new skill or understanding of a subject area” (p. 15). These investigators found that 34% of their sample had never heard of MOOCs, 36% had heard of MOOCs but had not enrolled in one, 17% had heard of these courses and planned to enroll in them, 5% had enrolled in one or more and were currently enrolled one, and 5% had enrolled in a MOOC but had dropped out. The remainder had completed one or more MOOCs. For the approximately 15% of students who had enrolled in MOOCs the “large majority had enrolled in one or two, but some had enrolled in five or more” (p. 15).

In 2014, Lokken and Mullins reported that “most community college distance education administrators and faculty remain skeptical of massive open online courses (MOOCs) due to their low student retention rates, low teacher-to-student interaction, inability to authenticate students, and lack of financial sustainability” (p. 4). Also according to these researchers, a few community colleges have used grant funding to

develop MOOCs that offer self-paced online orientations and remedial help, but few community colleges have created a financially-sustainable model for creating MOOCs.

Needs and Goals for Online Education

One of the secondary research questions guiding this study was “What are the needs and goals of students enrolled in online courses at community colleges in the U.S.?” The literature reviewed in this subsection on student perceptions of their needs and goals will answer that question. However, much of the data reported in this subsection was obtained from mixed samples of undergraduate students representing both community colleges and other postsecondary institutions. But, the American Association of Community Colleges (AACC), the Center for Community College Student Engagement (CCCSE), and the Instructional Technology Council (ITC) sponsor ongoing research on numerous aspects of the education of community college students. The data-based findings published by these organizations will be cited frequently throughout the remainder of this chapter.

Student needs for online education at community colleges. Historically, educators have identified the meeting of student needs, thereby, gaining their satisfaction as two keys to success in achieving institutional strategic goals and plans (Ferguson & DeFelice, 2010). With the enrollment of non-traditional students who were generally more varied in age, were unable to be geographically bound to a campus, and were unable to fit into rigid on-campus class schedules, institutions had to change their delivery of education if they were going to meet the needs and gain the satisfaction of these students (Appana, 2008; Austin, 2010; Sampson et al., 2010). The new online education students were working professionals, military members (American Association

of Community Colleges, 2014a), stay-at-home parents, and other people occupied with life priorities that could not be abandoned or put on hold while education was being pursued (Bacow, Bowen, Guthrie, Lack, & Long, 2012). These continue to be the student groups that community colleges serve (Aslanian & Clinefelter, 2014; Bragg, 2011).

So, what have students perceived as their needs relative to online education, and what has been the prevalence of these needs among students? Three ways that student-perceived needs have been studied include asking them 1) what they need, 2) what the benefits of online education are, and 3) what their reasons are for selecting a particular method of delivery.

In the late 1990s student-reported needs included: 1) “anytime, anywhere” accessibility, 2) course and program flexibility that enabled them to work at their own pace, and 3) time to reflect on materials and their responses before having to share their perspectives or knowledge (Berge, 1997; Jiang, 1998; Matthews, 1999). Later, three benefits of distance education that were frequently identified were, again, 1) accessibility to students at locations often far from the enrolling instruction, 2) flexibility in program structure to accommodate student work schedules, and 3) cost effectiveness (Leonard & Guha, 2001; Richardson & Swan, 2003; Vaughn, 2007).

In 2010, Lei and Gupta reported 13 student-perceived benefits of online education. The benefits included: 1) limited verbal communication of instructors; 2) course flexibility and freedom to work at own pace; 3) reduced or eliminated commuting time to and from campus; 4) reduced or eliminated parking hassles; 5) limited peer distractions (e.g., class clowns); 6) limited favoritism from instructors; 7) easy access to course materials from any location with Internet connectivity; 8) constant

access to course materials from any location with Internet connectivity; 9) continuing education despite a busy schedule; 10) reduced culture shock; 11) help available for students with learning disabilities; 12) help available for students with physical disabilities; and 13) development of various practical skills.

In the survey of online higher education students, in general, for the *2011 National Online Learners' Priorities Report*, Noel-Levitz (2011) asked students why they had chosen online education. In the order of student ratings of importance, their reasons included: 1) convenience, 2) flexible pacing for program completion, 3) accommodation of a work schedule, 4) the online program requirements, 5) the reputation of the institution, 6) the cost, 7) the availability of financial assistance, 8) the transferability of credits, 9) future employment opportunities, 10) distance from campus, and 11) recommendations from an employer.

In 2013, Allen and Seaman reported Babson Survey Research Group data on the primary reasons higher education students, in general, gave for taking an online course. The findings, listed here with percent of respondents, included: 1) convenience—57.3%, 2) same class on campus was full—7.7%, 3) good past experience—6.2%, 4) travel prevented on-campus attendance—4.4%, 5) easier than on-campus class—3.6%, 6) curiosity—3.2%, 7) extra online course helped graduate sooner—2.2%, 8) thought classes were self-paced—2.2%, 9) recommended by someone—1.4%, and 10) all other responses combined—12%.

According to a large national 2012 collaborative study by the Babson Survey Research Group and the College Board (Mlot, 2012), the following percentages of online undergraduate students, in general, offered their perceptions of the benefits of online

education (listed with elaboration of their responses provided in parentheses). Of the respondents 80% identified 1) career advancement (students said that the greatest motivation to enroll was to advance their current career); 2) balance—68% (the ability to balance work, family, and social responsibilities more easily was beneficial); 3) anytime, anywhere convenience—64% (students valued the ability to study anytime and anywhere on their own schedule); 4) accelerated courses—37% (fast-track courses motivated students to complete a program in an online setting); 5) less expensive—30% (the overall lower cost of online courses was very appealing to online students); 6) faster completion time—18% (online programs were generally completed faster than traditional programs); 7) variety of courses—12% (the diversity in the online offerings influenced online enrollment); 8) the availability of specific credentials—9% (there was greater potential for earning specific credentials); 9) effectiveness—9% (some students found online learning methods more effective than those in a traditional college setting); and 10) other reasons—2%.

A nationwide sample of 1500 online higher education students, in general, responded to an item requesting the single “greatest advantage” of online study (Aslanian & Clinefelter, 2013). The respondents identified the following 10 advantages listed with the percentage of respondents indicating each one: 1) ability to study when and where I want—32%; 2) flexibility to study around work obligations—17%; 3) ability to study at my own pace—13%; 4) study at home/elimination of travel—9%; 5) overall lower cost—7%; 6) flexibility to study around family obligation [they could choose when to study relative to family obligations]—7%; 7) ability to study around family responsibilities/obligations [they could study while carrying out their family

responsibilities/obligations]—7%; 8) 24/7 access to course material and resources—5%; 9) could enroll at institutions beyond my home region—2%; and 10) new and innovative teaching methods—1%.

Student goals for their online education at community colleges. In 2008, “the primary motivations for adult learners enrolling in online college and university programs [were] personal enrichment and improving performance or pay in their current job or field,” according to Eduventures (2008, p. 3). The research of that firm also showed that for 30% of their sample, “improving performance or pay was the overriding motivation....Career-related themes [were] the primary reason that the majority of consumers (63%) [were] pursuing continuing and professional education” (pp. 3-4).

In the 2009 CCCSE study, community college students were asked to “Indicate which of the following are your reasons/goals for attending this college” (p. 6). The respondents were given three response choices—*Primary Goal*, *Secondary Goal*, and *Not a Goal*—for each of the following six outcomes. The three percentages following each goal statement represent, respectively, the portion of subjects who selected each response choice: 1) complete a certificate program—30%, 19%, 51% ; 2) obtain an associate degree—60%, 20%, 20%; 3) transfer to a four-year college or university—51%, 22%, 27%; 4) obtain or update job-related skills—42%, 27%, 31%; 5) self-improvement/personal enjoyment—40%, 34%, 26%, 6) change careers—29%, 16%, 55%.

In a national study summarized by Mlot (2012), over 90% of online students indicated that their career was their primary motivation for their returning to school. Specifically, students identified their educational goals as advancement in their current

career—46%, keeping up-to-date in their current career—29%, changing careers—12%, and meeting credential or licensure requirements for current job—5%.

In the 2012 CCCSE study entitled *A Matter of Degrees*, an item that allowed participants to choose more than one response category showed that for 57% (n=70,427 community college students) completion of a certificate program was a goal for attending college. Further, the goals of 79% (n=71,138) of the respondents included obtaining a degree and for 73% (n=70,378) transferring to a four-year college or university was a goal. However, “fewer than half (46%) of entering community college students with a goal of earning a degree or certificate met their goal within six years after beginning college” (p. 6).

Student perceptions of their needs and goals also play a role in their selection of an institution to attend (Aslanian & Clinefelter, 2013). Reputation and price continue to be important considerations when online students select an institution, according to these researchers. The Aslanian and Clinefelter data from a national sample of 1500 online students showed that perceptions of reputation were most often based on institutional accreditation, quality of the faculty, and personal acquaintance with other attendees. “Other important selection factors included freedom from specific class meeting times, liberal credit-transfer policies, and streamlined admission processes” (p. 5).

With regard to the cost of online education, 65% of the Aslanian and Clinefelter (2013) respondents *completely agreed* and another 31% *somewhat agreed* that their online program had been a good financial investment. Further, 96% of the subjects perceived that their program had been “worth the time” by indicating that they *completely agreed* (72%) or *somewhat agreed* (24%).

In summary, numerous studies, of which only a sample has been reviewed in this subsection, have most commonly reported the following student-perceived needs and goals relative to the delivery of their education: 1) the convenience and flexibility of anytime availability and personal scheduling of anytime access, 2) the potential for accelerated course and program completion; 3) cost effectiveness; and 4) the range of options for credentialing, certification, earning a degree, preparing for transfer to another institution, and/or career advancement.

Online Education at Community Colleges

The content of this subsection contributes additional answers to the primary research question posed in this study: “What are the student perceptions of online education at community colleges in the United States?” Previous research has revealed both positive and negative perceptions among students regarding online education (Dobbs et al., 2009). To the extent that the information was available, throughout this subsection student satisfaction was contrasted with their dissatisfaction relative to various aspects of online education. The following discussion provides both qualitative and quantitative data on student satisfaction with online education, in general.

In the first decade of the 2000s, academic researchers were reporting the positive perceptions of their subjects regarding student online educational experiences. Beyond general positive perceptions, 60% of Leonard and Guha’s (2001) subjects regarded an online course as *more challenging* than a traditional course. Further, 60% perceived that they learned more in online courses. Approximately 40% reported that they participated more in online courses while interacting more with their fellow students online.

In 2005, Wyatt studied undergraduate students who had been enrolled in both online and traditional courses. He reported that 77% of his subjects rated the quality of their online experience as either *good* or *excellent*. Relative to academic rigor, 25% of Wyatt's subjects perceived their online courses to be *much more demanding* than their traditional courses; whereas, another 32% reported the online courses to be *slightly more demanding*, and an additional 36% indicated that their online courses were *as demanding*.

Also exploring the perceptions of students who had experience with both online and traditional coursework, Hannay and Newvine (2006) found that more than half of their participants felt they had learned more in their online courses than in their traditional classes. The Hannay and Newvine subjects also perceived that online courses were *more difficult* and of *higher quality* than traditional courses. Students in this study also reported that they were more likely to read for their online courses. While 92% indicated that they read for their online courses, just more than half (57%) read for their traditional courses. These research participants added that they would spend more time per week studying for an online course than for a traditional one.

Comparing the perceptions of students who had taken one or more online courses with the views of those who had not taken any online courses, Dobbs et al. (2009) found some statistically significant differences between their subject groups. The differences were generally in terms of strength of agreement or disagreement and not in terms the direction of their perceptions. The Dobbs et al. analyses showed that both those who had taken online courses and those who had not generally agreed that traditional courses are easier than online courses and disagreed that online courses are easier than traditional courses. Both groups also agreed that students learn more in traditional courses while

disagreeing that students learn more online. Students in both groups generally agreed that it takes more effort to complete an online course.

In this same study, those students who had taken an online course disagreed that the quality of online courses was lower than traditional courses, while those who had not taken an online course agreed with this item. The results for this item also revealed differences in perceptions based on online course experience. Those subjects who had taken five or more online courses more strongly disagreed that the quality of online courses was lower than that of traditional courses compared to those students who had taken one to four online courses. Similarly, those who had taken five or more courses disagreed that students learn more in traditional courses, while those with one to four online courses agreed that this was the case.

Aman (2009) studied student satisfaction using predetermined items on which subjects rated their satisfaction using a Likert scale ranging from 1 (*strongly disagree*) through 5 (*strongly agree*). Aman found that students' overall satisfaction when enrolled in at least one online course was rated with a mean of 4.21 (SD = .96); they were, in general, satisfied.

Evans (2009) examined which of the factors for online courses related to student satisfaction. He also found flexibility of scheduling and studying for online courses was a factor contributing to student satisfaction.

In 2011, Noel-Levitz released a study of student satisfaction with their online academic programs, student services, and overall campus life. The respondents in this research included approximately 99,000 students representing 108 four-year public and private institutions; community, junior and technical colleges; and two-year career or

private schools. The Noel-Levitz *Student Satisfaction Inventory (SSI)* items scaled student perceptions of both satisfaction and importance. These educational consultants found that 25% of the online students perceived that their expectations *had been met* and that 63% indicated that their expectations *had been exceeded*. Seventy-three percent of the respondents were *satisfied* or *very satisfied* with their online experience, and 76% replied that they would *probably re-enroll* or *definitely re-enroll* in the program if they had to do it over again. These investigators concluded, “Overall, this indicates that students are very pleased with their online experiences and feel that institutions are doing a good job in delivering online learning” (p. 13). In his case study at a community college, Seaberry (2008) concurred that the majority of students were satisfied with online courses and, further, found that scheduling flexibility was a major factor for their satisfaction.

DaCosta et al. (2010) studied community college student perceptions of overall online course effectiveness using statistical analyses of the combined and individual data obtained for the following subscales: flexibility, user interface, navigation, getting started, technical assistance, course management, universal design, communications, instructional design, and content. The descriptive results indicated that, overall, the 141 community college students in this study had positive perceptions of online course effectiveness.

DaCosta et al. (2014) also explored, statistically, the effects of several demographic characteristics on community college student perceptions. They found that females had significantly higher perceptions of online course effectiveness than did

males. They also found that for the variable of students' native language, native-English-speaking students had significantly higher perceptions of online course effectiveness than did their non-native-English-speaking peers.

In 2014, Noel-Levitz released the results of their study of 185,186 online and non-online students at 208 community, junior, and technical colleges. The Noel-Levitz *Student Satisfaction Inventory* was administered between the fall of 2011 and the spring of 2014. Overall, 63% of the respondents were satisfied with their community college experience, and 71% indicated that if they were making the decision again, they would re-enroll.

In summary, the literature reviewed in this subsection on student perceptions regarding online education, overall, provides generally positive perceptions as well as satisfaction with online higher education. Further, the findings were similar both for online undergraduate students, in general, and for students enrolled in online community college education.

The next subsections of this document identify student perceptions of specific aspects of online education. Findings are reported for course content, student interactions, teaching and learning, assessment and evaluation, technology, student support services, and best practices.

Online Course Content

An assumption that underlies the information in this subsection is that student perceptions regarding course content are based on student "interactions" with it. *Learner-*

*content interactions*⁵ were originally defined as the non-human interactions that students have with course subject matter (Moore, 1989; Moore & Kearsley, 1996).

Since the publication of Moore's original (1989) framework of three types of learner interactions in distance education—learner-content interactions, learner-instructor interactions, and learner-learner interactions—numerous researchers (as cited throughout this subsection and the next two) have adopted Moore's three interactions as part, or all, of the theoretical frameworks for their studies. In fact, Kuo et al. called Moore's model "the most prominent framework of interaction in distance education" (2014, "Interaction," para. 2). Most of these researchers (e.g., Chickering & Ehrmann, 1996; Mandernach, 2005; Sloane-C, 2008, Wyatt, 2005) have concluded that in their studies "the importance of interaction in online learning was confirmed" (Kuo et al., 2013, "Conclusions," para. 1).

First, this subsection identifies the nature of learner-content interaction in online education. Second, it provides a brief review of literature on student satisfaction with online learner-content interaction in online higher education, in general. Then, third, it provides a review of literature on community college student perceptions regarding the learner-content interaction in their online education. Finally, it provides a brief statement on open education resources (OER) before ending with a summary of the content in this subsection.

According to Kelsey and D'sousa (2004), learner-content interaction occurs when a student reads a book, views pre-recorded videotape, or in some way interacts with inanimate learning resources. The current review of literature showed that over time,

⁵ Consistent with the literature being reviewed, either term *learner-content* or *student-content* interactions was used in this subsection and throughout the remainder of this document.

however, the researchers' descriptions of these content interactions expanded to cover learners online interactions with types of electronic media and course design, as well. Hence, such additional aspects as website searches and online curricular topics, learning activities, learning objects, assignments, and projects were studied. The following investigations provide an overview of the impact of the online course content on student satisfaction.

Relative to online communication of course content as a component of learner-content interaction, Johanson (1996) conducted her case study on a single online course. She concluded that student satisfaction was positively impacted when the course was specifically designed to support learner-centered strategies involving clear online communication of expectations and availability of alternative assignment options.

Seeking the factors that promote student satisfaction, Stein (2004) reported that student satisfaction with course delivery depended largely on the course structure. Thus, course elements such as objectives; a list of the sequence of units in the course content; details of the assignments and deadlines; and an identification of the types and dates of tests, papers, and any other activities to be graded all needed to be presented and clearly stated online in order to maintain or increase student satisfaction.

Later studies also showed that effective communication of online course content was a factor contributing to online student satisfaction. Evans (2009) found that the design, structure, and communication of the online curriculum were key variables impacting student satisfaction. Kelly (2009) reported that students wanted clear online communication of the instructor's expectations and standards, and if the course syllabus was clear about these guidelines and the instructor complied with what had been

specified, students were satisfied. Bradford (2010) provided numerical evidence of some of these findings reporting that 87% of his subjects wanted clarity and simplicity in the syllabus and all assignments. Likewise, as found in the 2011 Noel-Levitz survey, an item that ranked high in students' estimations of importance but low in their rating of satisfaction was that assignments are clearly defined in the syllabus.

Two additional elements of student-content interaction that researchers found of significance relative to student satisfaction with course content were the online design and availability of course materials. For example, Ortiz-Rodriques et al. (2005) found that student satisfaction was linked to the availability of relevant, succinctly-presented media for course materials. Likewise, resource materials such as study guides, additional reading material, and online resources with direct relevance to the academic subject were also identified as predictors of student satisfaction (Aman, 2009; Mandernach, 2005; Nakos, Deis, & Jourdan, 2002; Noel-Levitz, 2011).

Aman (2009), Bradford (2010), and Noel-Levitz (2011) added more specificity to these findings. Aman's subjects rated their satisfaction with course resource materials with a mean of 4.12 (SD = 0.73) on a scale from 1 (*strongly disagree*) through 5 (*strongly agree*) thus indicating that they "agreed" that they were satisfied with the materials. According to Bradford, 76% of his subjects agreed that online instructional material should include both visual and auditory materials, and 80% agreed that visual materials should be designed so that students do not need to visually scan material to find the meaning of the presentation. The Noel-Levitz survey yielded student ratings of online library materials to be of high importance and high satisfaction.

Overall, Strachota's (2003) multiple regression analysis of her, data supported learner-content interaction as the primary construct in predicting students' satisfaction with their online courses at a two-year technical school. Further, in that same study, using qualitative research methodology, Strachota identified learner-content interaction as the most important criterion for a satisfying online experience, according to her interpretation of group and individual student interview data.

A decade later in a preliminary study, Kuo et al. (2013) also used regression analysis in determining that learner-content interaction explained the largest unique variance in student satisfaction among the three Moore (1989) learner-interaction types (i.e., learner-content interactions, learner-instructor interactions, and learner-learner interactions) plus the variables of Internet self-efficacy, and self-regulation. Then, in 2014 in an expanded investigation with a sample of 221 students, Kuo et al. confirmed learner-content interaction as the strongest predictor among those significant predictors of student satisfaction. These researchers concluded, "In sum, the results suggest that improvements in learner-content interaction yield the most promise in enhancing student satisfaction in online course settings" (Kuo et al., 2014, "Abstract").

Community college student perceptions regarding online course content. To this point in this subsection, the literature on student perceptions of satisfaction indicates that online students, in general, value the availability of relevant, succinctly-presented media for course materials and resource materials such as study guides, additional reading material, and online resources with direct relevance to the academic subject of an online course (e.g., Aman, 2009; Bradford, 2010; Mandernach, 2005; Nakos, Deis, & Jourdan, 2002; Noel-Levitz, 2011; Ortiz-Rodriques et al., 2005). However, in her study

of the persistence of community college students in online classes, Stanford-Bowers (2008, "Role of the instructor," para. 2), warned that "posting of extensive lecture notes which mirror the textbook, PowerPoint outlines used for classroom presentations, and busy work are all ill-advised techniques" for designing online courses. With the overall goal of providing their perceptions in identifying retention factors, community college students in the Stanford-Bowers study described such instructional content as useful for organizing the textbook content but not for developing independent learning, responsibility, personal contact, or discussion/interaction—several of the student-perceived retention factors identified in that study.

The perception-based retention factor ranked third of ten (behind convenience/flexibility and time management) by the community college students in the Stanford-Bowers (2008) study was "clearly-stated requirements." Like their peers in online higher education in other institutional settings, community college students value and take action based on their perceptions regarding course requirements.

In a qualitative study of first-year community college students' expectations of their online programs, Kılıç-Çakmak, Karataş, and Ocak (2009) analyzed data obtained with 10 open-ended items on an online survey of 138 respondents. These researchers found that students expected that in addition to text, there would be images, animations, videos, synchronous communication tools, and web resources available. Further, such course content "should be focused on detailed and descriptive information" (p. 355).

DaCosta et al. (2010) showed that both gender and native-language impacted community college student perceptions of course content effectiveness and instructional design. On a five-point scale ranging from 1 *low effectiveness* to 5 *high effectiveness*,

female student perceptions of course content were significantly higher ($M = 4.2$; $SD = .61$) than those of males ($M = 3.7$; $SD = .72$). Regarding online instructional design, the mean rating of female students was significantly higher ($M = 4.0$, $SD = .62$) than the mean rating of the male students ($M = 3.6$, $SD = .61$).

Future course content in online education? Or not. A type of course content about which research on student perceptions is still non-existent is open educational resources (OER). OER were defined on the William and Flora Hewlett Foundation Website (2013) as:

teaching, learning and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others. Open education resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials or techniques used to support access to knowledge.

“Awareness and adoption of open educational resources (OER) has [*sic*] yet to enter the mainstream of higher education. Most faculty [between 66% and 75%] remain unaware of OER, and OER is [*sic*] not a driving force for faculty decisions about which educational materials to adopt” (Allen & Seaman, 2014c, p. 2). For those faculty who are aware of OER, most judge the quality of OER to be roughly equivalent to that of traditional educational resources. However, according to Allen and Seaman, faculty perceptions of the time and effort commitment required to find and evaluate OER constitute the primary barriers to the use of these materials. In the Allen and Seaman study 38% of the faculty respondents indicated that it was *difficult* or *very difficult* to find OER. However, 27.2% of the same total sample of respondents also rated the finding of traditional course materials as *difficult* or *very difficult*.

In summary, like the research cited and conducted by Kuo et al. (2014), this present review of literature supports the Kuo et al. conclusion that learner-content interaction is an active determinant of online learning student perceptions about their online educational experiences. This generalization applies to undergraduate students and community college students, as well.

Online Learner-Instructor Interaction

In their monograph on a systems view of distance education, Moore and Kearsley emphasized the importance of student interaction in all forms of education. Jain (2011) and (Kuo et al. (2013, 2014) contended that one of the unique features of online education is its capacity to support interactive group processes. Other research has shown that limited interaction may decrease student satisfaction and affect student performance and persistence in online courses (Chang & Smith, 2008; Noel-Levitz, 2011).

In 1996, Moore and Kearsley defined *learner-instructor interaction* as the human interaction consisting of two-way communication between the learner and the instructor. According to Moore (1989) it can take many forms, such as guidance, support, evaluation, and encouragement. Kuo et al. (2014) found that interaction was a critical indicator of student satisfaction and that student perception of dissatisfaction lead to reduced engagement in their online courses.

First, this subsection identifies the nature of learner-instructor interaction in online education. Second, it provides a brief review of literature on student satisfaction with online learner-instructor interaction in online higher education, in general. Then, third, it provides a review of literature on student satisfaction with the learner-instructor interaction in online education at community colleges.

Johanson (1996) contended that an online instructor's role should be that of a facilitator and coach, and Mason and Weller (2000) found that students' satisfaction was affected most by instructor support. Moore and Kearsley (1996) suggested that this type of interaction was necessary for content clarification, student feedback, and minimization of the impact of distance. Carnevale (2000) found that distance education students appreciated many of the same qualities found in traditional courses including a knowledgeable professor and interaction with that professor.

These studies reveal that learner-instructor interaction involves the social interaction of the instructor with the students. Berge (1997) identified this instructor social role as *social presence*. Berge found that students perceived that the "best online instructors" were those who established a social presence. Social presence was quantified as an instructor's being available to students online multiple times a week, and at best, daily. According to Berge, social presence, during which instructors actively interacted with and engaged students, resulted in intellectual and personal bonding that developed into a learning community. Berge reported that when, at the beginning of a course, an instructor sets clear expectations for his or her presence online, there will be a reduced need for daily presence. Berge's students wanted to know when their instructors would and would not be present online in a virtual classroom or be available by email or texting. Students perceived this online availability to be comparable to office hours. This online availability of instructors reduced or eliminated the need for synchronous communication in order for students to perceive instructor presence as successful, according to Berge.

However, Berge warned that students who feel abandoned or who feel alone post questions, such as “Is anybody there?” This is a very clear and unambiguous signal that not all is well, according to this scholar and practitioner.

Some of the personal instructor characteristics that students perceived as valuable contributions to the learning community were timeliness, organization, flexibility, and high expectations (Bailey, 2008). Components of a student-perceived successful learner-instructor interactions included instructor engagement and communication with students (Conceicao, 2006; Conceicao, Strachota, & Schmidt, 2007; Easton, 2003).

Kelsey and D’sousa (2004) conducted a case study of student motivation for learning at a distance. These researchers identified learner-instructor interaction as a relationship that differentiates self-study from distance education because the instructor provides the learner with curriculum; supplies an organized plan—a syllabus—for mastering the content; and communicates with the learner throughout the process. These researchers suggested that identifying learner-instructor interaction as a personal relationship may explain the positive impact of successful interactions on the student motivation and satisfaction with distance education that they found.

One of the seven postulates of Holmberg’s (1995) theory of distance education was that students who were feeling a personal relationship with the instructor also perceived pleasure that motivated them to study. Both this Holmberg postulate and Moore’s (1989) contention that interaction may be a predicating factor for the success of distance education courses were supported by the Kelsey and D’sousa (2004) study.

In 2003, Strachota found that for the technical college students she studied, of her four interaction variables (i.e., interactions between learners and the content, the

instructor, other learners, and technology), learner-instructor interaction contributed as the second most significant construct predicting online satisfaction. And, Strachota's qualitative analyses revealed learner-instructor interaction to be the second most important criterion for satisfaction according to her student interviewees.

Abdulla (2004) found in a study of student perceptions of online instructor roles and competencies that facilitation and interpersonal skills of instructors were ranked the highest in importance by students in the online course environments. Wyatt (2005) determined that over half (54%) of the students surveyed about their online instruction felt that good interactions both between students and the instructor and between students were important factors for student satisfaction. This finding was similar to those of Bouras (2009) and Ortiz-Rodrigues, et al. (2005). Further, Ortiz-Rodrigues et al. (2005) found that student satisfaction with online courses was linked to communication with and timely feedback from the instructor.

Overall, the value of successful learner-instructor interaction in online education was recently verified by the two studies of Kuo et al. who in 2013 and 2014 confirmed that learner-instructor interaction was a good predictor of student satisfaction. By contrast, limited interaction with the instructor decreased students' course satisfaction and affected their performance, which were findings also of Chang and Smith (2008) and Noel-Levitz (2011, 2014).

In 2007, Dennen, Darabi, and Smith discussed the importance of student expectations relative to students' willingness to contribute to student-instructor and student-student interaction. These investigators found that online students' motivation to participate increased when students perceived that their instructors were attempting to

meet the students' expectations and when the instructors demonstrated that they valued the students as individuals.

Community college student perceptions regarding online learner-instructor interaction. Fifteen years ago Palloff and Pratt characterized an online community as one which contains active interaction involving content and personal communication between students and the instructor (as cited in Stanford-Bowers, 2008). Through these interactions the participants share ideas, information, and resources while at the same time they offer support and encouragement along with constructive critical evaluations of each other's work. According to Stanford-Bowers, who described learning communities in detail, the presence (or absence) of a learning community can influence persistence of community college students in online education. Stanford-Bowers went on to state that "learning communities can also provide a student-centered learning environment, develop critical thinking skills, and provide expanded connections to specialists, faculty, and students around the world..." ("Online Learning Communities, para. 1). Further, "effective online learning communities can be characterized by four critical components: interaction, communication, participation, and collaboration" ("Climate of online Learning Community," para. 4).

In her research to determine the top 10 factors that community college students perceived as contributors to student retention in online courses, Stanford-Bowers (2008) found that personal contact and discussion/interaction were ranked eighth and ninth, respectively. These perception-based findings provide additional evidence supporting the role of instructor and peer social presence in the success of students in online education.

In their qualitative study of first-year community college students' expectations of their online education program, Kılıç-Çakmak et al. (2009) argued that "In e-learning, the larger the gap between students' expectations and experiences is, the less the student participation becomes" (p. 351). Based on their community college student perception data, Kılıç-Çakmak et al. found that the major negative influences impacting student-instructor interaction were the number of students per instructor, the lack of time instructors spent in chat sessions, and communication problems between instructors and students.

In this Kılıç-Çakmak et al. (2009) study, the community college students perceived that their instructors communicated primarily through the Internet but did not do so effectively. Student expectations were that instructors would communicate with them directly by phone and would be available face-to-face through online media tools to answer their questions and engage in the chat room discussions. Student responses showed dissatisfaction with mandatory chat rooms at a singular specified time as these were perceived as violations of the flexibility principle, which they expected as one of the primary advantages of online education.

Noel-Levitz (2014) published their latest *National Student Satisfaction and Priorities Report* with an addendum report providing the combined results for 208 community, junior, and technical colleges. These researchers listed the following seven individual items with associated percentages of 185,186 students who first rated the perceived *importance* of each item; then they rated their *satisfaction* level on each item. Students used seven-point Likert-type scales with 1 being low and 7 being high. The importance percentage listed first after each item indicates the percentage of the students

who rated importance as 6 or 7 (*important* or *very important*). Likewise, the second percentage indicates the student who rated satisfaction as 6 or 7 (*satisfied* or *very satisfied*). These findings were extracted, for presentation here, from among 14 items labeled “Instructional Effectiveness” (p. 5.) They are offered as components of instructor social presence and instructor contributions to a learning community as identified by other student results reported earlier in this subsection.

- Faculty are fair and unbiased in their treatment of individual students—84% and 61%;
- Faculty provide timely feedback about student progress in a course—83% and 56%;
- Faculty are understanding of students’ unique life circumstances—81% and 55%;
- Students are notified early in the term if they are doing poorly in a class—81% and 48%;
- Faculty take into consideration student differences as they teach a course—78% and 53%;
- Faculty are interested in my academic problems—77% and 53%; and
- Faculty care about me as an individual—76% and 58%.

Noel-Levitz interpreted their results numerically by subtracting the satisfaction percentage from the importance percentage and identifying a *percentage performance gap*. Small gaps were interpreted as indicators of institutional strengths; large gaps indicated institutional challenges. Of the items above none were identified as strengths, but two items were specified as challenges in need of addressing by these institutions.

Those items were “faculty provide timely feedback about student progress in a course” and “students are notified early in a term if they are doing poorly in a course.”

Taken as a whole, the research in this subsection depicted instructor social presence as communication, feedback, support, and caring about students as individuals. Further, it is apparent that the online learner-instructor interactions engendered by instructor social presence were strong influences on student expectations, motivation, engagement, participation, collaboration, satisfaction, retention, and success. This generalization pertained to both undergraduate students, at large, and to those students enrolled in online education at community colleges.

Online Learner-Learner Interaction

This subsection begins by identifying the nature of learner-learner interaction in online education. Next, it provides a brief review of literature on student satisfaction with online learner-learner interaction in online higher education, in general. Then it concludes with a review of literature on student satisfaction with the learner-learner interaction in their online education at community colleges.

Learner-learner interactions were defined as the human interaction consisting of two-way communication between one learner and other learners (Moore, 1989; Moore & Kearsley, 1996). In non-synchronous online communication this type of interaction may occur via email, blogs, and discussion boards. Kelsey and D’sousa (2004) added that learner-learner interactions often take the form of group projects and discussion groups.

The findings about the role of learner-learner interactions in student satisfaction with their online higher education experiences have been inconsistent. Although Moore (1989) contended that student interest and motivation can be enhanced through peer

interaction, more recently in their study of student motivation, Kelsey and D'sousa (2008) found that student-student interaction was not considered critical to learning. Navarro and Shoemaker (2000) reported that students felt online learning actually increased learner-learner communication because students were more comfortable speaking out in a web-based format. Carnevale (2000) and Swan (2003a) found that students appreciated courses that created a feeling of community and that they valued learner-learner interactions and student social presence as important elements in learning and satisfaction. Whereas some students reported that other learners were essential to their success in a course, others stated that fellow learners actually detracted from their success according to Biner, Welsh, Barone, Summers, and Dean (1997). In his monograph on the key to teaching and learning online, Salmon (2000) indicated that for some learners, active participation and engagement in online discussions throughout or during some parts of the online course may be influential in their learning, but for others, active participation may be difficult or unwanted due to different reasons. Students who were more comfortable writing comments than providing oral input could be involved through text thus contributing their participation (Baglione & Nastanski, 2007).

In 2003, Anderson concluded that engaging in peer interaction propelled students to construct ideas deeply and increased achievement (as cited by Kuo et al., 2014). Further, Strachota (2003) found that technical college students in courses that had either a voluntary or required discussion group were significantly more satisfied than those students who were in courses with no discussion groups. However, in Strachota's qualitative data, learner-learner interaction was identified by students as the least important criterion for satisfaction of the four learner interactions that she studied.

By contrast, in presenting his second principle of online pedagogy—Interactivity is the heart and soul of effective asynchronous learning—Pelz (2004) pointed out that the research conducted by the Suny Learning Network since 1995 had consistently shown the quantity and quality of learner-instructor and learner-learner interaction to be “strong positive correlates with student and faculty satisfaction” (p. 107).

In 2009, Evans examined which of the factors for online courses related to student satisfaction and found that student engagement does. However, that same year Aman (2009) reported that learner-learner interactions were ranked low in impact on their satisfaction by his subjects. The factor with the lowest satisfaction was interaction with a mean of 3.93 (SD = 0.84) on a five-point scale ranging from 1 (*strongly disagree*) through 5 (*strongly agree*). But, a mean of 4.0 was an indication that students agreed that they were satisfied with those interactions. Based on the satisfaction of their student subjects, Sampson, Austin, Leonard, Ballenger, and Coleman (2010) concluded that the social aspects of interactions and a sense of classroom culture were crucial to student success.

In the conclusion to an edited volume of 16 chapters on emerging technologies in distance of education, Veletsianos (2010), the editor, indicated that learners with high levels of interaction with the instructor and other learners are more engaged in online learning. He based his generalization on his reading of the “international experiences, dispersed knowledge, and multidisciplinary perspectives” (p. ix) of the contributors to that volume.

However, overall, the literature on the importance of learner-learner interactions to student satisfaction with their online higher education, in general, is inconclusive. The

variety of methodological elements such as samples of convenience; small student sample size (e.g., 45 students) versus large sample size (e.g., 99,000 students); different institution sizes and governance structures; and data from individual courses, cases, and specific areas of study may have contributed to the conflicting results. Yet, from most of those same studies, the results for learner-content and learner-instructor interactions were highly consistent.

Community college student perceptions regarding online learner-learner interaction. In both of the Capra (2011, 2014) studies of community college students learning, the researcher emphasized the importance of student interactions in the “making of meaning.” Based on her review of literature, Capra (2011) concluded that the research shows that, overall, student-perceived learning is related to the student perceptions of positive social interaction with other students in a course. However, as discussed in the next subsection of this document, Capra conveyed considerable doubt about the quality of learner–learner interaction within online learning communities in community college education.

In the Morris (2011) study of community college student perceptions of online learning, her qualitative data revealed that communication and interaction with others through discussion board participation was a major source of engagement. Further, her 15 participants valued such learner-learner interactions as important elements in learning and satisfaction.

Learner-learner interactions as defined by Moore (1989) and Moore and Kearsley (1996) have been identified as “social presence” (e.g., Pelz, 2004; Richardson & Swan, 2003) and have been incorporated into other frameworks and models—for example,

communities of inquiry (CoI; Garrison, Anderson, & Archer, 2000). Further discussion of student perceptions of learner-learner interactions within other models occurs throughout the following three subsections of this document.

Online Teaching and Learning

In order to eliminate redundancy and duplication of information across two subsections—one on teaching and one on learning—the literature on student perceptions regarding these interdependent areas of online higher education is reviewed together in this subsection. The following discussion focuses on student perceptions regarding 1) cognitive, social, and teaching presence (Garrison & Cleveland-Innes, 2005) as defined within a CoI (Garrison et al., 2000; Richardson & Swan, 2003); 2) the metacognitive process of regulated learning (Kuo et al. 2014; Zimmerman, 1989); and 3) self-efficacy (Shen, Cho, Tsai, & Marra, 2013). This subsection ends with a review of student demographics relative to perceptions of teaching and learning.

Cognitive presence, social presence, and communities of inquiry (CoI). In 2000 Garrison et al. explained that when learners form a CoI, with a shared purpose of achieving a meaningful learning outcome, they experience the interaction of cognitive, social, and instructional elements in the mutual realization of their learning goal. Swan, Garrison, and Richardson (2009) depicted the interaction of the three elements of a CoI (Figure 1, p. 5). They defined cognitive presence as “the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse” (p. 8). “Social presence [is] the degree to which participants in computer-mediated communication feel affectively connected one to another...” (p. 9). Teaching presence is “the design, facilitation and direction of cognitive and social processes for the purpose of

realizing personally meaningful and educationally worthwhile learning outcomes” (p. 12). Pelz (2004) discussed two ways that the instructor and the students add teaching presence to a discussion: by facilitating the discussion and by direct instruction.

In a study of the causal relationships between social presence, teaching presence, and cognitive presence, Garrison, Cleveland-Innes, and Fung (2010) emphasized the key role that teaching presence plays in influencing student perceptions of social presence and cognitive presence. According to Capra (2014) this CoI paradigm was developed to assist educators understand the unique learning dynamic created in computer-mediated environments.

Rourke and Kanuka (2009) provided a review of 252 reports on the CoI framework. Their consideration of several perception-based studies of graduate and other university students will not be recounted here.

Community college student perceptions regarding online CoI. In a discussion of the literature on issues confronting online community college students, Capra (2011) stated that “researchers have found that students overall perceived learning is correlated to the sense of social presence facilitated in the course. Thus, students who perceive a lack of social interaction or instructor presence may be more inclined to withdraw” (“Problems for Instructors and Students throughout Higher Education,” para. 1).

In a qualitative study of 25 community college students, Morris (2011) explored student perceptions of online learning within the theoretical construct of the CoI model. Her data yielded “five themes: communication/interaction (social presence), instructor involvement/support (teaching presence), instructional design (teaching presence), learner engagement with content (cognitive presence), and learner characteristics/needs

(dispositional and situational factors)” (p. 37). The student perception-based findings in this study included the following:

- that communication and interaction with others through discussion board participation was a major source of engagement and that the students who usually perceived isolation were enrolled in courses without required discussion board participation;
- that instructor actions including feedback, quick response via e-mail or discussion board to a question, and review of assignment drafts were perceived as especially beneficial by many online students;
- that aspects of instructional design with perceived potential for promoting student expectations of successful course completion were clearly communicated instructor expectations, easy-to-follow course structure, timing of assignments, neat instructions, clear guidelines, and course activities that encouraged students in peer-reviewing and challenging each other’s opinions and work—constituting opportunities for students to exhibit teaching presence in the form of involvement and support;
- that the course activities that contributed most to cognitive presence were discussion board participation, formative assessment, instructor-created notes, and lab activities, but that most of the participants perceived that they learned more through independent study than from the instructor or from other students;
- that 80% of the participants were satisfied with their online course experience and that, for those in courses with required discussion boards, communication and collaboration via those boards increased their satisfaction with the course; and

- that, for about a third of the participants, the dual-faceted category of teaching presence (instructional design and instructor involvement/support) was a reason for their course satisfaction.

As a context for her phenomenological study of 15 community college students' online education experiences, Capra (2014) adopted the social and cognitive elements of the CoI paradigm to formulate her student interview questions. The subjects were enrolled in fully online courses in seven different disciplines and were selected using purposeful sampling so that they would represent the diversity of community college campuses as described in 2013 by the AACC.

She found that “overall, students did not describe their learning experience as socially consistent with CoI. Instead, participants described their learning as isolated and impersonal” (p. 112). The students described their “struggles” sensing others as real people in the course. They reported that what social interaction did occur with the instructor was mainly a result of the instructor answering e-mails or posting announcements. Capra interpreted the data as consistently showing two categories of social student-student interaction: “perfunctory discussion boards and impersonal relationships with classmates” (p. 112) during mandatory discussion boards as the main, and sometimes only, form of communication with their classmates.

Because of the interactional nature of learning within a CoI, the absence of “a strong social presence needed to engender critical thinking and collaborative work” (p. 113) left Capra's subjects describing their coursework as “monotonous” with hours of reading and typing from a textbook in the absence of supplemental materials and assignments, except for unnecessary PowerPoint slideshows taken from the textbook.

Further, student perceptions of the contributions of the instructor depicted disconnected rare interactions beyond email question-posing and question-answering.

In summarizing her research, Capra (2014) stated, “Findings conveyed suppressed social, cognitive, and teaching presence; and as a result, a meaningful learning experience was not achieved for the participants....Findings from this study raise questions about the pedagogical soundness of fully online courses for community college students” (p. 108).

The Capra (2014) findings supported the findings of Rourke and Kanuka (2009), Lei and Gupta, (2010) and Mlot (2012). Rourke and Kanuka concluded, “this review indicates that it is unlikely that deep and meaningful learning arises in CoI. Students associate the surface learning that does occur with independent activities or didactic instruction; not sustained communication which is critical in CoI” (“Abstract,” para. 1).

In evaluating the disadvantages of online education from student perspectives, the community college students in the Lei and Gupta (2010) sample identified several issues that were consistent with the negative findings of the Capra (2013) study. Student-perceived disadvantages of online education that are contrary to the principle of CoI included: lack of social interactions with instructors and peers, delayed feedback from peers and instructors, lack of direct assistance and explanation from instructors, and the belief that online courses have more required assignments than traditional courses.

Mlot (2012), in a section entitled “Online education isn’t perfect,” offered the following list of student perceptions with associated percentages of a large representative sample of online education enrollees who indicated each concern. Students reported a lack of face-to-face contact with instructors and other students—37%; inconsistent

communication with instructors—24%, lack of motivation—20%, negative perceptions of others about on-line study—5%, and greater difficulty than classroom studies—4%.

Self-regulated learning. Zimmermann (1989) defined self-regulated learning as the degree to which students are metacognitively, motivationally, and behaviorally active participants in their own learning. According to Kuo et al. (2014), metacognitive processes involve a “learner’s ability to set up plans, schedules, or goals to monitor or evaluate their learning progress” (“3.3. Self-regulated learning,” para. 1). Further, self-regulated learning behavior includes seeking help from others to optimize learning, and self-motivation includes the willingness to take responsibility for personal successes or failures, according to Kuo et al.

In a study of task value and self-efficacy, which are two components in the motivation construct of self-regulated learning (Kuo et al. 2004), Artino (2007) found that these two components positively predicted overall student satisfaction with an online course in the U.S. Navy.

Kuo et al. (2014) also studied the relationship between self-regulated learning and student perceptions of satisfaction with online education. These researchers did not find self-regulated learning to be a significant predictor of student satisfaction.

However, in a study of 815 community college students enrolled in liberal arts online courses during a single semester, Puzziferro (2008) found self-regulated learning to be a significant predictor of student perceptions of satisfaction in college-level online courses. On the “Motivated Strategies for Learning Questionnaire” subscales rehearsal, elaboration, metacognitive self-regulation, time management, and study environment were significantly positively correlated with levels of satisfaction.

Self-efficacy and learning. Bandura defined self-efficacy as “people’s judgments of their capabilities to organize and execute a course of action required to attain designated types of performances” (as cited in, Shen et al., 2013, p. 10). “If a person has a low level of self-efficacy toward a task, he or she is less likely to exert effort; therefore, the person will be less likely to achieve” (p. 10), as explained by Shen et al.

In 2004, Ergul found that self-efficacy was a significant predictor of student academic achievement in online courses. Further, Artino (2008) found that students with perceptions of higher self-efficacy were more likely to report perceptions of satisfaction with their learning in online courses than students perceiving low self-efficacy. According to Shen et al. (2013), self-efficacy has been reported as a consistent variable in predicting students’ satisfaction with their learning in online environments.

Shen et al. (2013) identified five dimensions of online learning self-efficacy. The dimensions included the self-efficacy to 1) complete an online course, 2) interact socially with classmates, 3) handle tools in a Course Management System (CMS), 4) interact with instructors in an online course, and 5) interact with classmates for academic purposes. The participants in this study perceived high self-efficacy on all five dimensions as indicated by mean scores above 7 (on a 10-point scale). The perceptions of satisfaction with online learning for the 406 subjects in this study were also high with an overall mean 4.32 (SD not reported) on a 5-point Likert scale. Additional statistical analyses revealed four of the five dimensions of online learning self-efficacy to be significant predictors of perceived satisfaction with online learning. The dimension that did not predict satisfaction was self-efficacy to handle tools in a CMS. These researchers

concluded that their study “shows students’ self-judgment about their capabilities to complete an online course is critical for their satisfaction with an online course” (p. 17).

Community college student perceptions regarding online teaching and learning. Literature on community college student perceptions regarding online teaching and learning was reviewed earlier in this subsection in discussions of CoI (Capra, 2011; Morris, 2011), student-perceived disadvantages of online education that are contrary to the principles of CoI (Lei & Gupta, 2010), and self-regulated learning (Puzziferro, 2008). The review of additional perception-based studies follows.

Kılıç-Çakmak et al. (2009) found an emergent category of student perceptions that they termed *instructional process*. These researchers identified several student-perceived issues that impacted the instructional process including “disintegration of attention in e-learning; no working habits in the evening hours; increasing responsibilities; demanding, self-regulated learning; seeing themselves as teacher; and failure to follow a strict timeline to work and do homework” (p. 354).

In the 2014 Noel-Levitz study, described in detail earlier in this document, the following three items on “instructional effectiveness” elicited community college student perceptions of importance and satisfaction. The percentage of students rating each item as either “important” or “very important” is identified immediately after each item followed by the percentage of students who indicated that they were *satisfied* or *very satisfied*:

- The quality of instruction I receive in most of my classes is excellent—88%, 63%;
- I am able to experience intellectual growth here—86%, 70%; and
- The quality of instruction in the vocational/technical programs is excellent—78%, 58%.

Noel- Levitz rated the qualities underlying the first two items as institutional strengths but did not rate the third item as either a strength or a challenge.

Student characteristics and perceptions of teaching and learning. In the area of pedagogy, two studies reported gender-based difference in students' perceptions of important instructor's skills. Female students ranked their online instructors' intellectual skills as highly important while male students ranked their instructors' managerial skills as highly important (Abdulla, 2004; Fredrickson et al. 2000).

Findings on the impact of age and gender on student perceptions of satisfaction with their online education have been mixed. Frederickson et al. (2000) found, in their study of student satisfaction and perceived learning in online courses, that age was a significant factor in online learning. Their youngest students (16-26 years) perceived the least learning and satisfaction, while the oldest students (36-45) perceived the most learning and satisfaction. Neither, Kim and Moore (2005) nor Walker and Kelly (2007) found a statistically significant relationship between ratings of satisfaction with online learning and age or gender of the students in their studies. Likewise Sahin (2008) found mixed and contradictory results when investigating the relationships among student demographics and their learning styles, and their perceptions of satisfaction with online courses.

However, Shen et al. (2013) found that gender was a significant predictor of all the self-efficacy beliefs except self-efficacy to interact socially with classmates. These investigators interpreted their results as demonstrating that "female students were likely to have higher online learning self-efficacy than male students, implying that female students may be more active, seek more help, or function better than male students"

(p. 16). Further, these researchers reported that their results were consistent with those of the Gebara's study (as cited in Shen et al.), which demonstrated that female students perceived higher levels of online self-efficacy than did male students.

In a 2001 study of 157 female and 38 male "adult" community college distance education students, Sullivan asked two open-ended questions about the ease or difficulty of learning, achieving goals, and participating in an online class compared to a traditional one. His numerical data were not analyzed statistically but were reported as percentage of respondents or percentages of comments on a topic. For both genders positive comments about the learning environment outnumbered negative ones about two to one. The comments offered about teaching were about 50% negative for both groups but led Sullivan to conclude that "it seems clear that it is possible to create an online learning environment to which both men and women will respond favorably" (p. 817). From his subjects' demographic data, this investigator also concluded:

It seems clear that online courses benefit a wide variety of students, but perhaps none more dramatically than nontraditional female students. Since this demographic is a primary one for community colleges, these data suggest that offering a variety of online and distance learning options supports women and families. These data clearly suggest that the more options and flexibility we provide our community college students—and especially our adult female learners—the more successfully we honor the community college mission (p. 817).

In summary, this subsection has presented student perceptions of their online education experiences relative to 1) learner-content, learner-instructor, and learner-learner interactions; 2) the CoI elements of cognitive, social, and teaching presence; 3) self-regulation; and 4) self-efficacy. Although researchers have studied these phenomena as separate entities within different theoretical frameworks, these elements are all essentially inter-related and overlapping components within the cognitive and

social dynamics of teaching and learning. This observation will be detailed later in this document in the “Discussion” section of Chapter III, as will the following finding.

It is abundantly clear from the review of literature in this subsection (Capra, 2014; Lei and Gupta, 2010; Mlot, 2012; Rourke & Kanuka, 2009) that neither students nor researchers perceived that the application of the CoI achieved its intended purpose. That is, based on these reports, students did not, through a shared purpose of achieving a meaningful learning outcome, experience the interaction of cognitive, social, and instructional elements in the mutual realization of their learning goals. This finding will be discussed in Chapter III, as will the implications of student demographic characteristics for online education.

Assessment and Evaluation in Online Education

Online education allows students more freedom to participate in the learning process and to interact with their classmates (Kuo et al., 2014; Morris, 2011). Therefore, their ability to regulate and monitor their own learning progress is critical. Learners who cannot self-monitor and then adjust their learning process accordingly and efficiently may experience dissatisfaction that leads to less engagement during online courses (Sun & Rueda, 2012).

However, the literature on assessment and evaluation in online higher education addressed, almost exclusively, the determination of the quality of student performance and knowledge by others, mainly instructors, not self-evaluation by students or even their peers. For example, Lei (2008) studied the assessment techniques of instructors in two community colleges. But, the focus in that study was the comparative analyses of the use of procedures to assess attendance/participation and performance on quizzes, laboratory

activities, cooperative learning assignments, research reports and projects, learning journals, quizzes and exams by instructors with different appointments (i.e., adjunct vs full time) and credentials (i.e., doctorate vs. non-doctorate). This was not a student-perception-based study.

Three studies that did focus on student satisfaction and were based on the statistical analyses of student perception data included Ross, Batzer, and Bennington (2002), Kane, (2004), and Aman (2009). All of these investigators found that assessment was a significant factor contributing to overall student satisfaction with their online learning. Using a scale of 1 (*strongly disagree*) through 5 (*strongly agree*), Aman's subject data yielded a mean of 4.08 (SD = 0.71) indicating that on the average students "agreed" that they were satisfied with the assessment they received in their online courses.

Community college student perceptions regarding assessment and evaluation in online education. In their qualitative study of 138 first-year community college students' expectations of their online e-learning program, Kılıç-Çakmak et al. (2009) termed one category of student expectations *Assessment and evaluation*. The researchers identified their single subcategory of coded data as *Assessment and evaluation of e-learners' achievements*.

The students in this study tended to prefer face-to-face, multiple choice mid-term and final tests rather than subjective measures, essays, research papers and final projects, even acknowledging that they expected easy tests in their online courses. Further, students expressed fears of electrical failures or computer glitches that would preclude instructor reception of their exams. According to the authors, these perceptions showed a

lack of student familiarity with the available re-examination process that covered this type of circumstance. The researchers concluded that this category of preferences and perceptions showed that this sample of online students demanded high success without a lot of work revealing that they “are not fully prepared to take responsibility for their learning in this system” (Kılıç-Çakmak et al., 2009, p. 356).

By contrast, Morris (2011) reported more positive findings. The 25 community college students in her qualitative study perceived course activities such as formative assessments and early non-graded peer or instructor review in a positive manner. Instructional design that include opportunities for such non-graded formative assessment techniques as review games, self-quizzes, peer review, and early instructor review contributed to student satisfaction with their online course experience since they perceived these activities to be beneficial to their learning.

The student perception-based research literature on online education appears to be devoid of studies in which students generated, identified, and recorded their evaluation of their online experiences, courses, and programs. What does exist is student responses to pre-identified variables offered to students to rate on pre-determined scales, usually of a Likert-type nature.

Technology in Online Education

From her insights about the myths and realities of distance education, Imel (1998) concluded, “The challenge is to use any technology or medium in ways that enhance and support learning and that respond to learners’ needs” (“Abstract,” para. 1). Over the next 16 years researchers continued to study the challenges posed by technology-based

education and to investigate the impact of those challenges on online student performance and perceptions.

First, this subsection reviews several perception-based studies of student experiences with the technology of online higher education, in general. Second, it focuses on technology and student self-efficacy. Third, it addresses student demographic characteristics and perceptions of self-efficacy for technology. It ends with a review of literature on student perceptions of technology in their online education at community colleges.

Technology has been identified, generically, as a significant factor impacting online student satisfaction (Kane, 2004; Mandernach, 2005). Ortiz-Rodriques, et al. (2005) found that perceptions of dissatisfaction with online courses were often linked to technology issues including software and technology support services.

By contrast, Aman (2009) found that, overall, students agreed that they were satisfied with their online technology. Their ratings had a mean of 4.05 (SD = 0.77) on a scale ranging from 1 (strongly disagree) through 5 (strongly agree).

However, Lei and Gupta (2010) data included online student perceptions of 1) initial fear or apprehension about online courses and technologies, 2) feelings of inadequacy relative to the advanced computer skills and understanding of technologies that they perceived as required, and 3) later challenges when submitting assignments electronically. The students in this study perceived these obstacles as “costs” associated with online education.

Online technology and student self-efficacy. Shen et al. (2013) reported that self-efficacy is believed to be a key component in successful online learning. Based on

their review of the literature, these investigators concluded that most studies of online self-efficacy focus on computer applications.

In a correlational study of the psychological processes underlying opposition to Web-based instruction (WBI), Thompson and Lynch (2003) found for the 257 respondents to their survey that students who perceived themselves to possess weak Internet self-efficacy were inclined to resist WBI. Further, students with limited access to sufficient hardware and quality software were relatively unlikely to develop strong Internet self-efficacy beliefs and, therefore tended to perceive WBI negatively. Unfortunately, the issues of affordability and limited access to the technology needed for quality online education have persisted (Austin, 2010; Burr, 2006; Lei and Gupta, 2010).

Artino (2008) found that students with higher self-efficacy for computer-based learning were more likely to experience learning satisfaction than students with low self-efficacy.

In 2014, Kuo et al. contended that “in contrast to traditional learning environments, online learning requires learners to be confident in performing Internet-related actions and be willing and able to self-manage their learning process using technology” (“Introduction,” para. 2). These investigators suggested that students who lack confidence in using the Internet may be less engaged in the group learning activities and may take fewer opportunities to interact with the instructor. Both of these negative social situations have the potential to engender student dissatisfaction with online education.

Student demographic characteristics and perceptions of self-efficacy for technology. In their 2003 study of the psychological processes underlying opposition to

WBI, Thompson and Lynch found a gender difference for Internet self-efficacy. The women ($M = 26.16$, $SD = 6.43$) who were surveyed were significantly less likely to express confidence in their ability to organize and execute Internet actions for their online courses than were the men ($M = 28.57$, $SD = 6.59$).

In 2010, DaCosta et al. found statistically different perceptions of computer-user interface in online education for community college students based on the students' native language. Native-English-speaking students had significantly higher (i.e., more positive) perceptions on a five-point scale ($M = 4.0$, $SD = .62$) than did non-native-English-speaking students ($M = 3.4$, $SD = .88$).

Community college student perceptions regarding technology in online education. In the Stanford-Bowers (2008) study of perceived retention factors, the community college students identified a user-friendly format as their tenth ranked factor. The student participants voiced their perceptions that a persistent lack of adequate technical support to assist them with their technology questions and with problems that arise in online courses, especially during non-business hours, was the basis for attrition.

The Kılıç-Çakmak et al. (2009) study yielded results on technical support. Constituting 11.81 % of the coded data, technology problems grouped into the expectation category of *Technical support*. Although “a large majority of the students” reported communicating with relevant institutional units to receive technical support, student expectations were that faculty would be available by phone and email to solve their technical issues. These expectations were not met. Kılıç-Çakmak et al. concluded that the most important challenge for the online community college students that they studied was the ambiguity of their not knowing what was offered, a reality to which the

institution, the faculty, and the students contributed, as reported in several subsections of this section on community college student perceptions of online learning.

Data-based findings have also been reported for community college student technological self-efficacy. Puzziferro (2008) studied the performance, measured as a function of final course grade, of 815 community college students enrolled in liberal arts online courses during a single semester. Relative to student self-efficacy for online technologies, this investigator found that self-efficacy scores were not correlated with student performance. However, in a study of 45 community college students, McGhee (2010) found a significant, moderate, and positive relationship between online technological self-efficacy and the academic achievement of that sample of students.

Chu and Chu (2010) studied community college student Internet self-efficacy and determined statistically that such self-sufficiency played a role in student persistence in online education. Further, the collective efficacy of a group of online students had the potential to mediate both persistence and perceptions of satisfaction in courses that facilitated group peer interaction. Meaning, when the collective self-efficacy for the group was high, satisfaction and persistence among the group members was high, in courses where the group members were dynamically interactive. By contrast community college students who were not technologically prepared for an online course could negatively impact the other students (as well as the instructor) of their course, according to Levy (2003) and Capra (2011).

Online Student Support Services

“Student support is a support system in place at an institution to help ensure student success both academically and socially” (Murphey, 2006, “Introduction,”

para. 2). In online education the following common student services “should be available” online to meet the needs of students who are geographically separated from the institution at which they are enrolled: admissions; registration; orientation to online education; financial aid; counseling; advising, including student readiness for online learning; special services; testing; bookstore services; library services; student activities; health assessment; tutoring; mentoring; and student technical support, according to Murphey. “Accrediting agencies also require colleges to provide equal access to these types of services to all of their students, whether the learners are located remotely or on campus” (Lokken & Mullins, 2014, p. 4).

Further, higher education institutions must provide students access to online support services if they are going to be competitive in the online education market (Dean Heimberg, 2014). “However, an online student support services plan is an often overlooked component of an online initiative even though it is a critical factor in the overall success of an online program” (Dean Heimberg, 2014, p. iii).

Whether there are institutional plans in place or not, what do students perceive to be the availability and quality of these support services? This subsection provides a review of available literature on student perceptions regarding online student support services in higher education, in general, and at community colleges, specifically.

Aslanian and Clinefelter (2013) investigated student perceptions of the effectiveness of various methods that institutions use to inform students of their online programs and to recruit them to enroll. Using a five-point scale with 5 being *very effective* and 1 being *not effective*, these researchers investigated the effectiveness of four categories of information. The national, random sample of 1500 online students

perceived online media (e.g., advertisements on websites, social media, and listings on college search sites) as the most effective advertising method, with a 3.5 average. These students perceived the following three categories to be of approximately equivalent effectiveness with mean ratings of 3.3 and 3.2: word of mouth (e.g., information from friends, family members, or employers); print media (e.g., advertisements in newspapers, magazines, and on billboards); and broadcast media (e.g., advertisements on the radio and television).

In her 2014 dissertation research, Dean Heimberg conducted a mixed design study interviewing 22 fully online students by telephone and surveying 206 fully online degree students with Likert-type questions. Investigating both perceptions of importance and satisfaction, this researcher focused on five areas: 1) institutional perceptions; 2) academic services; 3) enrollment services; 4) student services; and 5) online community.

Institutional perceptions related to how students perceived their college or university regarding its reputation and tuition being a worthwhile investment. Academic services referred to offerings such as advising, technical services and tutoring services. Enrollment services included financial aid, registration, and payment procedures. Student services included additional student programs and services such as responses to student requests, online career services, and bookstore services. Online community referred to online peer support groups, online student book clubs, film clubs, and other social networking opportunities.

In this study Dean Heimberg (2014) reported the percentage of the respondents that perceived an area to be of high importance by rating it a on a 7-point Likert-type

scale as 6 (*important*) or 7 (*very important*) while perceiving a level of low satisfaction by ratings of 1 (*not satisfied at all*) or 2 (*not very satisfied*). While 86.6% of the respondents rated their institutional perceptions to be of high importance only 1% perceived low satisfaction. Relative to academic services the high importance and low satisfaction ratings were 77.6% and 2.6%, respectively. The ratings for enrollment services were 76.3% and 2.0%; for student services 67.6% and 3.4%; and for online community 42.1% and 5.4%.

These data indicated that, overall, “very small percentages of participants reported low satisfaction levels with services that were important to them. Therefore, at the time of this study, the institutions did not have any service areas that were not satisfying to the majority of the participants” (p. 130).

However, interview participants reported that they would like access to more online services that were not currently available to them, such as: internship programs, a writing center, professional tutors with content expertise, career services (expanded to include territories/regions of online students), and health services. Findings also indicated that online services could be improved by integrating more options for live interaction with online support services staff. Additionally, the results revealed that online degree student satisfaction is highly dependent on receiving timely responses from online services staff. (Dean Heimberg, 2014, p. iv)

Community college student perceptions regarding online student support services. In identifying the students for whom community colleges now need to provide student support services, Hornak, Akweks, and Jeffs (2010) used such descriptors as the “millennials” and “iGeneration”; increasingly under age 24; tech-savvy, “wired, always plugged in and always communicating” (p. 80); proficient with “handheld devices, podcasts, Internet, e-mail, instant messaging, and social networking” (p. 82); and

perceiving themselves to be “technologically entitled” (p. 80). Hornak et al. stated that in response to the students they are now serving

institutions that used to rely on face-to-face interactions, standard mail, campus announcements, printed media, or automatic phone messaging systems now use Web sites, e-mail, instant messaging and chat functions, streaming video, social networking Web sites, and multiple other virtual venues to communicate with students. (p. 80)

Within these contexts of tech-savvy students and responsive online community college support services, there is a dearth of online student perception-based research on the adequacy of and their satisfaction with these services. However, two related studies are reviewed below.

In an investigation of community college student characteristics relative to student awareness and use of online support services, Thomas (2005) matched survey results with online course completion grades for 265 participants at three Illinois community colleges. Her subjects were categorized by age as traditional (24 years and under) and nontraditional (25 years and over) and by course completion as completers and non-completers. Of the total sample of subjects, most were female, white-non-minority, and non-ESL.

With regard to course completers, Thomas (2005) found that the traditional age completers 1) had significantly fewer dependents, 2) earned higher GPAs, 3) rated themselves more confident of mastering the course, and 4) indicated greater satisfaction with their understanding of the content of their online course than did the non-completers. Nontraditional age completers 1) were significantly younger, 2) had significantly fewer dependents in the household, 3) were less likely to have dependents, 4) were enrolled in

more credit hours, and 4) indicated they were more confident of mastering the class than non-completers.

Relative to non-completers, the results showed that the traditional age non-completers reported 1) lack of time, 2) conflicts among responsibilities, 3) scheduling conflicts, and 4) health issues as barriers significantly more often than did completers. The nontraditional non-completers reported health issues as a significantly greater barrier than did completers.

All of the age and completer subject groups perceived institutional and online course delivery issues as *not a barrier* or as *a slight barrier*. The completer groups, regardless of age, also rated lack of motivation as *not a barrier* or as *a slight barrier*.

With regard to awareness and use of student support services, all respondents reported being aware of most services but also indicated that they had used only half of them. All groups identified the course syllabus and the college catalog as the most used and most useful sources of information about online courses. More non-completers in the total subject sample, regardless of age, used a variety of services.

Regarding support services for getting started in online education, DaCosta et al. (2010) found statistically different perceptions for community college students based on the students' native language. Native-English-speaking students had significantly higher (i.e., more favorable) perceptions of the effectiveness of these services ($M = 4.0$, $SD = .62$) than non-native-English-speaking students ($M = 3.4$, $SD = .88$).

In summary, the literature on online education identifies and briefly describes each of many support services available to online education students enrolled at all levels of undergraduate institutions. Studies that examined student perceptions regarding these

services in higher education, in general, are available as sampled above. However, research on the perceptions of the tech-savvy millennials has not kept up with the changing landscape of online community college education or the students who inhabit it. Further, subgroups—those with minority representation in online education, for example the rural students who experience the digital divide—were not even acknowledged earlier in this subsection because of an absence of literature to be reviewed. The need for further inquiry in this area of online community college higher education will be addressed again in the next chapter of this research report.

Best Practices for Online Education

The fourth and final secondary question posed in this study was “What instructional practices do community college students perceive as necessary for their satisfaction, learning, and success?” On the web sites of both institutions of higher education and commercial education consulting firms, there is an abundance of very specific practices, suggestions, advice, and tips that can be used to address the concerns of community college students (e.g., Boettcher, 2013; Boettcher & Conrad, 2013 CCCSE, 2012; Hanover Research Council, 2009; Ragan, n.d.; Ragan & Terheggen, 2003).

Although useful for application purposes, such tips as the following do not answer the research question because they were not directly perceived and identified as best practices by either online education students, in general, or community college students, specifically. Therefore, such literature will not be reviewed further beyond this brief acknowledgement of its existence:

- Create a “Course Wrap” forum and ask students to share their favorite reading, activity, or resource from the course and to share what made it so for them individually (eCoaching Tip 99: Three Quick and Easy Ideas for Wrapping Up Summer Courses, Boettcher & Conrad, 2013).
- Review and comment in discussion forums daily.... We recommend that you check in twice a day, perhaps for just 30 minutes at a time (School of Professional Studies, n.d.)
- Post final course grades to eLion within two business days of the course end date and/or receipt of the final assignment/exam, in accordance with University policy (Dutton Institute, 2013).

Further, the data-based academic research on student perceptions of their online higher education almost always provides investigator interpretations of their findings as “implications” for practice. Capra (2014) lamented that this “literature about online pedagogy is focused on best practices rather than actual teaching methods... [and] such practices are adequate for providing an efficient distance education course but not for encouraging outstanding online teaching” (p. 117). She referred to such best practices as the following:

- Ritter and Lemke’s (2000) conclusion that these seven principles promote quality online education: 1) encourage student-faculty contact, 2) encourage cooperation among students, 3) encourage active learning, 4) give prompt feedback, 5) emphasize time on-task, 6) communicate high expectations, and 7) respect diversity.

- Ragan and Terheggen's, (2003, p. 25) statement that “assessment strategies are integral to the learning experience” and both formative and summative course evaluation with information from course completers and non-completers should be collected by instructors; and
- From Keengwe and Kidd's (2010) summation that critical components of online teaching are for faculty to provide ongoing and meaningful communication while fulfilling their responsibility to create a strong learning community among class members.

Again, implications for practice, such as the examples just cited, do not answer the fourth secondary research question. The studies of self-reported student perceptions of best practices in online education are nearly non-existent. The Noel-Levitz (2011, 2014) studies did establish student levels of satisfaction and estimates of importance for practices pre-identified for them in items like the following:

- Instructional materials are appropriate for program content.
- Student assignments are clearly defined in syllabus.
- Faculty are responsive to student needs.
- Faculty provide timely feedback about student progress.
- Assessment and evaluation procedures are clear and reasonable.
- Program requirements are clear and reasonable.
- I am aware of whom to contact for questions about programs and services.
- This institution responds quickly when I request information.
- Registration for online courses is convenient.

But again, these were not instructional practices perceived and identified by online higher education students as necessary for their satisfaction, learning, retention, or success.

In summary, the literature on student perceptions of online education at community colleges, or at other post-secondary institutions, does not, at this time, provide answers to the fourth secondary question posed in this study.

CHAPTER III

RESULTS, CONCLUSIONS, AND RECOMMENDATIONS

Although the students are central in the enterprise of education at community colleges (Ostrum, Bitner, & Burkhard, 2011), there has not been a thorough depiction of online higher education from the point of view of these key stakeholders. Therefore, the purpose of this study was to provide a comprehensive review of the literature on student perceptions of online education at community colleges.

This chapter formulates, summarizes, analyzes, and interprets the results of this study and is organized in the following manner. In the first section on results and discussion, this chapter reports, analyzes, interprets, and discusses each of six literature-based findings. Further, this section answers the research questions posed in this dissertation. The second section provides the conclusions for this study. In the third section two types of recommendations are provided: a student perception-based recommendation for online education at community colleges and suggestions for further research. The final section identifies the limitations of this study.

Results and Discussion

The “facts” extracted from the literature reviewed in Chapter II consisted, essentially, of reduced data (Miles & Huberman, 1994). An analysis of those data yielded categories identified in this chapter as *elements*, *contexts*, *outcomes*, and *products*. One

result of this study was the finding that these categories are interrelated in accordance with a recurring theme depicted, in an abstract form, in Figure 1.

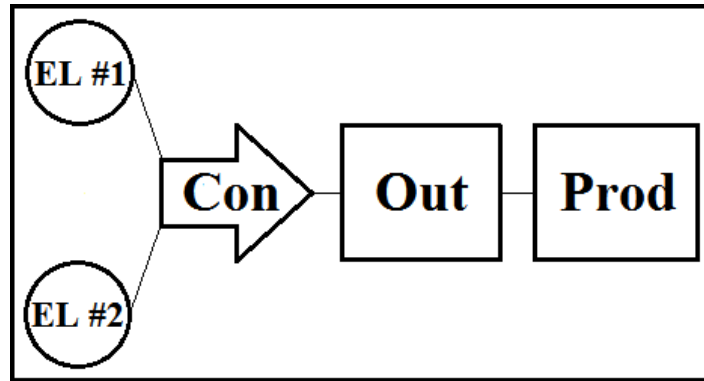


Figure 1. Element #1 (EL #1) and Element #2 (EL #2) interacted within a context (Con) producing an outcome (Out) and a product (Prod).

Figure 1 illustrates the interaction of two elements within a facilitating context.

The interaction of the elements within the context yields an outcome, or potential outcome and, for some interactions, also a product. Whether there is an actual outcome or only the potential for the outcome, is dependent on the quality of the interaction of the elements within the context.

This theme emerged five times within the literature reviewed in this study. Each occurrence of the theme constituted a finding. The first two findings (designated as *Finding #1* and *Finding #2*) were foundational to (i.e., pre-requisites of) the next three findings (designated as *Finding #3*, *Finding #4*, and *Finding #5*). The outcome of *Finding #3* and the products of *Findings #4* and *#5* were all student perceptions of online education at community colleges.

Each of the following five findings is presented with a discussion of the data from which it emerged. The analysis and interpretation of these five findings yields answers to

the primary research question and the first three secondary research questions. Further, these interpretations are the bases for the conclusions offered later in this chapter.

A sixth finding also emerged from the data, actually from a lack of data. The sixth finding is not theme-based since there were no data to serve as input elements to an interaction within a context. However, the sixth finding answers the fourth and final secondary research question.

First Finding

The first finding emerged from the brief histories of distance education, online education, and the Internet reviewed in Chapter II. It was with regard to the relationships among distance education, the Internet, community colleges, and online education that the first finding of this study was formulated. This finding is depicted in Figure 2.

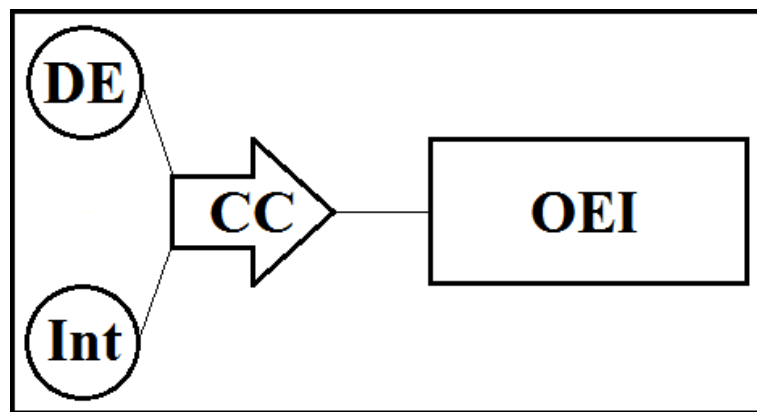


Figure 2. Distance education (DE) and the Internet (Int) interacted within the context of a community college (CC) producing an outcome of online education infrastructure (OEI).

Finding #1. The input elements of pre-1990s distance education and Internet technology interacted within the context of a community college resulting in online education infrastructure.

Distance Education. Today's online higher education is rooted in the histories of distance education and the Internet. From its beginnings as correspondence study during

the final 75 years of the nineteenth century (Schlosser and Simonson, 2010), distance education progressed into training courses delivered to often remote, off-campus locations. The methods of delivering pre-Internet distance higher education included the postal service, traveling instructors, or audio and video technologies including instructional radio as well as cable and satellite television (Bebawi, n.d.; Imel, 1998).

The Internet. Through the government-funded joint efforts of several university and government laboratories, the Internet was developed in the mid-1990s (Leiner et al., 2014). Soon thereafter, distance education and the new technology became intertwined in the delivery of online education. The rapid growth of online education began as business and education pursued their missions using the new method of delivering instruction (Leiner et al., 2014). Online distance education became “the fastest-growing mode of formal and informal teaching, training, and learning” (Anderson as cited in Veletsianos, 2010, p. i).

Once online education became a functional delivery mode, it expanded continually and substantially at most types of institutions of higher education (Schlosser & Simonson, 2010). Community colleges were, and still are, the leaders in the percentage of their courses and students involved in online education (Allen & Seaman, 2007; Allen & Seaman, 2013; Instructional Technology Council [ITC], 2013).

Community Colleges. Just as online education was an outgrowth of early distance education so were community colleges a derivative of the two-year junior colleges of the first sixty years of the twentieth century (American Association of Community Colleges [AACC], 2014b; Cohen & Brawer, 2003). Renamed in the 1960s as *community colleges*, these institutions undertook new and comprehensive missions,

developed diverse course and program offerings, and adopted open access policies (AACC, 2014d; Radford, 2011; Rosenfeld, 2005). As a result, community colleges attracted a diverse student population whose characteristics and demographics are discussed in the next subsection.

Online education infrastructure. As depicted in Figure 2, the outcome of the interaction of distance education and Internet technology at community colleges was infrastructure consisting of 1) curricula—training, courses, and programs; 2) faculty and staff to deliver those curricula; 3) the technology to deliver the curricula online; and 4) student support services. This interaction and its outcome of infrastructure have continued to exist (Allen & Seaman, 2011; 2014a, b). This interaction, along with the one formulated below as the second finding, generated two outcomes that became the input elements to the third interaction (i.e., Finding #3), which was the progenitor of the community college student perceptions of their online education reported in this study.

Second Finding

Two of the bodies of literature reviewed in this document provided characteristics of 1) community college students enrolled in online education and 2) community college online education infrastructure. As these two seemingly disparate bodies of data were being independently analyzed and synthesized, an interactional, thematic relationship became apparent. When comingled within the context of a community college, and more specifically, a facilitating characteristic of that context—open access—the outcome was learning opportunities for students. This finding is depicted in Figure 3.

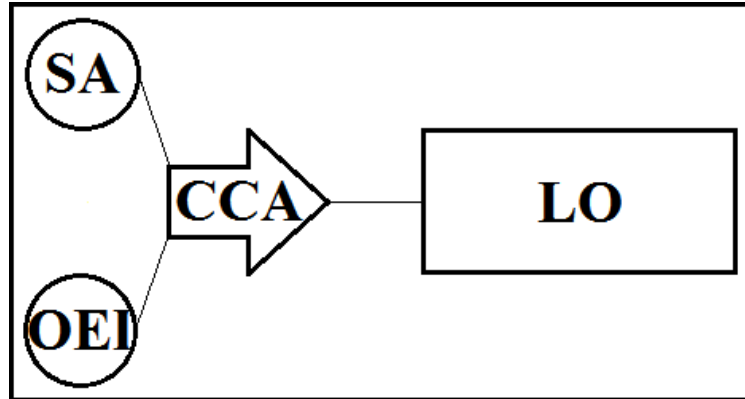


Figure 3. Student attributes (SA) and online education infrastructure (OEI) interacted within the context of community college open access (CCA) producing learning opportunities (LO).

Finding #2. The input elements of student attributes and online education infrastructure interacted within the context of open access—an attribute of community colleges—resulting in learning opportunities for students.

Student attributes. The following discussion of Finding #3 relative to the input element of student attributes summarizes data on online community college student characteristics, needs, and goals. These data summaries answer two of the secondary research questions posed in this study.

Secondary Research Question 1. What are the characteristics and demographics of students enrolled in online courses at community colleges in the U.S.?

Secondary Research Question 2. What are the needs and goals of students enrolled in online courses at community colleges in the U.S.?

Student characteristics. The review of literature in Chapter II supports the following generalizations. The majority of online community college students are 1) female (Allen & Seaman, 2013; Noel-Levitz, 2014); 2) white/Caucasians (Allen &

Seaman, 2013; Center for Community College Student Engagement [CCCSE], 2009, 2012); 3) older than the traditional age of 18–22 years (Allen & Seaman, 2013; CCCSE, 2012); lower in socioeconomic status (Allen & Seaman, 2013; CCCSE, 2012); more often married with dependents (Aslanian & Clinefelter, 2013; CCCSE, 2012); more often employed (Allen & Seaman, 2013; Mlot, 2012;); less often prepared for higher education than their traditional education peers; and academically at risk and in need of developmental coursework (Capra, 2011; CCCSE, 2012; Schuetz & Barr, 2009).

However, these working professionals, military members (AACC, 2014a), stay-at-home parents, and other people occupied with life priorities that cannot be abandoned or put on hold while education is being pursued (Bacow, Bowen, Guthrie, Lack, & Long, 2012), are joined by racial and ethnic minorities and immigrants. Further, these community college students are predominantly from in-state and live within 100 miles of the closest campus or service center of the institution in which they enrolled (Aslanian & Clinefelter, 2013; Ginder & Sterns, 2014).

In summary, these are the characteristics of the student groups that community colleges continue to serve (Aslanian & Clinefelter, 2013; Bragg, 2011). These characteristics, along with the many numerical data (i.e., student demographics) reported in Chapter II, answer Secondary Research Question 1.

Needs, expectations, and preferences. Numerous studies have demonstrated that community college students choose online education with the expectation that it will meet their needs and goals (e.g., Allen & Seamen, 2008, 2011, 2013; Aslanian & Clinefelter, 2013; Conklin, 2008; Horn & Nevill, 2006; Noel-Levitz, 2011, 2014). These researchers have reported the following student-identified reasons—needs, expectations,

or preferences—for their enrollment in online courses and programs. However, as shown by the numerical data reported in detail in Chapter II, there is certainly not unanimous agreement among students regarding these most commonly identified reasons. First, the characteristic most frequently identified by online students was convenience expressed as 1) the anywhere, anytime 24/7 access to course material and resources; 2) the flexibility to balance and schedule study around work, family, and social obligations; and 3) the ability to self-pace study. Second, students reported that online education met economic (i.e., time and money) needs including 1) lower tuition, 2) the availability of financial assistance, 3) lower or no travel costs, and 4) flexible pacing for faster time- and money-saving program completion. Third, the online course and/or program availability or requirements met their need: 1) the online course was easier than an on-campus course, 2) the same course or program on campus was full, and 3) the course or program could be taken at an institution beyond the student’s home region. Other less frequently cited reasons for online education enrollment included: 1) recommendations from an advisor, employer, or friend; 2) good previous personal experience; and 3) curiosity.

Goals. The student enrollment goals reported in the literature review were analyzed and grouped into the following categories. First, students identified career-oriented goals as 1) develop future employment opportunities, 2) update job-related skills, 3) advance in current career, and 4) change career. A second category of goals involved acquiring a documentation of completed education—a general equivalency diploma (GED), a certificate, a credential, a license, or an associate’s degree. A third goal consisted of acquiring academic credits for transferring to a four-year college or

university. A fourth category was personal reasons including self-improvement, personal enjoyment, and personal interest.

In summary, these needs and goals constitute the answer to Secondary Research Question 2. Further, the review of literature showed that along with the student characteristics identified above, these needs and goals constitute an input element—student attributes—that interacted with online education infrastructure within the context of the open access attribute of community colleges to produce learning opportunities for students, as stated in Finding #2 of this study.

Online education infrastructure. The literature on online education identified key infrastructure that contributes to student learning opportunities in the online education of community colleges. That infrastructure includes Internet technology, curriculum, personnel, and services (e.g., Austin, 2010; CCCSE, 2012; Dean Heimberg, 2014; Leist, 2010; Lokken & Mullins, 2014; Mitchell, 2009).

Internet technology. The application of Internet technology provides the technical delivery system for online learning opportunities. For the online opportunities to exist they must be conveyed by technology that is accessible and user-friendly to students (Bates, 2012; Burr, 2006; Cedja, 2007; Dean Heimberg, 2014; Inouye, 2012; Stanford-Bowers, 2008).

Curricula. Not commonly available at other institutions of higher education, some of the online curricula at community colleges provide unique learning opportunities (Austin, 2010, Garcia, 2014; Mitchell, 2019) that, when successfully implemented, culminate in a GED, a certificate, a credential, a license, or an associate's degree—student-identified goals reviewed above. Further, this curricular infrastructure consisting

of developmental, technical, and vocational education courses, programs, and stackable programs have potential to provide students with the necessary skills and related knowledge to qualify for skilled, technical, and semiprofessional positions in business, industry, and the allied health fields (Austin, 2010; CCCSE, 2012; Garcia, 2014; Mlot, 2012).

Personnel. A third type of community college infrastructure that must be in place to render online learning opportunities possible is personnel. Administrators, faculty, and institutional support staff are, obviously, the implementation “mechanism” by which the remaining infrastructure—online technology, curriculum, and services—is activated in an interaction that produces learning opportunities.

Services. Educational researchers cited in Chapter II identified, studied, and reported on student support services. Those practitioners categorized the services as admissions, orientation, financial aid, counseling, academic advising, special services, testing, bookstore services, library services, student activities, health assessment, social services, tutoring, mentoring, and technical support (e.g., Austin, 2010; Levy, 2003; Lokken, 2013; Mitchell, 2009; Murphey, 2006).

Opportunities to learn may exist in online education even in the complete absence of student support services. However, that is highly unlikely. The research shows that in the absence of student support services learning opportunities would not be converted into actual learning due to student frustration, perceptions of poor quality education, and their resultant attrition. Investigators have found that both rural (Austin, 2010; Murphey, 2006; Torres & Viterito, 2008) and urban (Levy, 2003; Mitchell, 2009) students need an array of services if they are going to succeed in accessing and persisting in an online

environment (Aslanian & Clinefelter, 2013; Dean Heimberg, 2014; Hornak, Akweks, & Jeffs, 2010; Lokken & Mullins, 2014).

Attribute of community colleges. The attribute of community colleges that contributes a context so that the interaction of student attributes (i.e., characteristics, needs, and goals) and online education infrastructure (i.e., Internet technology, curriculum, personnel, and services) can occur is open access. “Because the majority of community colleges maintain an open admissions policy, they serve as the primary mode of access to higher education for underserved groups...” (Gross & Kleinman, 2013, p. 3) including those “that other sectors of education could not or would not [serve]” (Rosenfeld, 2005, p. 1). Therefore, open access makes it possible for students with their varied characteristics, needs, and goals to avail themselves of an educational infrastructure that can provide them with online learning opportunities.

Learning opportunities. The interaction reported in Finding #2 produces learning opportunities, not necessarily learning. Learning opportunities are occasions or situations when new knowledge or skills could be, but not necessarily are, gained by studying, practicing, being taught, or experiencing something (Merriam-Webster, n. d., “Learning”). The literature shows that these opportunities become actual learning only when prepared, goal-oriented, self-efficacious, self-regulated students are engaged in effective interactions with curricular content, instructors, and other students (e.g., Chu & Chu, 2010; Ergul, 2014; Kuo, Walker, Belland, & Schroder, 2013; Kuo, Walker, Schroder, & Belland, 2014; Puzziferro, 2008; Shen, Cho, Tsai, & Marra, 2013). These teaching-learning interactions will be discussed in detail relative to literature-based Findings #4 and #5.

Third Finding

Learning opportunities occurring within instructional contexts that are “social, immersive, engaging, and participatory... [and that are] enhanced through the emerging technologies that we have available at our disposal...[can result] in powerful learning experiences,” Veletsianos (2010, p. 317). Such successful online learning experiences evoke positive perceptions of quality among community college students (DaCosta, Kinsell, Seok, & Tung, 2010). By contrast, learning opportunities that are not successfully “social, immersive, engaging, and participatory,” regardless of the quality of the technology infrastructure, are not likely to result in positive student perceptions (see Capra, 2011, 2014; Kılıç-Çakmak, Karataş, & Ocak, 2009). The relationships and interactions among the elements of online education identified in these statements support the third finding in this study. This finding is depicted in Figure 4.

Finding #3 reports a generic interaction that recurred throughout the literature. It explains the origination of the community college student perceptions.

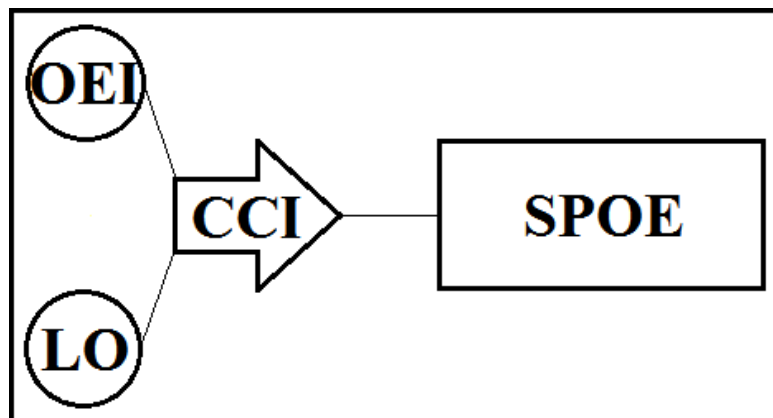


Figure 4. Online education infrastructure (OEI) and learning opportunities (LO) interacted within a context of community college instruction (CCI) resulting in student perceptions of their online education at the community college (SPOE).

Finding #3. The input elements of online education infrastructure and learning opportunities interacted within a context of community college instruction resulting in student perceptions regarding their online education at community colleges.

Online education infrastructure. This element consisted of the Internet technology, curriculum, personnel, and student support services in online community college education. A description of this infrastructure was detailed above. That discussion will not be repeated here. However, when interacting with learning opportunities within an instructional context, the quality of these infrastructures generated some of the literature-based student perceptions reported extensively in Chapter II.

Learning opportunities. Likewise, learning opportunities were defined and discussed relative to Finding #2 and require no further elaboration here.

Community college instruction. The concept of *instruction* must be interrupted very broadly in this finding as it refers to any, and collectively all, of the stimuli that elicited the student perceptions reported in Chapter II. For example, in the literature instruction sometimes referred to 1) written communication, transmittal of course documents, course content, and assignments (e.g., Bradford, 2010; Kelly, 2009; Kuo et al., 2014); 2) student interactions with content, instructors, peers, and technology (e.g., Kuo et al., 2013, 2014; Strachota, 2003; Wyatt, 2005); 3) cognitive, social, and teaching presence (e.g., Capra, 2011, 2014; Garrison, Cleveland-Innes, & Fung, 2010; Morris, 2011); 4) psychological processes (e.g., Chu & Chu, 2010; Puzziferro, 2008; Thompson & Lynch, 2003); and 5) student assessment (e.g., Lei, 2008; Seok, 2007; Sun & Rueda, 2012); but also to 6) the user-friendliness and interaction value of technology applications

and formats (e.g., Kılıç-Çakmak et al., 2009; Stanford-Bowers, 2008; Tarantino, McDonough, & Hua, 2013; Wingard, 2004); and 7) the availability and quality of support services (Aslanian & Clinefelter, 2013; DaCosta, 2010; Dean Heimberg, 2014).

The formation of student perceptions. In summary, the literature reviewed in Chapter II supports this finding that through the availability and interaction of online education infrastructure and learning opportunities, within the context of instruction, community college students formed the reported perceptions. Those perceptions—the answers to the research question and to the third secondary research question in this study—will be summarized relative to Findings #4 and #5.

Fourth Finding

The fourth and fifth findings of this study synthesize online interactional relationships with potential to engender student learning and associated student perceptions regarding their online higher education. This fourth finding brought together the three elements of the Moore (1996) interactional framework: content, instructor, and students. This finding is depicted in Figure 5.

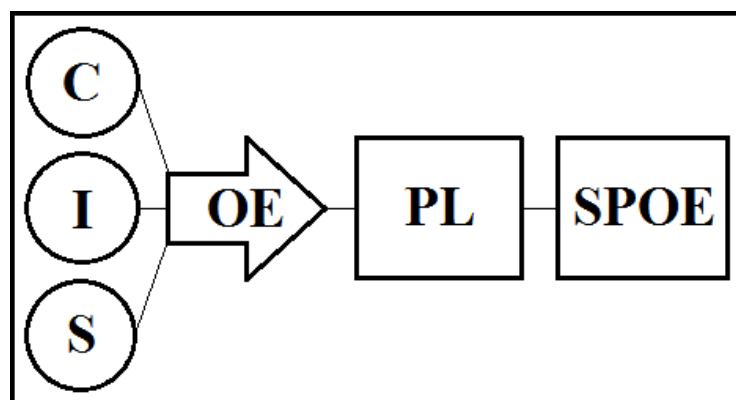


Figure 5. The input elements of course content (C), instructor (I), and students (S) interacted within a context of online education (OE) with an outcome of potential learning (PL) about which students formed perceptions regarding online education at the community college (SPOE).

Finding #4. The input elements of course content, instructor, and students interacted within a context of online education with an outcome of potential learning about which students formed perceptions regarding online education at their community colleges.

Input elements and context in Finding #4. The nature, definitions, and examples of the input elements—learner-content, learner-instructor, and learner-learner interactions (Moore, 1989; Moore & Kearsley, 1996)—were thoroughly reviewed in Chapter II. Further, Kuo et al., (2014) discussed their frequent application as a theoretical framework in studies of higher education student perceptions of their online education.

Likewise, online education was reviewed extensively in Chapter II from definitional, historical, developmental, expansion, quality, technological, programmatic, and service perspectives that require no further amplification here. However, an explanation and discussion of the core interaction, the outcome and products identified in Finding #4 are needed here.

Potential learning outcome. When the elements of learner-content, learner-instructor, and learner-learner interactions exist within an instructional online education context, there is the potential for an outcome of student learning. Like learning opportunities, potential learning only becomes actual learning when prepared, goal-oriented, self-efficacious, self-regulated students are engaged in effective interactions with curricular content, instructors, and other students (e.g., Chu & Chu, 2010; Ergul, 2014; Kuo et al., 2013, 2014; Puzziferro, 2008; Shen, Cho, Tsai, & Marra, 2013).

The formation of student perceptions. Regardless of whether the intended learning outcome (i.e., learning goals) has been achieved or not, the quality of 1) the

input learner interactions, 2) the online education context, and 3) the level of goal achievement generates student impressions, insights, and views that constitute student perceptions (Dobbs, Wade, & del Carmen, 2009; Proffitt, 2006; Witt, 2011).

Student perceptions of online education. Previous research has revealed both positive and negative perceptions among students regarding online education (Dobbs et al., 2009). However, as concluded in Chapter II, overall, the literature provides generally positive perceptions including satisfaction with online higher education. Further, the findings were similar both for online undergraduate students, in general (Aman, 2009; Evans, 2009; Hannay & Newvine, 2006; Leonard & Guha, 2001; Noel-Levitz, 2011), and for students enrolled in community college online education (Da Costa et al., 2010; Noel-Levitz 2014; Seaberry, 2008).

Content interactions. This fourth finding encapsulated student perceptions of their interactions with content, the instructor, and other students. The research findings for higher education students, in general, are relatively more plentiful than the meager findings reported for community college students. This generalization was true for student perceptions regarding content, instructor, and student interactions.

The literature on student perceptions of satisfaction with online higher education (e.g., Aman, 2009; Bradford, 2010; Mandernach, 2005; Nakos, Deis, & Jourdan, 2002; Noel-Levitz, 2011; Ortiz-Rodriques et al., 2005) indicates that online students, in general, value a well-designed course with an organized plan—a syllabus—for mastering the content that is directly relevant to the academic subject of the online course and that is clearly communicated. This same body of literature shows that student satisfaction is related to the availability of relevant, succinctly-presented media including course

materials and resource materials such as study guides, additional reading material, and online resources with direct relevance to the academic subject. Further, the perception data show that students value clearly defined, scheduled, and communicated assignments and assessments.

Like their peers in online higher education in other institutional settings, community college students want “clearly-stated requirements,” and they value and take action based on their perceptions regarding those requirements (Stanford-Bowers, 2008). Other research on community college student perceptions of satisfaction with online course content (DaCosta, 2010; Kılıç-Çakmak et al., 2009; Noel-Levitz, 2014) supports the Kuo et al. (2014) conclusion that learner-content interaction is an active determinant of online learning student perceptions about their online educational experiences. The current review of literature shows that this generalization applies to undergraduate students and community college students, alike.

Instructor interactions. Learner-instructor interactions consist of two-way communication (Moore & Kearsley, 1996). This interaction takes forms, such as guidance, support, evaluation, and encouragement (Mason & Weller, 2000; Moore, 1989) offered by an instructor taking the roles of a facilitator and coach (Johanson, 1996).

The literature reviewed in Chapter II revealed that this input element is a critical indicator of student satisfaction (e.g., Strachota, 2003; Kuo et al., 2013, 2014; Wyatt, 2005). When ineffective, learner-instructor interactions are a potential cause of reduced student engagement and feelings of abandonment in online courses (Berge, 1997; Kuo, et al., 2014). Further, the research shows that student expectations, motivation, engagement, and satisfaction are based on their perceptions of 1) a personal relationship with the

instructor (Kelsy & D'sousa, 2004); 2) that is sustained through instructor online availability, (Berge, 1997) engagement, and communication (Conceicao, 2006; Conceicao, Strachota, & Schmidt, 2007; Easton, 2003); and 3) that provides content clarification, student feedback, and minimization of the impact of distance (Moore & Kearsley, 1996). Other results revealed student valuing of their online education when they perceived instructor facilitation through effective instructor interpersonal skills (Abdulla, 2004) applied with timeliness, organization, flexibility, and high expectations (Bailey, 2008; Bouras, 2009; Labarbera, 2013; Ortiz-Rodrigues, et al., 2005).

Overall, the literature confirms the value of successful learner-instructor interactions within the context of online education as good predictors of the student outcomes of motivation, satisfaction, and learning, which produce student perceptions about their online higher education, as an entity (Chang & Smith, 2008; Dennen, Darabi, & Smith, 2007; Kuo et al., 2013, 2014; Noel-Levitz, 2011). This finding was also verified for community college students (Kılıç-Çakmak et al., 2009; Noel-Levitz, 2014; Palloff & Pratt, as cited in Stanford-Bowers, 2008; Stanford-Bowers, 2008).

Learner interactions. These interactions, the third input element in finding #4, involved two-way communication between and among learners (Moore, 1989; Moore & Kearsley, 1996). Consisting primarily of online communication, this type of interaction occurred via email, blogs, and discussion boards frequently addressing aspects of group projects or instructor-posted topics for group discussion (Kelsy & D'sousa, 2004).

Although the literature yields inconsistent findings regarding student perceptions of the value of learner-learner interactions, that same body of literature confirms Finding #4 in this study. Whereas some researchers contended that student interest,

online communication, motivation, learning, and satisfaction can be enhanced through peer interaction (Carnevale, 2000; Evans, 2009; Moore, 1989; Navarro & Shoemaker, 2000; Pelz, 2004; Salmon, 2000; Sampson, Austin, Leonard, Ballenger, & Coleman, 2010; Strachota, 2003; Swan, 2003a; Veletsianos, 2010), other investigators concluded that student-student interaction was not considered critical to online communication, participation, engagement, motivation, learning, and satisfaction (Aman, 2009; Baglione & Nastanski, 2007; Biner, Welsh, Barone, Summers, & Dean, 1997; Kelsey & D'sousa, 2008). The limited study of the perceptions of community college students relative to their online interactions with peers showed that these students valued these educational interactions for the promotion of their engagement and learning (Capra, 2011; 2014; Lei & Gupta, 2010; Morris, 2011).

Regardless of whether the student perceptions of their online interactions with peers within the context of online education were positive or negative, those perceptions existed. These research-verified perceptions about learner-learner interactions in online education constituted outcomes that lead to overall perceptions of the value of their online education (Aslanian & Clinefelter, 2013; CCCSE, 2009; Instructional Technology Council, 2013; Noel-Levitz, 2011, 2014; Smith Jaggars & Bailey, 2010). Therefore, the soundness of Finding #4 was confirmed.

Fifth Finding

One of the unique features of online education is its capacity to support interactive group processes (Jain, 2011; Kuo et al., 2013, 2014; Veletsianos, 2010). Limited interaction may decrease student satisfaction and affect student performance and persistence in online courses (Chang & Smith, 2008; Noel-Levitz, 2011). Finding #5

addresses one of those unique group interactions cognitive, social, and teaching presence interacting within a community of learners (CoI). This finding is depicted in Figure 6.

Finding #5. The input elements of cognitive presence, social presence, and teaching presence interacted within the context of a CoI with an outcome of potential learning about which students formed perceptions regarding online education at a community college.

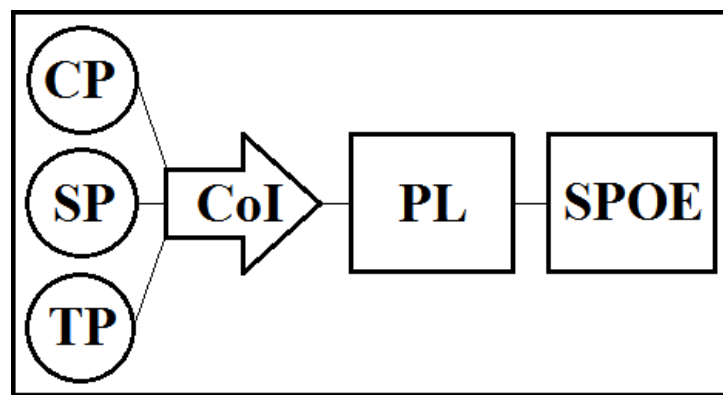


Figure 6. Cognitive presence (CP), social presence (SP), and teaching presence (TP) interacted within the context of a community of inquiry (CoI) with an outcome of potential learning (PL) about which students formed perceptions regarding online education at a community college (SPOE).

Elements of a CoI. The theoretical Web-based learning model—a Community of Inquiry—assumes that the interaction of cognitive presence, social presence, and teaching presence within a group with a common learning goal will result in learning (Garrison, Anderson, & Archer, 2000; Swan, Garrison, & Richardson, 2009). Although all three elements are essential to the interaction and desired educational outcome, some scholars ascribe a key role to teaching presence which influences student perceptions of social presence and cognitive presence (DaCosta, 2010; Garrison et al., 2010) and of the effectiveness of their entire computer-mediated online educational experience (Capra,

2014). Teaching presence is established by attending to cognitive and social presence challenges in a collaborative CoI (Swan et al., 2009).

A community of learners. The CoI is a dynamic context in which the overlapping interaction of the cognitive, social, and teaching elements acting in unity (depicted by Swan et al., 2009) develop a collaborative constructivist learning experience (Garrison et al., 2000) within the group of learners themselves—the community—at the core (Swan et al., 2009). Garrison and Archer (2000) contended that through the collaborative and confirmatory process of sustained dialogue within a CoI, the construction of meaning results in the generation and construction of knowledge.

Potential learning and student perceptions. Certainly, some of the literature reviewed in Chapter II provides a disappointing view of the learning outcomes and the resultant negative student perceptions of online education within a CoI. Rourke and Kanuka (2009) reviewed 252 research reports published between 2000 and 2008. Although these investigators had reservations about the design and rigor of some of the studies that they reviewed, they were able to conclude that it is unlikely that deep and meaningful learning arises in a CoI. These researchers reported that students associate the surface learning that does occur with independent activities or didactic instruction, not the sustained interaction that is critical in a CoI.

Capra's (2014) phenomenological study of a CoI with a sample of 15 community college students led her to question the pedagogical soundness of fully online courses for community college students and to recommend future research that examines online learning as a distinct pedagogy and that focuses "more intently" on the teaching and learning process.

However, these findings were not consistent with the favorable Morris (2011) qualitative results. She found that her 25 community college student subjects were satisfied with their experiences and learning as a CoI.

An examination of the results of these studies provides an explanation for the discrepant findings. As detailed in Chapter II, the Morris (2011) subjects experienced satisfying communication/interaction (social presence), instructor involvement/support (teaching presence), instructional design (teaching presence), learner engagement with content (cognitive presence), and learner characteristics/needs (dispositional and situational factors). These are, of course, many of the same attributes of learner-content, learner-instructor, and learner-learner interactions reported and discussed above as Finding #4 in the present research.

Neither the Rourke and Kanuka (2009) nor the Capra (2014) studies provided evidence of a successful interaction of three elements within the context of the CoI. Therefore, it is not surprising that neither learning nor student satisfaction were outcomes ascribable to the CoI paradigm by these researchers.

Secondary research question 3. The perceptions summarized from Chapter II and discussed relative to Findings #3, #4, and #5 constitute the answer to the following secondary research question. “What are the student perceptions regarding the nature and quality of the design and content, student and instructor interactions, teaching and learning, assessment and evaluation, technology, and student support services of online education at community colleges in the U.S.?”

Sixth Finding

The sixth finding is the answer to the fourth secondary question that guided this review of literature. That question was “What instructional practices do community college students perceive as necessary for their satisfaction, learning, and success?”

Finding #6. Currently, there are no reports of best practices that students perceive as necessities for their satisfaction, learning, and success relative to online education at community colleges.

Therefore, the fourth secondary research question cannot be answered.

Faculty, administrators, researchers, governments, professional organizations, accrediting bodies, and education foundations have all published their perspectives on best practices for educating students online. Certainly, there has been advocacy for the inclusion of student representatives in groups making decisions about online education (e.g., Completion by Design, 2012; Nodine et al., 2012; Ostrum, Bitner, & Burkhard, 2011; Proper, 2011). However, there is an absence of literature reporting student perceptions about best practices elicited through direct inquiry—“What do you think...?”

In the literature there are two types of researcher-formulated best practices reported within studies of student perceptions. First, there are the best practices that were provided to students as survey items on which students scaled their perceptions of importance and satisfaction (Completion by Design, 2012; Dean Heimberg, 2014; Noel-Levitz, 2011, 2014). Second, there are the best practices formulated by researchers as the implications of their research on student experiences in online education at community colleges (e.g., Aslanian & Clinefelter, 2013; Capra, 2014; Rourke & Kanuka, 2009).

Conclusions

The first data-based conclusion of this study was that an interaction-centered framework was useful in explaining relationships in the research on student perceptions of online education at community colleges. That heuristic consisted of input elements that interacted within a context producing an outcome, and in some situations, an associated product. The application of the heuristic to the literature reviewed in Chapter II generated the following conclusions.

The second conclusion was that the progressive development and expansion of distance education, the Internet, online education infrastructure, and student attributes (i.e., needs, goals, characteristics, and demographics) were the cornerstones of a foundation on which community colleges built their open-access online education courses and programs.

The third conclusion was that community college student perceptions of the quality of the online learning opportunities and the infrastructure that engendered those opportunities were inconsistent. No clear pattern of positive or negative perceptions emerged.

The fourth conclusion was that community college student perceptions of their online education were dependent on the quality of interactions among course content, the instructor, and other students promoted through cognitive presence, social presence, and teaching presence. This review of literature showed that whether or not a community of learners—a CoI—was explicitly identified and intentionally formed, student perceptions of motivation, participation, collaboration, engagement, satisfaction, learning, and

success were influenced, individually and collectively, by the presence and perceived quality of their online cognitive, social, and instructional interactions.

The fifth conclusion was that together the three Moore (1989) learner-interaction types (i.e., learner-content interactions, learner-instructor interactions, and learner-learner interactions) and the three Garrison et al., (2000) elements of a CoI (i.e., cognitive presence, social presence, and teaching presence) form a pragmatic basis 1) for designing content of professional development activities and 2) for guiding online educational practice.

Recommendations

The first recommendation is that community college administrators, faculty, and staff with responsibility for instruction, professional development activities, and hiring decisions attend to the practical implications of the fifth conclusion of this study for their online education offerings. This is the only student perception-based recommendation that will be offered here. The reason for the singularity of this recommendation is a lack of sufficient scholarly research consistently reporting generalizable trends in student perceptions of online education at community colleges (Capra, 2011, 2014; Rourke & Kanuka, 2009).

Because most research concerning higher education is based on 4-year institutions, educators from community colleges can find very little, if any, perception-based literature that specifically addresses the issues they face in serving their online students (Capra, 2011). Like the finding in the present study and the Dean Heimberg dissertation (2014) of an absence of student-identified best practices for online education, there is a dearth of research findings that represent “a student voice” about community

colleges (Capra, 2011). Most of the academic research on community colleges has focused on studies that do not include the perceptions of students. Across the research that does address community college student perceptions, the results are often contradictory (Cochran, Campbell, Baker, & Leeds, 2014). The crucial gaps and discrepancies in the extant literature merit attention as it is, after all, students' perceptions that depict their reality of online education (Dobbs et al., 2009).

The majority of the studies of community college students report quantitative survey data elicited with researcher-created instruments with scaled items (e.g., AACE, 2014a; Allen & Seaman, 2011, 2013, 2014a; Aslania & Clinefelter, 2013; CCCSE, 2012; ITC, 2013; Noel-Levitz, 2011, 2014). Further, some of the other research is of questionable rigor (Gross & Kleinman, 2013; Rourke & Kanuka, 2009; Smith Jaggars & Bailey, 2010).

Therefore, a first recommendation is for further research on the widest variety of community college questions and issues possible. Second, it is recommended that qualitative research be conducted to establish student identification of the variables that they perceive as influential in promoting their 1) access to; 2) matriculation into; and 3) motivation, participation, collaboration, engagement, satisfaction, learning, success, and retention during their online education courses and programs. Third, it is recommended that these qualitative studies be followed by quantitative investigations of large representative samples of community college students to determine the prevalence of the student perceptions regarding these issues. Fourth, it is recommended that qualitative and then quantitative studies be conducted to elicit, specifically, student identification of and perceptions about best practices, including most effective pedagogy,

for online education. Fifth, it is recommended that if community college leaders wish to reach rural, low-socioeconomic, tribal, and other “niche” groups, even now in 2015, these leaders need to explore the digital divide, and not assume, the availability of the technology infrastructure for receiving online education (Bates, 2012; Howley, Kellie, & Kane, 2012; Inouye, 2012). Sixth, it is recommended that future research investigate among community college stakeholders their perceptions of the nature of education that would be technologically, cognitively, socially, and pedagogically sound if it were to come full cycle to again be delivered as distance education. Such education would be, in fact is even now being, transmitted via digitized “discs” or other small non-Internet, transportable media to be “played” on hand-held personal devices (Bates 2012, Veletsanos, 2010). Seventh, it is recommended that research be conducted on student perceptions of their online education within MOOCs (massive open online courses). This recommendation is being advanced here because MOOCs have 1) engendered so much interest among academic leaders and online students; 2) had such an impressive growth in enrollment during their very short history; and 3) aroused considerable skepticism due to low student retention rates, low teacher-to-student interaction, inability to authenticate students, and lack of financial sustainability (Aslanian & Clinefelter, 2013; Mullins, 2013; Percy, 2014).

Limitations of the Study

This study was limited in both the range and the specificity of the reported student perceptions of online education at community colleges. There were three reasons for this limitation. First, there is a relatively small body of data-based literature on this topic. Second, among the studies that do exist the often conflicting results made it difficult to

formulate generalizations. Third, a number of the studies on the topic were conducted as case studies of a course, a discipline, or a community college and were not generalizable since follow-up study had not been conducted to test the reliability, generalizability, and verifiability of the findings.

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