Community College Library Orientation Effectiveness
Determined by
Student Computer Self-Efficacy

Wanda A. Harrell
Walters State Community College

and

Carol A. Decker, Ph.D, PHR
Tennessee Wesleyan College
October 18, 2007

Abstract

Educational accountability is continuously connected to an array of resources in the education setting. Library resources are keynote for provided the necessary resources for learning. While accreditation requirements have spawned increased levels of library resources and funding for such investments, many colleges have subsequently introduced library orientation programs for all students. Such programs are intended to further the transfer of resource usage throughout student life and beyond. With the computer being a noted link between the available library resources and the success of these programs, it is necessary to investigate student computer self-efficacy as a component of library orientation effectiveness.

. The study examined the computer self-efficacy of beginning community college students who had library orientation training. With such a probe of students, a foundation is provided for educational personnel to determine the successes of library orientation effectiveness and indications of the most appropriate development library initiatives for the beginning community college student. The model of age, gender, computer usage, previous computer training, and library orientation were significant in determining computer self-efficacy. Conclusions and recommendations are provided for successful library orientation preparation.

Introduction

Educational accountability is continuously connected to an array of resources in the education

setting. Library resources are keynote for provided the necessary resources for learning. While

accreditation requirements have spawned increased levels of library resources and funding for such

investments, many colleges have subsequently introduced library orientation programs for all students.

Such programs are intended to further the transfer of resource usage throughout student life and beyond.

Lindauer (1998) noted the concern expressed by Pritchard:

> The future vitality of libraries in academia will be
> dependent on whether they can dynamically and
> continually prove value to the overall educational
> endeavor. This value must be documented at a
> level that transcends specific formats of inform-
> ation, locations of collections and location of users,
> and that clearly links the investment in campus-
> wide information resources to the effectiveness of
> particular disciplinary programs.

With the computer being a noted link between the available library resources and the success of these

programs, it is necessary to investigate student computer self-efficacy as a component of library

orientation effectiveness. Schunk (1995) noted Bandura hypothesized that self-efficacy affects choice of

activities, effort, and persistence. In comparison with students who doubt their learning capabilities, those

with high self-efficacy for accomplishing a task participate more readily, work harder, and persist longer

when they encounter difficulties. Reed, Doty, & May (2005) stated that researchers have demonstrated

that computer self-efficacy influences the acquisition of new computer skills, as well as the willingness to

use computers thus, establishing new skills for students in computer usage. With adequate library

orientation training a student's self-efficacy can increase his/her ability to perform a new task Therefore,

library orientation enhances the confidence one receives through orientation training and as noted by

Decker (1998) stated Bandura & Gist defined self-efficacy as an individual's belief in their ability to perform a particular task.

Problem Statement

Learning achievement and its resulting successes are only as good as those programs responsible for the transfer. With increasing emphasis being placed upon the accountability of educational efforts, an examination of community college student self-efficacy levels subsequent to library orientation training is essential. Is library orientation training effective? Therefore, the purpose of this study is to examine library effectiveness as determined by the study of computer self-efficacy and confidence subsequent to library orientation. While many studies suggest individual self-concept and characteristics to be determinants of performance, few studies exist that measure self-efficacy subsequent to library orientation training for the purpose of determining the effectiveness of the library orientation program and consequential impact on future student success.

Review of Literature

This study examines library orientation effectiveness as indicated through levels of computer self-efficacy. However, such connectivity from the literature review is limited. Therefore, in order to provide significance for the study, literature is examined from a variety of categories and usage of variables.

Self-Efficacy

Schunk (1995) noted Bandura hypothesized that self-efficacy affects choice of activities, effort, and persistence. Compared with students who doubt their learning capabilities, those with high self-efficacy for accomplishing a task participate more readily, work harder, and persist longer when they encounter difficulties. Self-efficacy pertains to education as discussed and relevant to student learning, motivation, and achievement, along with some substantive issues (Schunk 1995). Students often receive information from teachers or other instructional assistance that are capable of performing a task (Schunk 1995). "Self-efficacy often serves as a major obstacle to performance (Bandura, 1986, p. 433)." Schunk (1995) stated in the beginning of a new learning activity a student's self-efficacy may differ as a result of

prior experiences and aptitudes (abilities, attitudes). As students progress improving upon new task and computer skills successful learning provides confidence to access self-efficacy for further learning. As Schunk (1995) noted Bandura indicated that learners acquire information to appraise self-efficacy from their performance accomplishments, vicarious (observational) experiences, forms of persuasion, and physiological reactions. A students' own performance offers them reliable guides for assessing their self-efficacy. Successes raise self-efficacy and failures lower it, but once a strong sense of self-efficacy is developed a failure may not have much impact. Compeau & Higgins (1995) based their measurer of self-efficacy on three distinct dimensions: magnitude, strength and generalizability. Those of high magnitude of self-efficacy will see themselves as able to achieve difficult tasks; those of strength self-efficacy will acknowledge the persistence to continue whatever obstacle is present; those of generalizability of self-efficacy believe and adapt to any situation in order to undertake any particular circumstances. Deng, Doll & Truong (2004) spoke of Compeau, Higgins & Bandura's findings that computer self-efficacy has been perceived to play an important role in affecting an individuals beliefs and behavior in using computers. "The stronger the efficacy or mastery expectations, the more active the efforts (Bandrua, 1977, p.80)."

Library Effectiveness

The research of Nancy A. Van House & Thomas Childers, Lindauer (1998) makes note of library effectiveness at the organizational level and has employed different approaches to measuring effectiveness and service quality. The manual entitled Assessing the Academic Networked Environment: Strategies and Options by McClure & Lopata's as quoted by Lindauer (1998), provides strategies, performance measures, procedures to document the extent, effectiveness, efficiency and to a lesser degree, the effects of the academic networked environment. The findings conclude: An adequate network infrastructure is believed to be essential to attract and retain high quality…students. As library orientation is administered students receive self-efficacy information from their professors and instructors. They convey the confidence and motivate the student to perform a new task. Continued success provides an increase in self-efficacy where as the observation of failure may lower the self-efficacy among them (Schunk 1995). "Academic libraries, computer/information technology units, and their staffs do make a

significant difference in the quality (Lindauer, 1998, p. 559)." These findings insure library

administration that library orientation can provide a student with a higher self-efficacy as a result of

orientation training. Bandura stated as indicated by Smith (no date) self-efficacy measures in academic

areas are operational of the belief that one can successfully accomplish the behavior to provide the desired

outcome.

Age/Gender

Reed, Doty & May (2005) noted that Chisholm examined an indirect effect of age on computer

self-efficacy (CSE). The researchers hypothesized that individual characteristics such as age,

[gender]…affect income and computer ownership, which in turn affected CSE. Bandura (1986) notes that

Parsons, Ruble, Hodge, & Small show findings vary across tasks and age levels, generally shows

evidence that girls view themselves as less efficacious than boys at intellectual levels. These analytical

results stem from gender role stereotypes. Also noted, boys are much more likely than girls to master

computers. "Computer self-efficacy may help explain age differences in computer performance studies.

In other words, CSE may transmit the influences of age on computer skill acquisition (Reed, Doty &

May, 2005, p. 4)." Bandura (1986 &1997) makes reference to Miura that the lower the perceived efficacy

in computer activities, the lesser the interest in acquiring computer competencies. Gender differences in

perceived self-efficacy to master computers extend to the college level. Regardless of gender, college

students lacking a sense of computer efficacy are computer avoiders. Hackett & Betz (1981) expressed

that the findings in their model found few gender differences in ages comparing the samples of their

models. They also noted that Kammer and Smith found that introductory courses at the university level

showed similar efficacy expectations due to comparable ability and experiences. "No gender differences

in self-efficacy were found (Hackett & Betz, 1995, p. 260)." In the attempt to measure self-efficacy in

comparison to gender Hackett & Betz (1981) requested that college students rate their confidence in their

ability to successfully complete the educational requirements…the second measure estimated

performance of job duties…no overall gender differences were measured traditionally or nontraditionally.

"Miura found males to have significantly higher computer self-efficacy than females in a sample of

undergraduate students. Males also scored higher on perceived relevance of computer skills. More recent

work investigating gender differences in computer self-efficacy indicates that the difference may be

related to perceived masculinity (Cassidy & Eachus, 2002, p. 135)." Cassidy & Eachus (2002) noted that

Murphy, Cover & Owen found gender differences in relation to self-efficacy for advanced skills.

Torkzadeh & Koufteros also found gender differences in self-efficacy; however no differences were

found in the beginning level, but disappeared following training. Bandura (1977) states, biological

characteristics form a basis for gender differentiation; many of the social roles that get tied to gender are

not ordained by biological differences. Differentiation of gender roles is a psychosocial phenomenon,
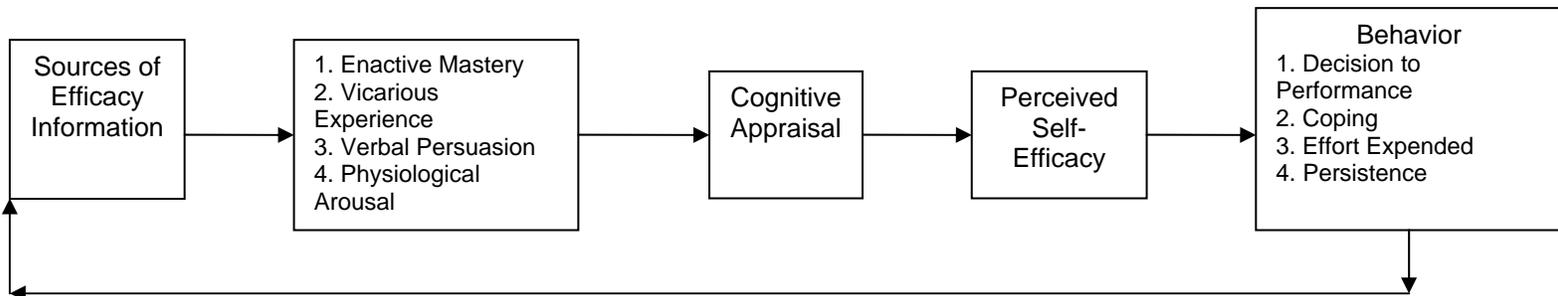
rather than merely a psychic one.

Time, Usage & Training

Maddux (1995) noted that Sexton & Tuckman examined variables and their relation to behavior

at a single point in time. Recent research suggests that multiple trails over time are necessary to

understand self-efficacy and its relationship to other variables. As students engage in an instructional

library orientation training session their lack of confidence and expanded effort toward learning a new

task may be overtaken by a sudden increase of self-efficacy. However, the ability to perform a new task

after training can increase or lower ones self-efficacy. As noted by Smith (no date) heightened self-

efficacy may cause students to expend little effort toward learning new computer concepts. Also she

indicated that Bandura stated, in approaching learning tasks, however, those who perceive themselves to

be supremely self-efficacious in the undertaking feel little need to invest much preparatory effort in it.

"Student[s] arrive in introductory computer applications courses with great confidence in their ability to

perform a computer-related task, but are often unable to accomplish the task without extension

instructions" (Smith, no date/page)." Cassidy & Eachus (2002) noted Torkzadeh & Koufteros found that

the computer self-efficacy increased significantly following a computer training course. They also

determined through their samples that positive past experience will increase self-efficacy beliefs while

negative experience will reduce self-efficacy beliefs. Thus, computer training and experience results in

strengthened self-efficacy. Torkzadeh, Pflughoeft & Hall (1999) made reference to magnitude, strength
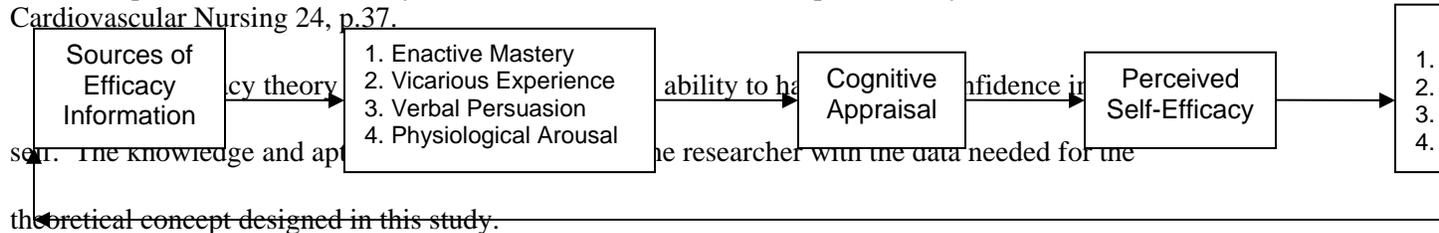
and generality by quoting Gist which suggested implications of self-efficacy that discussed how self-

efficacy influences academic learning processes. Moreover, others indicated that research studies showed

some training methods can enhance self-efficacy.

> "Performance accomplishments provide the most dependable source
> of efficacy expectations because they are based on one's own
> personal experiences. Successes raise mastery expectations; re-
> peated failures lower them, especially if the mishaps occur early
> in the course of events. After strong efficacy expectations are
> developed thorough repeated success, the negative impact of
> occasional failures is likely to be reduced. Indeed occasional
> failures that are later overcome by determined effort can strength-
> en self-motivated persistence through experience that even the
> most difficult of obstacles can be mastered by sustained effort.
> The effects of failure on personal efficacy therefore partly depend
> upon the timing and the total pattern of experiences in which they
> occur. Once established, efficacy expectancies tend to genera-
> lize to related situations (Bandura, 1977, p.81)."

Theoretical Framework

| Sources of Efficacy Information | → | 1. Enactive Mastery
2. Vicarious Experience
3. Verbal Persuasion
4. Physiological Arousal | → | Cognitive Appraisal | → | Perceived Self-Efficacy | → | Behavior
1. Decision to Performance
2. Coping
3. Effort Expended
4. Persistence |

Note. Adapted from "Self-efficacy in health behavior: Research and practice," by J. Allen, 1988 Cardiovascular Nursing 24, p.37.

Sources of Efficacy Information   cy theory   1. Enactive Mastery 2. Vicarious Experience 3. Verbal Persuasion 4. Physiological Arousal   ability to ha   Cognitive Appraisal   nfidence i   Perceived Self-Efficacy   1. 2. 3. 4.

self. The knowledge and ap   he researcher with the data needed for the

theoretical concept designed in this study.

> "Self-efficacy beliefs are constructed from four

> principal sources of information: enactive mastery
> experiences that serve as indicators of capability;
> vicarious experiences that alter efficacy beliefs
> through transmission of competencies and com-
> parison with the attainments of others; verbal
> persuasion and allied types of social influences
> that one possess certain capabilities; and phy-
> siological and affective states from which people
> partly judge their capableness, strength, and
> vulnerability to dysfunction (Bandura, 1977, p. 79)."

Individuals who have a low self-efficacy seem to steer away from tasks that demand difficulty. These difficult tasks are considered threats. They are not one to commit or carry out goals or difficult assignments. Bandura (1993) states they maintain a self-diagnostic focus rather than concentrate on how to perform successfully. They are always looking for their faults and faced with difficult tasks give up quickly due to personal deficiencies they feel they possess. If they experience failure they lose the small percentage of self-efficacy they hold. Individuals that possess a strong self-efficacy challenge difficult task, set goals and thrive on mastering the assignment. They are one to commit and follow through. Bandura (1995) expressed that his findings showed they maintain a task-diagnostic focus that guides effective performance. If faced with failure or disappointment they proceed to acquire the knowledge or skills needed for success. People maintaining high self-efficacy strives to accomplish goals set through failure and disappointments. Bandura (1993) concludes that in his past findings in 1986 self-efficacy beliefs are the product of a complex process of self-persuasion that relies on cognitive processing of diverse sources of efficacy information conveyed enactively, vicariously, socially, and physiologically (Bandura 1995).

Hypotheses

Keeping with the literature results and the original purpose of library orientation effectiveness through measures of self-efficacy in a community college education environment, the following null hypothesis is appropriate for the study:

Ho: There is no significant difference among age, gender, computer usage, computer training, and library

      orientation as measured by computer self-efficacy.

Methodology

Research Design

A descriptive ex post facto design was used to examine causal inferences through single instance implicit comparisons. Descriptive research, as in this study, describes and interprets and is concerned with the present. This design was appropriate for its control of intrasession history through responses to a fixed instrument (Campbell and Stanley, 1963).

Population and Sample

The Computer Self-Confidence Assessment, delivered through classroom instructors, was employed to gather data from all first time students, at a community college, who had participated in library orientation training in the 2006- 2007 academic year (N = 5000). Using a purposive sampling method, the prudency of the researcher, and the National Education Association research bulletin (1960), a sample of 357 students were surveyed to ensure a 95% confidence level. An overall response rate of 84% was obtained.

Data Analysis

Data analysis involved descriptive statistics to categorize the study participants. Analysis of Variance (ANOVA) was used to determine significant differences between independent variables.

Findings

The prior stated hypothesis is the basis for presenting the findings for this study. The findings presented analyzed:

      Ho_1: There is no significant difference among age, gender, computer usage, computer

            training, and library orientation as measured by computer self-efficacy.

      With computer self-efficacy being the dependent variable and age, gender, computer usage, computer training, and library orientation being the independent variables, the ANOVA procedure

disclosed significant differences in computer self-efficacy with regard to the independent variables.

Therefore, the null hypothesis was rejected.

Table 1

Analysis of Variance for Self-Efficacy Scores of Respondents Classified by Age, Gender, Computer Usage, Computer Training, and Library Orientation

	df	SS	F	Pr>F
Self-Efficacy				
Model	7	168.902	39.671	.000*

* $p < .05$

a. R-Square = .487

The findings presented in Table 1 above show the validity and basis for the rejection of the null

hypotheses that there is no significant difference among age, gender, computer usage, computer training

and library orientation effectiveness as measured by computer self-efficacy as defined by the significant

F-value of .000. The findings and significance shown in the statistical data illustrate the significant

difference among the use of the model of independent variables consisting of age, gender, computer

usage, computer training and library orientation effectiveness. The age range among the 300 students

surveyed were from 17 to 52. The average age of the student participating in this research was 20 years

of age.

The model summary findings explain a 49 percent of the variance among the independent

variables. The ANOVA shows a significant difference with a significance level of .000 among the

variables and provides proof that the variables chosen for this research project play an important role in

an individual's self-efficacy level. Further individual t-tests revealed that library database usage and

overall computer usage were significant model variables within the study. An additional observation

revealed that age was just above the significance threshold of .05.

Conclusions and Recommendations

The results of this research show the possibilities of increasing a community college student's self-efficacy through library orientation training. The research provides relevance for computer self-efficacy and the effectiveness of library orientation implemented in a community college setting. The research indicates that "people who have a low sense of efficacy in a given domain shy away from difficult tasks, which they perceive as personal threats [and that] people with high efficacy approach difficult tasks as challenges to be mastered rather than as threats to be avoided (Bandura, 1993, p.144)." The findings show forth in the following conclusions,

- increased knowledge of library databases heighten the overall confidence and well being of a community college student.

- further research should be done to examine the contribution of the other 50% variables that would help to explain what makes a community college student confident

- library database and computer usage should be re-emphasized and pressed by the college so that more well-rounded students could be exhibited.

- while age has a limited contributor, this does indicate that the exhibited confidence by community college students is the same with respect to age. In other words, the culture of the community college is very much one in which students regardless of age have ingrained themselves together in an otherwise traditional college setting. Thus equivalent education provided to all ages could be supported with further integration of all ages.

- the equilibrium among gender would promote educational and occupational opportunities without stereotyping between males and females.

- the computer self-efficacy of a student initiates confidence in the community college student to access library databases and engage in research methods at home.

- in determining the significance of computer usage and to heighten students self-efficacy levels, it would be important for community colleges to increase usage throughout the community college curriculum.

- the continuous implementation of library orientation is necessary for a confident community college student.

- continued computer training and advancement in computer technology contributes to a community college student's computer self-efficacy.

The determinants of this research show a significance self-efficacy level. The data provides the information needed for one to understand the association between the contributing variables of self-efficacy and the effectiveness of library orientation. Therefore, when looking at increasing computer self-efficacy among community college students colleges need to consider the variance of the variables estimated in this statistical model.

References

Allen, J. (1988). Self-efficacy in health behaviors: Research and practice. Cardiovascular Nursing, 24, p.37.

Bandura, A. (1986). Social foundations of thoughts and actions: A social cognitive theory. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. Educational Psychologist, 28, 117-148. Retrieved October 25, 2006, from Walters State Community College, R. Jack Fishman Library, from Academic Search Premier.

Bandura, A. (1995). Self-efficacy in changing societies. New York, NY: Plenum.

Bandura, A. (1997). Self-efficacy: The exercise of control. NY: W.H. Freeman & Company.

Bandura, A. (1977). Social learning theory. Englewood Cliffs, NJ: Prentice Hall.

Campbell, D. T., & Stanley, J. C. (1963). Experimental and quasi-experimental designs for research. Chicago: Rand McNally.

Cassidy, S. & Eachus, P. (2002). Developing the computer user self-efficacy (use) scale: Investigating the relationship between computer self-efficacy, gender & experience with computers. J. Educational Computing Research, 26(2), 133-153. Retrieved September 6, 2006 from Walters State Community College, R. Jack Fishman Library from ERIC.

Compeau, D.R. & Higgins, C.A. (1995). Computer self-efficacy: Development of a measure &
	Initial test. MIS Quarterly, 19(2), 189-211. Retrieved September 6, 2006, from Lincoln Memorial
	University, Carnegie-Vincent Library from JSTOR.

Decker, C.A. (1998). Training transfer: Perceptions of computer use self-efficacy among
	university employees. Journal of Vocational and Technical Education, Retrieved from
	http://scholar.lib.vt.edu/ejournals/JVTE/v14n2/JVTE-3.html

Deng, X., Doll, W., & Truong, D. (2004). Computer self-efficacy in an ongoing use contest.
	Behavior & Information Technology, 23(6), 395-412. Retrieved September 6, 2006 from Walters
	State Community College, R. Jack Fishman Library from Academic Search Premier.

Hackett, G. & Betz, N.E. (1995). Self-efficacy and career choice and development. In Maddux,
	J.E. (Eds.), Self-efficacy, adaptation, and adjustment: Theory, research, and application, (pp. 249-
	280). New York, NY: Plenum.

Lindauer, B.G. (1998). Defining and measuring the library's impact on campuswide outcomes.
	Colleges & Research, Retrieved from
	http://www.ala.org/ala/acrl/acrlpubs/crljournal/backissues1998b/november98/gratch.pdf

Reed, K., Doty, D.H., & May, D.R., (2005). The impact of aging on self-efficacy & computer
	Skill acquisition. Journal of Managerial Issues, 17(2), 212-217. Retrieved September 30, 2006
	from Walters State Community College, R. Jack Fishman Library from InfoTrac OneFile.

Schunk, D.H. (1995). Self-efficacy and education and instruction. In Maddux, J.E. (Eds.), Self-
	efficacy, adaptation, and adjustment: Theory, research, and application, (pp. 281-303). New
	York, NY: Plenum.

Smith, S.M. (no date). An examination of the computer self-efficacy and computer-related task
	performance relationship. Retrieved from http://www.osra.org/2001/smith.pdf

Torkzadeh, R., Pflughoeft K., Hall, L. (1999). Computer self-efficacy, training effectiveness and
	user attitudes: An empirical study. Behavior & Information Technology, 18(4), 299-309.
	Retrieved September 6, 2006 from Walters State Community College, R. Jack Fishman Library
	from Academic Search Premier