

EVALUATING E-TRAINING FOR PUBLIC LIBRARY STAFF:

A QUASI-EXPERIMENTAL INVESTIGATION

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A comparative evaluation framework of instructional interventions for implementation of online training for public library staff would enable a better understanding of how to improve the effectiveness, efficiency and efficacy of training in certain training environments. This dissertation describes a quasi-experimental study of a two-week, asynchronous online training course that was provided at four levels of instructional intervention to public library staff in the United States. The course content addressed the complex issues of difficult patron policy development and situational coping techniques. The objective of the study was to develop and demonstrate a theoretically grounded, evidence-based impact evaluation framework. The framework was used to assess the relative impact of an online course for public librarians at four levels of instructional intervention. The researcher investigated the relationships between the type of e-Training instructional interventions and the short- and long-term impacts on participants' knowledge, self-efficacy, and workplace performance. The study used a longitudinal, quasi-experimental design that included a pretest, posttest and three-month delayed posttest with follow-up survey. 194 participants completed all three phases of the study. The evaluation tools measured course content related knowledge and self-efficacy at all three phases (pretest, posttest, and delayed posttest) and assessed workplace application of training at 3-month follow-up. The results of this study contributed to evaluation theory and learning theory literature applied to the online learning environment and informed public library staff online training practices and evaluation methodologies.

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CHAPTER 1

INTRODUCTION TO THE STUDY

Technologies Are Tools. Yes, technologies are tools, but for what ends? To use them well, we must be clear about the educational and human purposes we want them to serve. ...clear about educational visions, goals, and biases when talking about the use of technologies.

Brunner and Tally

Background

The use of Web-based technology to provide training is not a new phenomenon. Large corporations quickly realized that e-Learning provides the benefits of timeliness, ease of access, and scalability that enables delivery of training in less time to more people at a lower cost (Clake & Hermens, 2001). The American Society for Training and Development (ASTD) reported that "high-quality e-Learning creates an economic advantage for both individuals and organizations by improving *speed to capability* or shortening the amount of time it takes to get workers up to speed on new products and processes" (ASTD, 2001, p. 11). Traditional classroom training that took corporations six to nine months to disseminate can now be available to every employee in just two to three weeks, thus assuring faster time-to-market with products and greater productivity (Piskurich, 2000). This condition creates a strong economic incentive for the business community to embrace e-Learning.

U.S. Workforce Training Statistics

In the United States, the workforce is addressing shifting requirements in the workplace by pursuing formal continuing education (CE) training opportunities (U.S. Dept. of Commerce,

1999). The rise of a knowledge-based economy coupled with an information explosion, rapid technological advances, and competitive labor markets induces workers who want to remain relevant to continually update and expand their knowledge and skills through lifelong learning. The U.S. Department of Education reported over 93.9 million adults participated in some form of non-academic credit distance learning activities in 2005 (NCES 2006-077, Table 16). An estimated 57 million adults in the United States participated in formal work-related courses or training in 2005, (NCES 2006-077, Table 4) and trends indicate that e-Training will continue to play a vitally important and increasingly significant role in equipping workers with the skills they need to succeed in the 21st-century digital economy (National Governors' Association & ASTD, 2001). Not only are individuals recognizing the need for CE to address changes in the labor market and technology, employers also are requiring and investing in increased workforce training. In fact, results from a National Center for Education Statistic's (NCES) survey indicated that, in addition to the desires to maintain employability and to improve career potential, a key motive for enrollment in formal, work-related CE was employer requirement or recommendation for staff enrollment (NCES 2005-044). *ASTD (2006) State of the Industry Report* estimated the United States spent \$109.25 billion on employee learning and development in 2005 and the use of technology to deliver this training was over 36%. Global Industry Analysts, a California-based market research firm, forecasted that the global e-Learning market will surpass \$52.6 billion by 2010 (Kopf, 2007).

Public Library Staff E-Training Environment

Public libraries had initially lagged well behind the business and governmental areas in

utilizing online learning technologies to meet their training needs. The reason for this is not that public library staff members have less training needs. According to Penny Garrod (1998) "librarians need to acquire new skills and knowledge as a matter of urgency... the digital era requires staff who thrive on change and who are proactive in terms of their approach to work and their own professional development" (p. 244-245). Aileen Weir (2000) in a speech titled, *The Information Professional of the Future: What Skills Will Be Needed and How Will They Be Acquired?* also addressed the need for continued professional development:

We hear the terms 'life-long learning' and 'knowledge nation' in our daily conversation. This orientation towards a continual upgrading of skills, especially technological skills, is a requirement of most working professionals and is certainly true in our discipline. No information professional graduating today assumes that they have done all that is required to last them until they retire.... Frequent and diverse on-the-job training is becoming an essential component of working life and the importance of devoting resources to this is now recognised by senior library managers (n.p.).

There has been considerable economic pressure to incorporate online training to address the increased need for CE of public library staff. Continuing education e-Training programs for public library staff have become so generally accepted that a 2006 study indicated 70%¹ of the library organizations surveyed planned to use e-Learning within the next three years (Mason et al., 2006). The widespread adoption of e-Learning to meet increased demand for public library staff work-related training is also reflected (a) in the increased availability of Web-based CE courses and (b) by the proliferation of Web-based public library staff training providers. (See Appendix A: Public Library E-Training Providers). The implementation practices of public library staff e-Training vary (Urdan & Weggan, 2000). Turner (2003) defined levels of

¹ An estimated 6,444 public library systems plan to purchase e-Training based on the report that there were 9,207 U.S. public libraries (administrative entities) in fiscal year (FY) 2004 (Table 1); and survey results that 70 percent of library systems had plans to purchase staff e-Training within three years (Mason et al., 2006 and NCES 2006–349, Table 1).

e-Training implementation along a continuum of interaction, from the lowest level characterized as the “Inoculation Approach” in which the learner reviews training materials in isolation with no instructional intervention or peer interaction within the learning management system or within the larger organization. The lowest level of the e-Training implementation continuum is simply making the e-Training available, which is the level at which over 90% of online training is implemented (ASTD, 2006). The highest level of interaction is the pinnacle of the pyramid, characterized as fostering a fully integrated community of practice within the online courseware and within the organization. Because moving to higher levels on the implementation continuum (from no online facilitation and no library programming of e-Training to including both types of instructional interventions) involves significant additional costs, the method of implementation is an important decision that should be made within the library.

Definitions

The following section provides definitions of terminology that are used throughout this document. Most theoretical constructs will be described in detail further in the study. The arrangement of the terms is alphabetical.

E-Training Terms Defined

Assessment: an activity to measure student learning and other human characteristics (Hodnett, 2001). The purpose of training assessment is to inform and improve the learning process. Assessment practices in training hinge on the evaluator's epistemological view

on the process of learning and values for determining metrics. The current study uses three metrics for assessment: Knowledge acquisition, Self-efficacy and Performance.

Certification: a process to authenticate attainment of prescribed levels of education, training and/or experience to assure that an individual is qualified to perform job-related duties. Training for certification is typically characterized as being provided by an external training institution that has been approved by a certifying body (e.g. Western Council of State Libraries) and includes approved curricular standards; on-the-job training is usually not certified.

Comparative evaluation study: a study that compares two or more groups on one or many variables to investigate the relationship of one variable to another (McMillan, 2008, p. 189), identifying the relative merits or outcomes of one intervention in comparison to one or more others (IOM, 2007, p. 8), making them especially useful for consumer-based evaluations (Stufflebeam & Shinkfield, 2007, p. 22).

Competencies: defined by the ASTD as "the cluster of skills, knowledge, abilities, and behaviors required for job success" (ASTD, 2004, p. 19). Competencies can be characterized as a set of personal characteristics that an individual possesses or needs to acquire in order to perform duties, complete activities, solve problems, address situations, and maintain responsibilities within a specific context. Performance may range from the basic level of proficiency to the highest levels of excellence in demonstrable integrated application of personal skills, experience, knowledge, attitudes, knowledge tools, and social contacts (adapted from Sampson & Fytros, 2008, p. 289 and Friensen & Anderson, 2004, p. 679). Houghton-Jan (2007) linked realization of individual library staff competencies to the

achievements of the organization by stating that "Competencies are the abilities, qualities, strengths, and skills required for the success of the employee and the organization"(p. 8).

Competency-based assessment: a system for assessing knowledge and skills a person can demonstrate in the workplace or in other relevant context. When defined regionally or nationally competencies provide "portable qualifications" to address the need for recognized proficiency standards either within a discipline, throughout an industry, or by a certifying organization (Prahald & Hamel, 1990, p. 79-80).

Constructivism: an epistemological viewpoint that proposes that learners create knowledge as they try to understand their experiences (Driscoll, 2000, p. 376). There are multiple forms of constructivism that can be presented along two continuums from realist to objectivist and from individual to social constructivism (Geelan, 1997).

Continuing education (CE): a program of instruction designed to supplement and update formal education; often used synonymously for "lifelong" or "lifewide" learning. Jarvis (2004) citing Apps (1979) defined CE as "the further development of human abilities after entrance into employment or voluntary activities. It includes in-service, upgrading and updating education. It may be occupational education or training which furthers careers or personal development. ... Continuing education is concerned primarily with broad personal and professional development.... Most of the subject matter is at the professional, technical and leadership training levels or the equivalent (p. 49-50). CE is useful to keep staff informed of current practices and new developments within the field; to enhance job skills, workplace attitudes, and workplace performance; or to

acquire certification, new skills, or specializations.

Effectiveness: a criterion of evaluation to analyze best operationalization of training using measures of realized value of implementation. Effectiveness determines (a) whether participants use the content and courseware as projected; (b) to what degree learning objectives are achieved both long and short term; and (c) realized outcome as a result of training. *Note:* To apprehend training effectiveness necessitates assessment of relative changes from before to after training and gathering evidence that changes are attributed to training –related experiences.

Efficacy: a criterion of evaluation to analyze potential usefulness of training materials to address staff needs, the organizational context, and stakeholder priorities. In e-Training evaluation, the efficacy of the training material is evaluated based on alignment of the instructional goals and learning objectives with staff competency requirements. Efficacy investigates (a) if the training materials address a training gap or recurrent training requirement of the organization and (b) whether learning objectives integrate with individual goals, workplace and role relevant issues, the organizational mission, and professional standards of competency.

Efficiency: a criterion of evaluation to analyze best stewardship of resources by investigating the cost in relation to the impact or outcomes achieved. It is also a comparative measure to evaluate if variations in training achieve the same outcomes at lower costs. Efficiency addresses whether (a) the training frugally utilizes available resources, with respect to time, cognitive load, emotional burden, monetary costs, use of tools and (b) if variations in training achieve the same impact at decreased cost.

e-Learning: a computer or technology-mediated experience or process that builds on or modifies understanding, capacities, abilities, attitudes and propensities in the individual to enable them to frame or solve open-ended problems in original ways and coordinate complex activities with others (Brunner & Tally, 1998; Inglis, Ling, & Joosten, 1999; Elkeles and Philips, 2007). The definition of e-Learning has been debated and is still evolving (Dichanz, 2001). In spite of the disagreement over the meaning of e-Learning, training experts continue to fuel the discussion and work through the details of definitions (Karrer, 2007; Cross, 2007). Cross proposed that e-Learning be viewed as an “augmentation of learning. It's only a tool in a nifty toolbox” (Cross, 2002). Brunner and Tally (1999) argued similarly espousing e-Learning technologies are tools to serve "educational and human purposes" (p. 99). In that vein, the convention of using a lower case "e" to emphasize the secondary role that the technology serves in the human process of learning was adopted in this document.

e-Training: a computer or technology-mediated experience or process of interventions developed and implemented to economically and ethically address human performance gaps, in an effort to improve workplace practices and meet measurable personal and organizational work-related goals. e-Training should modify the understanding, capacities, abilities, attitudes and propensities of the training participant to enable them to frame or solve open-ended problems in original ways and coordinate complex activities with others. Training differs from learning in that it is usually aligned within an organizational setting or the workplace, with the aim of improving both individual and

organizational work performance. The same capitalization convention as e-Learning was used.

Evaluation: defined by Rojas and Serpa (2000) as “the collection and analysis of information by various methodological strategies to determine the relevance, progress, efficiency, effectiveness, and impact of program activities” (Slide 5 presentation notes). In educational setting, Marsden (1991) defines evaluation as "an analytical process involving the collection and reduction of data of all (or some) phases of the instructional process and culminating in the synthesis of a report containing recommendations about the instructional program being evaluated" (p. 38).

Evidence-based evaluation: evaluation methods that "purport to demonstrate scientific validity" to establish "clear, verifiable, and replicable impact estimates," measure the "marginal changes" in assessment criteria caused by intervention, utilize a "comparison" assessment of what happened as a result of an intervention and "what would have happened had the intervention been withheld" (Camasso, 2004, p. 233). Evidence-based evaluation was originally derived from the Evidence-based Impact and Comparative Effectiveness Research from the medical field. Using this approach, different medical treatments can be assessed for their relative impact; evidence-based impact evaluation has been applied to educational settings also (Orszag, 2007; Camasso, 2004).

Human performance improvement (HPI): a "systematic process of discovering and analyzing important human performance gaps, planning for future improvements in human performance, designing and developing cost-effective and ethically justifiable interventions to close performance gaps, implementing the interventions, and

evaluating the financial and nonfinancial results "(Rothwell, 1996, p.3).

Knowledge acquisition - the description of a staff member's knowledge state over time based upon the set of problems (assessment items) the individual is able to answer correctly. In determining competency-based knowledge acquisition, assessment instruments should be based upon established competency area(s) within the larger domain of knowledge within a field or industry².

On-the-job performance: defined within the training context, as workplace practices attributable to training transfer or evidence of demonstrable learning objectives being completed by staff.

Pragmatic method: a method of scientific inquiry that investigates the effectiveness of alternate approaches, not to discover which approach is valid, but to gather evidence that indicates if one approach might be more appropriate than another in a specific context. The key question answered by comparative pragmatic evaluation method in an e-Training context is what differences in training implementation make a difference to outcomes?

Pragmatism: an epistemological viewpoint that emphasizes the practical function of ideas; postulating that meaning lies in observable practical consequences, with the intent encompassing more than utility, but purposefulness that eschews the use of absolutes in favor of contextualized value systems. According to pragmatism, ideas are defined by their consequences and the value of an idea can only be defined contextually.

² Within this study, the knowledge assessment instrument was based on competencies requirements of the Western Council of State Libraries, the competency area was restricted to the *Policy and Procedures* core competency area, the assessment instrument was reviewed and approved by experts within the field, and course tools longitudinally captured and stored participants' results.

Pragmatism, as represented by William James, provides an epistemological lens to evaluate theory in practice and the rationale for outcomes-based criteria for testing training assumptions and practices within a theoretically grounded framework.

Pragmatism provides the guiding principles in which to integrate learning theory, current practices, and evaluation methods/metrics and the valuation system from which to analyze applied theory and comparatively assess variations in practices.

Self-efficacy: a personal appraisal of how well one can execute courses of action that are required to address prospective situations (Bandura, 1982, p. 122). Self-efficacy is grounded in social constructivist theory and has been identified as being useful in understanding and predicting behavior (Bandura, 1977). The term self-efficacy in the context of training has been characterized as “an individual’s conviction about his/her abilities to mobilize cognitive, motivational, and behavioral facilities needed to successfully execute a specific task within a given context” (Stajkovic, 1998).

Self-efficacy scales: scales that require training participants to numerically rate how confident they are in their ability to perform a skill or apply knowledge they have learned. Self-efficacy scales have proven reliable in predicting success of on-the-job performance and providing an inferential measure of training effectiveness (Hysong & Qiñones, 1997; Chen et al., 2001).

Social cognitivism: a learning theory that posits that learning processes and behaviors are "determined" by the individual's internal cognitive processes through their interaction with external social experiences (Bandura, 1986).

Problem Statement

The reality is that very little is known about what constitutes effective implementations of e-Training for public library staff. Measuring training impact has not been a priority for public library administrators or CE trainers due in large part to insufficient budgets, lack of evaluation expertise, and inadequacy of methods and tools to assess training (Eseryel, 2002a). The increased demand for public library staff CE and the proliferation of e-Training providers have amplified the need for accountability for what public library staff members know and are able to do as a result of training participation. Despite the large numbers of library organizations planning to implement e-Training and the plethora of e-Training courses for public library staff, there is little or no guidance or research-base upon which public library administrators can support e-Training course selection and implementation decisions. While there is a strong theoretical and intuitive basis for recommending that public libraries implement competency-based e-Training in a high-facilitation, collaborative programming mode, these recommendations cannot be research-based because the evaluative research does not exist in the public library literature. The literature fails to adequately address the need for evaluation approaches for comparative analysis of competency-based public library staff e-Training. There are no published summative evaluations that explore the impact of courses that train public library staff in core competencies, no systematic and sustained efforts to investigate the long-term retention of knowledge and skills imparted through public library staff e-Training, nor studies that describe the evaluation process for completing comparative evaluation of varying e-Training implementations.

Goal and Objectives of the Study

The Commission on Technology and Adult Learning challenges public and private sector e-Training leaders to work together to:

implement new measures and methods for assessing and certifying what individuals know and are able to do. Traditional, institution-based approaches to assessment and certification are not well suited to an e-Learning world in which the focus turns from a record of classes taken and degrees received to measures of what an individual actually knows and is able to do (ASTD/NGA, 2001, p. 5).

The research goal of this study was to inform our understanding of e-Training effectiveness for competency-based training of public library staff. The main objective of this study was to create an evaluation framework utilizing competency-based assessment tools to investigate the relationships between the type of e-Training instructional interventions and the short- and long-term impact on participants. The Evidence-based impact evaluation framework prescribed competency-based evaluation methodologies to quantitatively investigate the relationships of e-Training on (a) knowledge, (b) self-efficacy (attitudes), and (c) on-the-job performance at each level of implementation.³ The study used theoretically grounded, scientifically sound quantitative assessment measures that enabled a comparative evaluation of the short- and long-term impacts of different instructional interventions. The study integrated confirmatory qualitative data to triangulate with the quantitative results to investigate evidence of impact and comparative effectiveness of varying levels of instructional interventions in an e-Training course.

³ Kraiger, Ford, and Salas (1993) proposed a framework for evaluating training that included cognitive outcomes, affective outcomes, and demonstrable skill-based outcomes, which the present study adopted for assessments..

Educational Significance and Contribution to the Literature

The educational significance of this study was to expand the knowledge base in e-Training evaluation and comparative assessment methodologies for public library staff competency-based e-Training. The results of this study informed two communities. The first is the rapidly growing e-Training content providers. The study addressed decisions regarding course evaluation criteria, course design for communication tool inclusion, and the design of training support materials. The second community included those stakeholders who are responsible for competency-based e-Training purchasing decisions for all sizes of public libraries and library systems.

The results of the study contribute to the larger bodies of literature on e-Training effectiveness research and e-Learning theory and practice. The findings from this evaluative research study and the resulting implementation recommendations begin to explore the comparative aspect of online course evaluation and define assessment criteria for providers of competency-based training programs. Theory-based assessment measures for e-Training outcomes and performance-based evaluation of what participants do on-the-job with their newly acquired knowledge may inform research into best practices for instructional intervention and standards for e-Training implementations.

Rationale for Public Library Staff E-Training Evaluative Research

The Institute of Museum and Library Services, seeing the potential benefit of support for CE evaluative research, funded a project titled, Project IMPACT (Initiative to Measure Personnel

Assimilation of Computer-mediated Training) in Public Libraries within the Laura Bush 21st Century Librarian Program. The rationale for the project quoted from the IMLS Web site:

The University of North Texas will study the impact of implementing Web-based training in public libraries. The study will model practical, yet theoretically based, implementation practices and assessment measures of online training; inform library administrators of both implementation practices and measures of staff and organizational impacts of investment in staff e-Training courses; and contribute to the library literature on establishing best practices in delivery of computer-mediated courses for continuing education and training in public libraries (Laura Bush 21st Century Librarian Grant Announcement, 2006).

This dissertation documents the methodologies and findings from Project IMPACT in Public Libraries. The grant application reviewers endorsed the project as “very important information for public libraries (that) will help libraries determine how to invest in this (type of) training and at what level of interaction” (RE-04-07-0033-07 Proposal Response Paperwork). The *IMLS Completed Review Report* (2007) also stated, “IMPACT has ground-breaking implications in the world of training for public library staff.... Getting measured results that show in the knowledge and skill base of staff is the kind of product sought to answer efficiency questions in funding and training.” This study addressed these expectations and explored the research potential in this area.

Another rationale for the study was to address the e-Training and information needs of librarians and support staff in small public libraries, a traditionally underserved group that may be most affected by this study. Research suggested e-Training is effective for those employees in small, remote office locations (Taylor, 2002). More than 59% of the public libraries in the United States serve populations with less than 10,000 and approximately 79% serve populations less than 25,000 (NCES, 2006, Table 5a). A description of small libraries can be derived from the specification found in the eligibility requirements for *Library Journal's*

competition for the best small library in America. The classification of small libraries is restricted to those libraries or library branches serving a community with a population of 25,000 or less whether the library is rural; situated in a larger geographic region (e.g. county); or assigned to the legal jurisdiction of larger aggregated legal service area (such as a Parish) (Library Journal, n.d.). The funding and staff training opportunities are extremely limited for smaller libraries as described in the executive summary of *Access Computing on Rural and Small Town Libraries* report (January 2003):

Nationwide, rural and small town libraries (those serving fewer than 25,000 people) make up four-fifths of all public library systems. They are often situated in communities of great poverty, have limited budgets, [and] are isolated from professional training opportunities Librarians are frequently unable to receive professional training - Only 11% of rural and small town libraries offer a formal training program, significantly lower than the 28% of urban and suburban libraries that do (p. 1).

The size of the staff often precludes leaving the library to attend training, even if funds were available to support the travel and registration. Web-based training has the potential to empower this traditionally underserved population, and this study can inform those with limited budgets of the potential impact that the level of e-Training instructional intervention can have on participants . The study's recommendations speak to how asynchronous e-Training may be implemented for optimum results.

Research Approach

The study identified contextually appropriate measures and methods of administering a summative evidence-based evaluation using a quasi-experimental, mixed method research design. The study varied the internal and external instructional intervention elements, (a) outsourced, online facilitation and (b) within library on-site, management-fostered

programming of e-Training, using otherwise identical lessons to compare the impact of varying e-Training implementations. As illustrated in Figure 1, the implementation of a Web-based asynchronous training lesson for public library staff can be considerably different based upon the levels of interaction and instructional intervention around the lesson both within the library organization and within the online course.

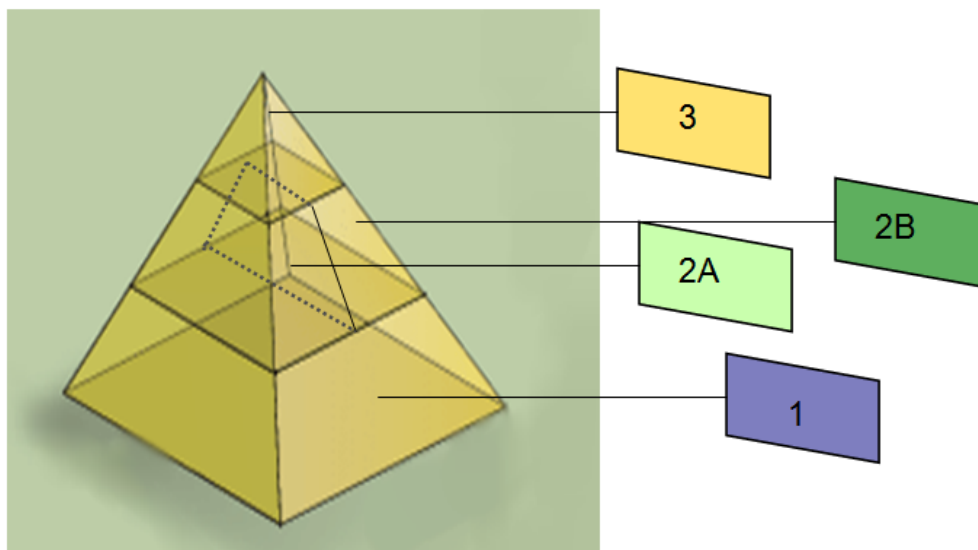


Figure 1. E-training implementation pyramid.

Each level is briefly characterized as follows:

Level 1 - “Inoculation” approach with no interaction within the online lesson and no management-fostered e-Training programming in the library/organization

Level 2A - Outsourced facilitation within online lesson for independent learners and no management-fostered e-Training programming within the library/organization

Level 2B - “Canned” online lesson with no interaction within the online lesson and management-fostered e-Training programming of staff learning teams in the library/organization

Level 3 - Outsourced facilitation within the online lesson and management-fostered e-Training programming of staff learning teams in the library/organization (Adapted from Turner, 2003)

Training at the highest level of instructional intervention is implemented within the culture of

the library with considerable interaction both inside and outside of the online course. Training at this level enables shared experience within the local library, the library system, and/or the professional community. Project IMPACT adopted this continuum of interaction to evaluate asynchronous e-Training at four levels of instructional intervention and interactivity.

Taking into consideration the ASTD (2006) statistic that over 90% of employee training is implemented as solitary self-study, Project IMPACT established this "inoculation approach" level as the base level (Level 1). The second group (Level 2A) provided an outsourced facilitator with explicitly defined duties within the course and all online asynchronous communication tools enabled, but there was no management fostered programming of training and no local library staff members completing the e-Training at the same time. The third group (Level 2B) did not have an outsourced online facilitator and all in-course communication was disabled, but each participating library completed the training organized into small group of two to five staff participants from each library. Each Level 2B library identified an on-site CE e-Training leader who was provided e-Training programming resources and recommendations (Appendix I & J On-site Programming Packet and Calendar). These resources and recommendation provided instructions on how to implement the training and provide organizational support within the library. The final group (Level 3) had both the on-line facilitator within the course and an on-site CE e-Training leader with on-site programming resources and recommendations on how to implement the training and provide organizational support within the library.

Evaluation Criteria

The study explored the relationship of the levels of instructional intervention to three

measures of the effectiveness of participants' achievement on competency-based training:

1. Short- and long-term changes in the participants' knowledge acquisition of course content was assessed.
2. Short- and long-term changes in the participants' self-efficacy in terms of self-perceived skills and ability to apply lesson content in the workplace were collected.
3. Self-report of participants' on-the-job activities attributed to training participation was analyzed.

The study developed tools to test these criteria based on constructivist and cognitivist learning theory constructs in developmental learning and information processing from cognitive psychology. The study developed metrics based on assessments of achievement of course learning objectives, which are aligned with public library staff regional certification requirements in *Policy and Procedures Core Competencies*. These evaluative measures were designed to investigate training-related impacts on staff competencies and workplace training transfer.

Comparative Evaluation to Investigate Durable Relationships

Lee Cronbach⁴ proposed that the main objective of educational evaluation is not comparison between programs but to “uncover durable relationships-- those appropriate for guiding future educational programs” (Cronbach, 1964 cited by Stake, 1967). In his seminal article titled “Course Improvement Through Evaluation,” Cronbach (1963) further proposed

⁴ Lee Cronbach, a student of Ralph Tyler the grandfather to cognitive theories of intelligence, was a "methodological giant" in assessment testing and evaluative research (Alkin, p. 30) Cronbach addressed methodological issues in evaluation with commitment to using evaluation as a tool for informed decision making. In 1982, almost two decades later, Cronbach still recognized that “there is no single best plan for an evaluation, not even for an inquiry into a particular program at a particular time, with a particular budget” (Cronbach & Shapiro, 1982, p. 321).

that evaluation informs the following:

1. Evaluation informs decision making for improving overall instruction and training.
2. Evaluation informs development of learning requirements and measures of learner achievements.
3. Evaluation informs achievement of overall quality of the educational system.

Cronbach called for the implementation of well-controlled analytic evaluations that compare alternative versions of the same course, instead of trying to compare different courses and programs to each other. He suggested several methodological approaches including gathering data from the learning environment, measuring performance and attitudes of training participants, and follow-up studies that investigate long-term impact on participants.

Evaluation Priorities

This evaluative research study follows Cronbach's directives and comparatively evaluates alternative versions of the same training lesson varying instructional interventions. The first purpose of this study was to “uncover durable relationships” between the instructional intervention at each level of implementation and the training-related outcomes by gathering assessment data on both the short- and long-term changes in participants knowledge, self-efficacy, and performance. After investigating to what degree the various e-Training implementations facilitated the short- and long-term retention of targeted knowledge and changes in self-efficacy, an even more important question was addressed by the research: *Were the actual workplace practices by the librarians and library staff impacted?* Rhea Joyce Rubin (2005) in her book *Demonstrating Results: Using Outcome Measurement in Your Library* characterized measures of successful training:

Changes in behavior and on-the-job performance quality, though not often assessed, are usually the real goals of training.... The long-range outcomes of training should always be changes in behavior or condition (p. 99).

Thus, the ultimate goal of training is improving workplace performance, and assessment of training should provide evidence of training's impact. As an example, if a lesson on managing difficult patrons is taken and an incident occurs several months after the lesson, the key evaluation question asks, "Has training improved the way the staff member handles the incident?" Measuring long-term impact on job performance is the type of assessments that public library stakeholders require to measure the effectiveness of training initiatives. The IMPACT research study provided a preliminary framework for an evidence-based evaluation to comparatively assess the short- and long-term impact of the training experience at four levels of instructional intervention.

Research Questions

According to Creswell (1994), research questions are often associated with the qualitative research paradigm, whereas the quantitative paradigm predominantly uses hypotheses and objectives. The research presented in this study uses both qualitative and quantitative methods. The study is driven not just by the research questions, but also the empirical evidence of comparative impact at each level of intervention. Relative impacts among levels of e-Training intervention were investigated through a comparative review of key indicators, including scores from the learning objectives based knowledge assessment tool, scores from the self-efficacy rating scale, and coded results of the participant's work practices questionnaire. Evaluating the impact of each level of implementation and comparing variations

in scores, ratings, and results among the various levels of implementation informs our understanding of the relative effectiveness of each level. The study also investigates the organizational context to explore differences between outcomes for small and large libraries.

The study is structured around the following research questions:

Research Question 1 (RQ1) Knowledge Assessment

Do all levels of instructional intervention of e-Training impact knowledge acquisition of learning objectives equally and is Web-based training equally effective for both short- and long-term knowledge acquisition at all levels of instructional intervention?

Research Question 2 (RQ2) Self-efficacy Scales Short- and Long-Term

Do all levels of instructional intervention of e-Training impact self-efficacy equally and is Web-based training equally effective for both short- and long-term general and specific self-efficacy at all level of instructional intervention?

Research Question 3 (RQ3) Practices On-the-Job

Do all levels of instructional intervention of e-Training impact participant's work practices equally?

Research Question 4 (RQ4) Learning Involvement and Attrition Rates

Can the levels of instructional intervention impact amount of learning involvement as measured by the participation statistics generated by courseware management system and the attrition rates for each level?

Research Question 5 (RQ5) Library Size

Does size of the library system impact knowledge acquisition, self-efficacy, participant work practices, or attrition rates?

For each of the research questions there are hypotheses to be tested.

Null hypothesis for Research Question 1 (RQ1) regarding knowledge acquisition are:

RQ1-1. On-site, face-to-face management programming of e-Training does not impact knowledge acquisition.

RQ1-2. Outsourced online course facilitation with use of in-course communication tools does not impact knowledge acquisition.

RQ1-3. There will be no significant short-term gain as measured by the scores of

knowledge assessment post-test data over the pre-test data ($T_2 - T_1$) at all levels of implementation (L1, L2A, L2B, L3).

RQ1-4. There will be no significant long-term gain as measured by the scores of knowledge assessment delayed post-test data over the pre-test data ($T_3 - T_1$) for library participants at all levels of implementation (L1, L2A, L2B, L3).

RQ1-5. There will be no significant long term loss as measured by the knowledge assessment delayed post-test scores over the post-test ($T_3 - T_2$) at all levels of implementation (L1, L2A, L2B, L3).

Null hypothesis for Research Question 2 (RQ2) regarding self-efficacy are:

RQ2-1. On-site, face-to-face management programming of e-Training does not impact general or specific self-efficacy.

RQ2-2. Outsourced online course facilitation and use of in-course communication tools do not impact general or specific self-efficacy.

RQ2-3. There will be no significant short-term gain as measured by the self-efficacy scale post-test data over the pre-test data ($T_2 - T_1$) at all levels of implementation (L1, L2A, L2B, L3).

RQ2-4. There will be no significant long-term gain as measured by the self-efficacy scale delayed post-test data over the pre-test data ($T_3 - T_1$) for library participants at all levels of implementation (L1, L2A, L2B, L3).

RQ2-5. There will be no significant long term loss as measured by the self-efficacy scale delayed post-test data over the post-test ($T_3 - T_2$) at all levels of implementation (L1, L2A, L2B, L3).

Null hypotheses for Research Question 3 (RQ3) regarding on-the-job performance are:

RQ3-1. On-site, face-to-face management programming of e-Training does not impact participant work practices.

RQ3-2. Outsourced online course facilitation and use of in-course communication tools do not impact participant work practices.

Null hypotheses for Research Question 4 (RQ4) regarding learning involvement and attrition rates are:

RQ4-1. There will be no significant difference in amount of learning involvement from participant as measured by courseware management system statistics for

participants among each of the four levels of implementation (L1, L2A, L2B, and L3).

RQ4-2. There will be no significant difference in attrition rates among all levels of implementation (L1, L2A, L2B, L3) as measured by number of participants that complete all three phases of the study.

Null hypotheses for Research Question 5 (RQ5) regarding library size are:

RQ5-1. There will be no significant difference in knowledge acquisition between participants from large and small libraries.

RQ5-2. There will be no significant difference in self-efficacy between participants from large and small libraries.

RQ5-3. There will be no significant difference in training related work practices between participants from large and small libraries.

RQ5-4. There will be no significant difference in attrition rates between participants from large and small libraries.

Summary and Outline of the Remaining Chapters

Chapter 1 provided some background information, presented the research problem, introduced definitions of terms, explained the rationale for research, presented the purpose and conceptual framework of the study, formulated potential research questions, and delineated hypotheses. Chapter 2 presents an investigation of literature related to public library e-Training evaluation. Chapter 3 describes the methodology employed in the study, the rationale for the design, and the research strategy (specifically, methodology on how data for the study was collected and analyzed). Chapter 4 outlines data analysis and presents results in terms of the research questions and hypothesis testing. Chapter 5 offers discussion and summary of findings, implications for theory, methodology, and practice in competency-based e-Training evaluation. Appendices support concepts, ideas, and methods of this research. The references section contains a list of literature used for this study.

CHAPTER 2

INVESTIGATION OF THE LITERATURE

The theoretical position that a researcher holds about the nature of existence (ontology) and the philosophies of knowledge which he or she embraces (epistemology) are intricately related to the methods adopted in the pursuit of knowledge.

Findlay and Li

Introduction to the Review

Chapter 1 provided introductory information on the need for evaluative research data on public library staff e-Training courses and outlined the scope of the Project IMPACT in Public Libraries research study. Chapter 2 draws on the literature to set the research context and provides a theoretical and empirical framework for the IMPACT evaluative research study. The investigation of the literature also includes background information regarding the public library continuing education (CE) environment and a review of the limited number of evaluative studies on e-Training within the public library CE environment.

Before discussing the research design in Chapter 3, it is important to position the IMPACT research study within the broader context of evaluation and learning theories as they apply to the current public library staff continuing education (CE) environment. Knowing about the theoretical setting makes it easier to delimit the scope of the evaluative research study and to provide a frame of reference for the reasoning behind the research design and instrumentation used. The interdisciplinary context for the IMPACT evaluation can be visualized using the "blueprint" of the topics investigated in the literature review (Figure 2). The diagram illustrates the key areas of research that informed this study: evaluation theory, e-learning theory, and professional development literature.

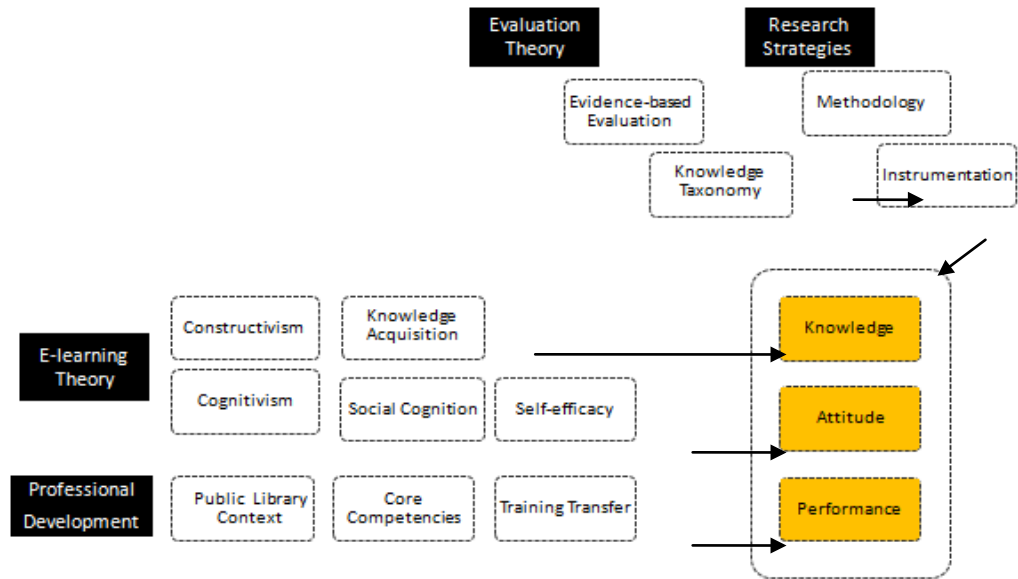


Figure 2. Literature blueprint.

The structure of this literature investigation is divided into three key areas: the evaluation research landscape, public libraries continuing education setting, and learning theories in the online learning environment. After an introduction to evaluative research landscape, the applicability of a contingency theory of evaluation design is discussed in terms of the identified purposes of evaluation in an educational context and then, more specifically, within the public library continuing education core-competency setting. Core competency accountability is discussed in terms of the epistemological and theoretical framework that informed this e-Training evaluative research study. The discussion of an assessment model for formulating core-competency training accountability model begins with an interpretation of the classic Aristotelean teleological taxonomy of knowledge⁵, followed by discussion of more recent applications of knowledge taxonomies deemed useful in formulating competency-based assessments. This discussion is followed by an investigation of the potential role of learning

⁵ Aristotle developed a teleological taxonomy of knowledge wherein knowledge is categorized according to a hierarchy which aligned with living according to a realization of intrinsic levels of purposefulness.

theory in e-Training evaluation. The learning theory discussion addresses the applicability of utilizing constructivist and social cognitivist perspectives to (a) inform our understanding of the e-Training experience and (b) develop a learning assessment agenda within the competency-based e-Training context. Social cognitivist and constructivist learning theories are presented in terms of their practical application for evaluating workplace training effectiveness. The literature overview concludes with an introduction to the evidence-based e-Training evaluation approach used in the IMPACT evaluation study.

Evaluation Research Landscape

Rojas and Serpa (2000) distinguished between the evaluation process and evaluative research. *Evaluation* has been defined as “the collection and analysis of information by various methodological strategies to determine the relevance, progress, efficiency, effectiveness, and impact of program activities” and *evaluative research* is a rigorous and systematic process that requires strict adherence to scientific methodology (Rojas & Serpa, 2000, Slide 5 presentation notes). Recently the ebb and flow of empirical evaluative research stringency was giving way to a trend to make evaluation methods and theory more accessible to practitioners, and as a result the distinction between evaluation and evaluative research was becoming blurred. The current evaluation theory research agenda was striving to harmonize the diversity of evaluation methods and standardize the framework, the language, even the positing of great evaluation theorists within a holistic vision of evaluative research. Marvin Alkin and Christina Christie (2004) examined and compared the theoretical and methodological origins of current theories of evaluation and developed an ingenious graphic, the *Evaluation Theory Tree*, that embodied

this endeavor. The *Evaluation Theory Tree* positioned evaluation theorists on the limbs of a modest tree with two basic roots: (a) social inquiry and (b) accountability & control; and three primary branches: (a) use, (b) methods, and (c) value. The graphic has gone through several revisions as theorists modify their views and methods (Alkin, 2004 p. 13 & p. 389). Tracing theorists' influences and fluctuations in approaches over time brought to light the evolving nature of the evaluative research discipline. The simple framework that Alkin and Christie presented was useful to comparatively investigate various evaluation approaches, but the real world evaluation landscape would be better characterized as a veritable jungle of conflicting approaches and mix-matched methods. The modest and evolving evaluation theory tree belies the need for more trail-blazing to align the emerging anarchy present within evaluation research literature and among the approaches of theorists and practitioners.

Toward Continuing Education Evaluation Best Practices

Bramley and Newby (1984a) identified five main purposes of real-world education-related evaluations that bring together the distinct roots of the evaluation theory tree (*social inquiry* and *accountability and control*): (a) Feedback that links learning outcomes to objectives to provide quality control; (b) Research to explore relationships between training experience, learning and account for the transfer of training to the job; (c) Controls that links training to organization and considers cost effectiveness; (d) Intervention to influence the social context in which training is occurring; and (e) Power games to control and manipulate evaluative data for organizational politics. In the right context, evaluation of training and learning can be a positive tool for participants and training personnel, as seen by Bramley and Newby's first four purposes; but misdirected evaluations can foster politicking and fiefdom rivalry even within an

educational setting. To avoid misdirected evaluations the measures used in the evaluation should be transparent, the methods should be able to be scrutinized by professionals, and the claims of evaluation should be reproducible and readily apparent. However, every evaluation has a subjective element when the evaluator defines the parameters of the evaluation. Stake (1967) addressed this anomaly in *The Countenance of Educational Evaluation* when he wrote:

What are the basic characteristics of evaluation activities? They are identified ... as the evaluation acts, the data sources, the congruence and contingencies, the standards, and the uses of evaluation....Deciding which variable to study and deciding which standards to employ are two essentially subjective commitments in evaluation. Other acts are capable of objective treatment; only these two are beyond the reach of social science methodology (online).

Turnbull et al. (1998) identified several constructs for improving objectivity of standards for clinical training evaluation methods, which can be adapted and applied to public library e-Training evaluations. Key features and best practices for evaluation in the training environment should include flexibility, comprehensiveness, feasibility, timeliness, accountability, reliability, relevance, and validity. *Flexibility* ensures the complete spectrum of learning objectives and training competency are evaluated in both the training context and library work environment; *comprehensiveness* addresses the need to assess and document learning objectives and the corresponding librarian on-the-job performance measures; *feasibility is an important construct because it insures* evaluation programs are cost-effective in terms of time and resources; *timeliness* in evaluation maximizes accuracy in capturing the impact of the training on staff performance and insures report of evaluation findings in a timely manner for maximum stakeholder benefit; *accountability* is critical in assuring impacts and performance are being evaluated in a fair and transparent fashion for all public library e-Training stakeholders and the public library community, both within the profession and at the local level; *relevance* takes into

account those aspect of evaluation that address concerns of key stakeholders in order to direct management attention and foster training improvement; *reliability* guarantees the reproducibility or consistency of data, results, and outcomes produced by an evaluation method, and *validity*⁶ assures the “appropriateness, meaningfulness, and usefulness of the specific inferences made from test scores” (American Educational Research Association, American Psychological Association, and National Council on Measurement in Education, 1985, p. 9). Although controlling all identified evaluation constructs is challenging, these measures will improve the likelihood of utilizing evaluative research findings in future CE training development and foster establishment of best practices. Stake (1967) stressed the importance of evaluation planning and the need to answer a few key questions in an effort to make "evaluations more deliberate, more formal" and clarify "responsibilities"(p. 521). Stake's questions were answered to insure full transparency in the IMPACT evaluation and to clarify the scope and limitations of the evaluation (see Appendix B: Transparency in Evaluation).

Most professions perceive evaluation of CE programs and courses as a vital element in insuring the quality of their profession, e.g. school teachers (Guskey, 2002; Davis et al., 2009); dentistry (Bullock et al., 1999, 2007); state departments of transportation training programs (Shiplett, 2006, p. 25); dieticians (Commission on Dietetic Registration, 2001, p. 9); veterinary medicine (VetMed, 2007); among others. The dental profession uses evaluation of training as

⁶ In instrument development, there are primarily three types of validity: content, criterion, and construct (Litwin, 1995): Content or face validity, which involves a review of the instrument by subject matter experts without the use of quantifiable statistics (Litwin, 1995). Criterion validity is calculated as a correlation coefficient between the test instrument in question and another test/outcome. Two types of criterion are discussed in the literature: concurrent validity, which involves comparison of an instrument to another established instruments for assessing a variable, and predictive validity, which refers to an instrument’s ability to predict future success or ability to correlate a test to a specific outcomes. Construct validity is a measure of a survey instrument’s usefulness or meaningfulness fit for a practical application (Litwin, 1995).

part of a quality development cycle, as a stepping stone to identify gaps in industry knowledge and skills that may need to be addressed (Bullock et al., 1999). A shared observation among these CE evaluation studies was that training evaluation should not be conducted in isolation. In reviewing these CE literature from other disciplines, training evaluation studies should involve stakeholders at all levels of the training process, include multi-dimensional measures of training success, and include participant-level assessment tools as the primary focus for measuring outcomes. By following examples from other professions, a key feature in developing continuing education evaluation best practices that achieve a process of continuous improvement in public librarianship is to integrate agreed upon industry standards (such as core competencies) with assessment that speaks to stakeholders' information needs for social inquiry and accountability and control while maintaining Turnbull et al. (1998) evaluation constructs (flexibility, comprehensiveness, feasibility, timeliness, accountability, reliability, relevance, and validity) in the evaluation methods and metrics.

Contingency Theory of Evaluation Design

There is no "cookbook" approach to the evaluation of training. To properly evaluate training requires one to think through the purposes of the training, the purposes of the evaluation, the audiences for the results of the evaluation, the points or spans of points at which measurements will be taken, the time perspective to be employed, and the overall framework to be utilized (Nickols, 2003; p.10).

The contingency theory of evaluation proposed that evaluators select the model that best fits the specific needs or situational characteristics of the evaluation based on stakeholders' values, environmental limits, and strategic goals. Shadish (1998) stated that selection of the required type of evaluation was contingent upon many circumstantial factors

that must be taken into account by the evaluator. Payne and McGee-Brown (1994) supported the contingency theory of evaluation for educational settings and shared the belief that evaluation model selection must be contextually determined. The key is not to propose a cookie cutter evaluation tool, but to review the training context and stakeholder values to define measures and evidence that demonstrates training benefits, including the efficacy, efficiency, and effectiveness of training programs.

Establishing evaluations that measure efficacy, efficiency, and effectiveness of a program or treatment was an approach initially derived from the evidence-based medicine literature and comparative effectiveness evaluation research from the medical field (Ellis, 2007; IOM, 2007, Orszag, 2007). The principles of evidence-based medicine and use of comparative effectiveness research approach, which investigates varying treatments to assess their relative impact, are also applicable to an educational setting (Orszag, 2007; Camasso, 2004). Table 1 speaks to the types of questions that support evidence-based tactics for comparative evaluation methods for e-Training. The evidence-based approach informs adoption of assessment measures and metrics that speak to the contextual needs and limits of the educational program to uncover practical, yet methodologically sound and theoretically grounded information that stakeholders can use to improve some aspect of the training, e.g. course content, user experience, technical support, supplemental materials, valuation criteria (competency standards), program design, or learning environment.

Table 1

Assessment Measures

Value	Assessment
Efficacy	<p>Best fit with regard to measures of potential usefulness of training to address staff needs, organizational context, and stakeholder priorities.</p> <ul style="list-style-type: none"> ✓ Do the materials address a training gap or recurrent training requirement? ✓ Do the learning objectives integrate with individual goals, workplace and role relevant issues, the organizational mission, and professional standards of competency? ✓ Are test instruments designed correctly to adequately capture stakeholder interests? <p><i>Note.</i> The measures of efficacy are often identified by formative evaluation during the training development process (before delivery). Responses to open-ended questions during a summative evaluation may provide opportunity for input from participants and other stakeholders on the validity of assumptions made in the development process.</p>
Efficiency	<p>Best stewardship of resources or ability to produce the desired result with a minimum amount of time and resources</p> <ul style="list-style-type: none"> ✓ Does the training frugally utilize available resources, with respect to time, cognitive load, emotional burden, monetary costs, use of tools? ✓ Does the training development follow sound instructional design practices? <p><i>Note.</i> Efficiency often weighs the costs of inputs per outputs produced. Training evaluation in a non-profit setting utilizes different relative factors than production or profit. Outputs attributed to training (such as workplace performance, service improvements, or avoidance of potential risks to the organization i.e. legal liability, financial loss, staff morale, patron satisfaction) are substituted for monetary outputs.</p>
Effectiveness	<p>Best operationalization of training using measures of realized value of implementation</p> <ul style="list-style-type: none"> ✓ Do participants use the content and courseware as projected? ✓ To what degree are the goals and learning objectives realized both long and short term? ✓ What changed as a result of training? <p><i>Note.</i> To realize evaluation of effectiveness necessitates assessment of changes before and after training of key evaluands. IMPACT used changes in participant's cognitive knowledge of training content, self-efficacy, and demonstrated training transfer.</p>

Identifying Shortcomings of CE Training Evaluation

A lot of good things are done in the name of professional development. But so are a lot of rotten things. ... provide evidence to document the difference between the two (Guskey, 2002, p. 6).

Gusky acknowledged the lack of quality standards for staff development and recommended researchers document evidence that will identify the characteristics of

successful and unsuccessful professional development programs (Guskey, 2002). Evaluation provides the key to making the distinction between what is working and what needs improvement in CE training. By including systematic information gathering and analysis as a central component of all CE activities, e-Training providers could enhance the success of CE programs. Evaluation of educational endeavors should check the outcomes or results and not just the processes and the procedures (Tyler, 1940). Tyler (1940) observed, "The chief defect of most evaluation programs is their lack of comprehensiveness" (p. 26). This key criticism of evaluation has been documented in recent training literature. A study in the United States by the American Society for Training and Development (ASTD) found 45% of surveyed organizations gauge only training participants' reactions to courses and use no other measure of impact (Bassi & van Buren, 1999). In a recent Canadian e-Training related survey, the study found that only 38% of employers measure e-Learning outcomes (Murray, 2001). Of the 38% that did evaluate e-Training outcomes and results, 96% simply measured employee satisfaction, 84% included measures short-term learning retention, and only 63% included measures of employee behavior changes, which is less than a quarter of all training evaluating this important performance indicator of training's impact (see Figure 3).

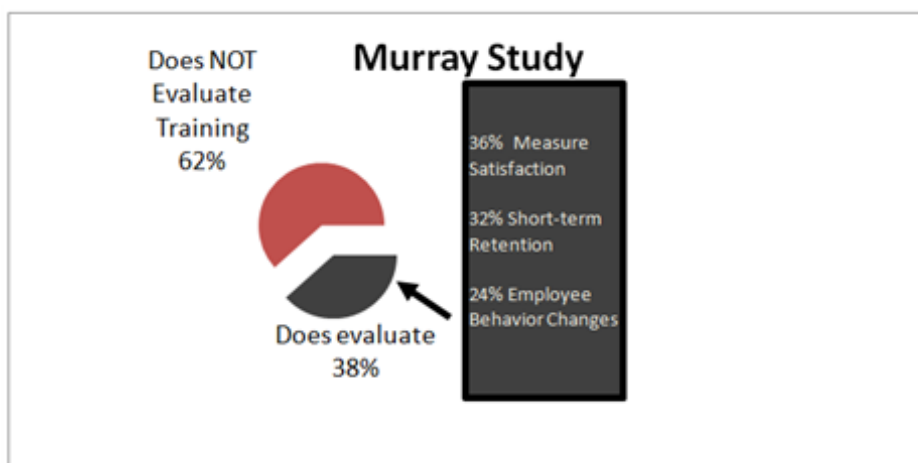


Figure 3. Murray (2001) evaluation statistics. (Note. Numbers will not equal 100% because some organizations measure multiple outcomes.)

A more recent informal poll initiated for 100 e-Learning professionals who were enrolled in evaluation training workshop found that 11% did no training evaluation, 26% did reaction level evaluation, 48% did knowledge acquisition or learning level assessment, 15% measured on-the-job performance and none of those polled assessed return on investment (Thalheimer, December, 2006).

WebJunction's *2007 Fact Sheet*, a publication of recent WebJunction survey results, addressed the need for public library training evaluation research and brought to light key findings on public library staff training in terms of training formats, training dollars spent, and anticipated outcomes. The results indicated that CE training program evaluations in the library profession are currently not systematic or comprehensive. The WebJunction (2007) administered survey, which investigated public library staff CE training programs and the levels of evaluation of these programs, had an extremely low (9%) response rate. The low response rate speaks to the need for further inquiry in this area, but may also indicate a lack of understanding for the relevance of evaluation studies and importance of the data to CE training development. The survey, which was targeted to U.S. and Canadian public libraries, reported use of a variety of CE training evaluation approaches, but the findings also reinforced the need for systemized evaluation and data collection on training outcomes.

The WebJunction (2007) survey did identify some industry specific evaluation criteria that responding libraries used to evaluate their staff training program effectiveness:

1. "Staff Morale and Job Satisfaction" was significant for 60% of respondents.
2. "Staff evaluation (feedback) of trainings in which they participate" was significant for 52% of respondents.

3. "Patron Feedback on Quality of Library Services Measured" was significant for 47% of respondents.
4. "On-the-job performance measures" was significant for 41% of respondents⁷.

These public library community specific training effectiveness measures from the 2007 WebJunction survey supported Bruce Massis' (1993) recommendation for identifying organizational relevant values and utilizing situated evaluations, especially in appraising impacts of educational technology. Massis maintained that to understand how technological innovations are adopted, e-Training researchers should analyze the innovation-in-use and investigate how its use heightens, diminishes, or transforms the organization's social context and whether the application of the innovation adapts to the demands of the organizational context.

E-Training evaluation has generally not provided the depth and breadth of information needed to make informed decisions. Even with the array of e-Training initiatives, quality benchmarks have yet to be established for public library staff e-Training (Varlejs, 2003). Besides the sheer speed at which CE e-Training for library staff has been adopted, several factors contribute to the lack of an e-Training quality evaluation framework:

1. Lack of availability of pre-defined training criteria (learning objectives) and agreed upon quality standards (primarily agreed upon competency requirements and proficiency measures) contribute to the lack of cohesion needed for a quality evaluation framework.
2. No mechanism (standard report card or scorecard⁸) for disseminating outcomes

⁷ This number is based upon the percentage calculations from raw data presented by the WebJunction (2007) publication in answer to the Question 17, "Which of the following do you use to evaluate the success of your staff training programs?" (e.g. 73 out of 177 total respondents calculated to 41% that responded that they use staff performance ratings). (p. 10).

⁸ Kaplan & Norton (1992) introduced the concept of scorecards in corporate human performance enhancement context. See Appendix N Evaluation Scorecard Planning Form for more information for its application within public library CE environment.

contribute to the lack of an agreed upon quality evaluation framework.

3. Lack of an infrastructure (e.g. a clearinghouse) for collecting and forwarding comparative outcomes (e.g. a *Consumer Reports*TM for e-Training) or minimum e-Training compliance (e.g. a Good HousekeepingTM stamp of approval) contribute to the lack of a quality evaluation framework.

In addition, library administrators often lack expertise in human performance improvements and basic competency-based e-Training needs assessment. Integrating an evaluative component that provides more detailed information on results achieved and demonstrated value would allow administrators to make more informed decisions (Eseryl, 2002a). The 2006 TLA Continuing Education Forum emphasized library administrators' "desire for relevant, meaningful outcomes" and key stakeholders "suggested that courses might even result in a usable product" (Wanner, 2006, p. 118). The key requirement that public library CE stakeholders identified for assuring quality has been tangible proof of the positive impact of a CE course that justifies staff time and organizational expense.

With the proliferation of e-Learning initiatives, e-Training has come under fire for lack of quality assurance standards from developers and providers. In reviewing e-Learning quality issues, Stracke and Hildebrandt (2007) stated that "quality does not exist 'per se,' but that first, it has to be defined what the stakeholders understand by the term 'quality' in a given context and second, this understanding of quality aspects has to be transferred into practice" (p. 4). Thus, quality is defined by the values of the stakeholders⁹. Defining quality is relevant based on the context and the measures that are applicable to stakeholders' unique needs for workplace viability and industry specific values, which for public library staff are beginning to be

⁹ Robert Stewart coined the term stakeholders in 1963 and defined it as "those groups without whose support the organization would cease to exist" (as cited in Freeman & Reed, 1983, p. 89). Nickols (2005) defined stakeholder similarly, but in a more positive light; a stakeholder is a person or group with an interest in seeing a program or organization succeed and without whose support it would fail (Nickols, 2005).

delineated in large part by the emerging staff competencies requirements and expectations for individual library staff member's workplace knowledge and skills. Quality of e-Training ultimately should be defined through the eyes and day-to-day experiences of frontline staff; a viable evaluation framework will investigate not simply if the e-Training improved staff knowledge, attitudes, and performance, but benchmark what e-Training implementation worked best and had the most lasting impact. However, evaluation of the impact of public library staff e-Training and the quality measures for the delivery (instructional design and context dependent integration) of e-Training are still in their infancy.

Competency-based Accountability

Core competency is a relatively new term. It was coined by Prahalad and Hamel in an article titled "The Core Competence of the Corporation" in the *Harvard Business Review* in 1990. The philosophy behind Prahalad and Hamel's core competencies is the need for front line staff to have the knowledge and skills that enable the corporation to achieve its mission. Thus, competencies should align with both front line staff knowledge and skills requirements and delineated workforce capabilities established to meet organizational mission and goals.

Within the emerging global labor market there is an increased awareness of the need for competency standards across disciplines and geographic boundaries. LeDeist and Winterton (2005) examined the emerging trend for establishing competencies and provided several factors driving the adoption of competency-based approach to training and human resource development:

1. The pace of technological innovation and demographic change increased the need for adaptive training and work-based learning.

2. An emerging demand-driven model for vocational education and training systems contributes to the investigation of competency-based approaches to training.
3. Trend toward lifelong learning public policy that emphasizes informal learning and validates competences and tacit skills drives initiative to establish a competency-based approach to training.
4. The recognition of learning outcomes, irrespective of the routes of acquisition involved, as the key to widening access to learning and non-traditional career ladders for those who, although without formal education, have developed competence-based approach experientially.
5. The potential of the competence-based approach to integrate traditional education, vocational training, and experiential development within a typology of competence reinforces support for pursuing a competency-based approach to human resource development.
6. The need to improve the skills and qualifications of the labor force and to promote workforce mobility through occupational competency standards drives the competency-based approach to training and human resource development (p.2).

LeDeist and Winterton (2005) promoted the need for development of a holistic view of competencies with an appropriate typology to align education and training with "the needs of the labor market" to promote "mobility for individuals (vertical as in career progression, lateral as in movement between sectors and spatial as in geographically), especially for workers faced with job insecurity" (p.2). They documented the international, historic, and present day thinking on the term competency and the different approaches to establishing competency found in varying regions of the world; but they did not propose their own definition. Instead, in order to inform further discussion of competency, they provided a generic, multi-dimensional framework that includes cognitive, functional, social competencies with practical competence integrated into each of these dimensions with "over-arching" meta-competence that overlay the entire framework and drives the output (p.14). The model presented a "multi-dimensional approach" with the hope of the development of a "more global understanding" of the term

competency (p.15). The model was meant to inform the theoretical discussion within the human performance improvement academic communities, but also align with the discussion of practitioners within the vocational education training community. LeDeist and Winterton added that "It is necessary to extend the depth of analysis, investigating competence in greater detail in specific occupations, since it is at this level that competence has most concrete meaning" (p. 15). Whether the terminology used is competency standards, staff proficiencies requirements, or human performance indicators, the driving factor is an increased desire for accountability of staff competencies and benchmarking of workforce skills.

Although competencies were first introduced within the commercial environment, the term has since been widely adopted for library settings. Brody (1998) followed by Giesecke and McNeil (1999, 2001) provided historic overviews on the propagation of core competencies defined for library staff in various library settings beginning with the 1983 research study by Griffiths and King (1986, cited by Body, 1998), a study that was tasked with identifying future knowledge and skills needed by all information workers and produced a list of general information workers competencies, competencies for librarians in general, and competencies for librarians in specific types of libraries and by library functional areas. In the library literature community core competencies have been defined as:

those skills present or creatable upon which the organization bases its operations and services and from which it creates its desired future. Upon careful analysis, "core competency profiles" serve to synthesize one's skills and knowledge, and define one's performance requirements (Massis, 2004, p. 10).

The Western Council of State Libraries (2004) has stressed the meaning of the term *core* in stating, "Core refers to those skills, knowledge, attitudes, and/or behaviors that are essential to the successful, effective, coherent performance of the duties of a Library Practitioner. Core

identifies required knowledge and skill sets. Core does not address individual or situational particulars that may exist beyond the basics"(p. 1). These definitions of core competencies align with Prahalad and Hamel's (1990) definition of competency-based assessment as "a system for assessing a person's knowledge and skills.... actual skills or knowledge a person can demonstrate in the workplace or in other relevant context" (p. 79). They further defined competency-based assessment stating that:

Competency based assessment is also a system for providing portable qualifications against nationally recognised competency standards. In a competency based assessment system, it is recognised that learning can come from a variety of sources, both on the job and off the job, formal and informal. Recognition is given for prior learning and for skills and knowledge which can already be shown (p. 80).

There has been an increased interest by public library stakeholders to identify staff competency requirements and certify that these capabilities are being addressed in public libraries across the United States (Appendix History of Public Library Core Competency Initiative).

Public Library Staff Continuing Education and Core Competencies Requirements

The availability of CE opportunities for U.S. public library staff was studied in a 2001 survey of CE programs provided to state librarians and CE personnel and state library associations nationwide; the results indicated that, even though few states had formal CE plans, CE programs were "flourishing" and CE efforts focused on the training needs of non-administrative staff and public library staff and trustees that did not hold advanced degrees in librarianship (Mediavilla, 2001, p. 2). The library community has begun to utilize e-Training in the workplace for staff training needs, but there have been few published evaluation studies

exploring public library staff e-Training assessment issues (Urquhart, Spink, & Thomas, 2005, p.

1). It may be helpful to draw attention to the distinction between *assessment* and *evaluation* in an educational setting. Hodnett provided useful definitions that highlight the symbiotic relationship between the two terms:

Evaluation is to determine significance or worth or judging the effectiveness or worth of educational programs. Assessment is to determine a rate or amount and is used as an activity to measure student learning and other human characteristics. Put more simply we assess people and evaluate things or objects (Hodnett, 2001).

Hobnett's distinction illustrated that assessment of learning is conducted at the individual participant level while evaluation is an agglomeration completed at the collective level to determine education program effectiveness. It is common curriculum and instructional design practice to utilize learning objectives to measure training outcomes in terms of demonstration of learning objectives.

This study used individual assessment measures to investigate and comparatively evaluate the possible relationship between the methods of implementation of an online course on participants' learning, reflected in three key assessment measures: (a) scores on examinations formulated around competency-based learning objectives; (b) ranking on task-level self-efficacy scores; and (c) self-report of on-the-job practices attributed to participation in training course. Since the study was comparative, the evaluation was not judging worth, but investigating relative impact of the course and identifying specific outcomes among four levels of implementation.

Learning Objectives, Outcomes, Competencies, and Public Library Staff Certification

Learning objectives are a valuable tool in instructional design, but the term is often

misconstrued and used interchangeably with closely related terms, e.g. learning or training outcomes, instructional goals, learning behaviors, and competencies (Allan, 1996, p. 93). Both Allan (1996) and Reiser (2001) traced a similar history of the use of learning objectives and outcomes in an educational context and identified key figures in cognitive psychology, education evaluation, and learning theory that have shaped the meaning of these terms. One of the primary differences between a learning outcome and an objective or competency is that a learning outcome describes how the expertise learned in training will be applied in the workplace. Table 2 defines each of the terms and illustrates the reciprocal relationship of competencies to learning objectives and outcomes.

Table 2

Core Competencies, Learning Objectives, and Learning Outcomes

Term	Explanation of reciprocal relationship
Competencies	Job competence is characterized as "a set of attainable personal characteristics (e.g. demonstrable skills, experience, knowledge, attitudes) that an individual possesses or needs to acquire, in order to perform duties and responsibilities within a specific context" (Sampson & Fytros, 2008, p. 289). Competencies "are essential to the successful, effective, coherent performance of the duties of a Library Practitioner" (WCSL, 2004, online) and are "required for the success of the employee and the organization"(Houghton-Jan, 2007, p. 8). Thus, Human Performance Improvement training programs should align with competencies necessary to achieve organizational or industry mission.
Learning objectives	Delineate specifications of a competency to be achieved through a learning process and verifiable through some form of assessment. Sometimes the meaning of the term learning objective is extended to include learning tasks to be performed (Ostyn, 2004).
Learning outcomes	IMLS defines outcomes as "benefits to people: specifically, achievements or changes in skill, knowledge, attitude, behavior, condition, or life status for program participants" (IMLS, n.d.). Learning outcomes are verbal statements that represent "measurable positive results" of what a learner is expected to know, understand, and be able to do after successful completion of a process of learning. (ECTS Glossary, 2009).

Within the public library CE training environment library administrators and individual staff members use learning objectives to discern the quality of a staff training course in order to purchase staff training that addresses workplace core competencies. CE courses are often marketed by e-Training providers based on the learning objectives and associated core

competency requirements for staff certification, thus aligning learning goals to training experiences that enable staff to address workplace responsibilities. A survey of state library agencies and associations explored U.S. public library staff certification requirement among the fifty states to discern models and trends for certificate programs¹⁰; the findings indicated that state CE certification programs were shown in this survey (and in other surveys cited in the review of the literature) to be a prime motivators for CE participation for public library staff (Mediavilla, 2001, p. 5). LE@D courses were developed and marketed according to requirements of competency-based learning objectives that were approved for certification by Western Council of State Libraries (WCSL) and by other state library agencies and associations (LE@D Documentation, n.d.). Learning objectives within LE@D courses were aligned with WCSL certification requirements and core competencies.

Previously published studies regarding public library e-Training did not include evaluation studies based on established competencies or certification requirements. The previous decade was scattered with a few published studies that investigated e-Training for staff, and even less evaluative research has been published that is germane within the public library environment. In 2000, Kovacs discussed e-Training instructional design and implementation issues for libraries who were looking into developing their own e-Training. That same year, Unruh (2000) conducted a study on the problems that still plagued desktop videoconferencing delivery of e-Training to public library staff. Markless (2002) investigated online teaching in libraries from a theoretical perspective. Ferris (2002) investigated how to

¹⁰ Depending on locality, certification programs took different forms; they were (1) voluntary with certification; (2) voluntary without formal certification; or (3) mandated by state law with criterion based on educational credit and/or length of service (Mediavilla, 2001, p. 4). All forms of certification were shown to be a prime motivators for CE participation for public library staff.

implement e-Training for public library technical service personnel. Two separate studies were conducted investigating library staff development of e-Training for delivery to patrons in academic libraries: (1) research by Hitch and Hirsch (2001) discussed model training development in Academic Libraries, and (2) Crichton and LaBonte (2003) discussed online teaching issues for academic librarians. Those studies that did include an evaluative component investigated e-Training primarily qualitatively. Some studies examined e-Training for a specific public library skill sets, e.g. training for technical services personnel (Ferris, 2002), information literacy skills (UNESCO/IFLA, 2007), reader development and book displays (e-Skills, 2005); technology access and funding (ALA & FSU, 2008; Davis, Bertot, McClure, & Clark, 2008) and virtual reference training (Ross, 2002; Ross, 2003).

Haley (2008) recently conducted a survey study on public library staff e-Training preferences and investigated cultural, ethnic and gender trends in relation to e-Training preferences and needs. The study found 87.3% of public library staff reported that respondents' perceptions were that online training was less effective than traditional face-to-face and the majority of respondents (66.1%) did not prefer online training, but Haley stated that "[a]s time goes by, more people will have taken online training and will be more comfortable with it. As more people have online training experience, their attitudes toward online training may change." She called for additional research on e-Training preferences as e-Training gains popularity; specifically recommending studies on how public library staff members interact and learn using different online delivery and Web communication technologies. The current study begins to address this research area and the need for accountability in public library e-Training. A recent article by Boden and Ruddings (2008) indicated that an evaluation study of two online

courses (POP-I & LolliPop) used outcomes-based assessment of an information literacy course, but the evaluation results did not delivery robust enough data, and an evidence-based assessment was slated to be piloted in November 2008 (p. 9).

World-wide competency-based training communities are developing quality control standards and looking into measures to insure increased global accountability for online educational materials (Parker, 2004; ISO 19796, 2008). There is interest within the library community for CE evaluation that includes quality guarantee standards for online and traditional training. U.S. national library organizations including the Medical Library Association, Law Library Association, and the Special Library Association offer some e-Training CE courses and post-masters credentialing programs to public library staff and are investigating quality standards. The request for quality criteria for CE has been longstanding. An ALA (2001) executive director informal *American Libraries* readers' survey "demonstrated both high member demand for good CE and the need for significant improvements." ALA's Continuing Library Education Network and Exchange Round Table (CLENERT) has been leading the campaign for accountability for CE. Darlene Weingand of CLENERT championed the cause to have the ALA's code of ethics include a clause on the librarian's personal responsibility for pursuing lifelong education and CE training as an ethical responsibility (IFLA, 2000). A 2005 survey and needs assessment for establishing a support staff certification program received resounding approval from respondents. From the ALA Website regarding the Library Support Staff Interests Round Table survey:

In 2005, the ALA Office for Human Resource Development and Recruitment (HRDR) and members of the Library Support Staff Interest Round Table (LSSIRT) received responses from 3,318 LSS to a survey about professional development and certification. In responding to this survey, 86% of respondents thought that a library support staff

certification program would be beneficial. IN ADDITION, 76% said that nationally recognized professional standards were important and 66% support a national certification program to help them provide better service and grow in their chosen profession (LSSIRT, 2008, Web site).

In the United States, master's level academic professional programs in the library and information sciences must pass rigorous audits to be accredited by the American Library Association, but currently evaluation of CE is not done at the national level for training programs for public library staff. Although courseware developers do not submit to a national accreditation process and public library e-Training programs presently do not have established standards, there are regional competency requirements and efforts underway to evaluate public library staff CE programs and e-Training courses in the international library community). The International Federation of Library Associations (2007) identified the need to invest in evaluation of CE programs in their long range plan. They called for a comprehensive evaluation program of all asynchronous and synchronous delivery methods, i.e. online, blended, and face-to-face training and emerging efforts to standardize learning, education and training quality management and metrics. There were concerted international efforts to identify benchmarks and best practices, but no definitive yardstick or valuation system for summative evaluation of competency-based e-Training in the workforce has been established. Within the United States, as part of the process for establishing competency standards, ALA and ALA-APA committed to developing an evaluation and certification process for accreditation of competency-based CE courses (see Appendix L: History of Public Library Staff Core Competencies Initiative).

There is a sense that e-Training implemented in a highly collaborative setting with integrative workplace learning exercises is of greater benefit to participants, but there are no established quality benchmarks for best practices in delivering training or evaluation standards

for assessing the long term outcomes and impact of training on frontline library staff competencies¹¹. Attempts have been made to indentify more rigorous evaluation of training for face-to-face, online, and blended library training programs, in the United States (WebJunction, 2007) and abroad (Dodd , Baigent, & Woodhouse, 2002), but few longitudinal studies of participants of public library CE programs have been published. Pryor (1999) conducted a longitudinal impact evaluation of library CE to measure participants' level of satisfaction and interest in future participation, and examined participants perception of program overall effects, but the study did not address e-Training instructional intervention and technology implementation issues (Pryor, 1999). There are no published longitudinal summative evaluations of e-Training CE courses to public library staff in the United States, and best practices have not been investigated or established for conducting comparative evaluative research on delivery of e-Training to public library staff. Reeves (1996) assert that a holistic view of the philosophy of scientific inquiry and alternative theoretical paradigms is needed to inform the online instructional design community of best practices, and LeDeist and Winterton competency model reinforces the need for an integration of the theoretical discussion with practical application. Quality assurance in e-Training can best be informed by a holistic approach to evaluating competence that integrates theory with practice.

¹¹ LE@D has diligently provided formative evaluation as part of the course development cycle and also gathers summative reaction-level evaluation data and basic post course knowledge assessment and feedback for participants. The utilization of a formative evaluation within the instructional design workflow incorporates input from adult learning professionals, content experts, instructional designers, and public library focus groups and stakeholders, but currently no multi-dimensional summative evaluation measures are utilized to gage long term outcomes or conduct comparative evaluation of alternate implementations to inform both adult learning theory and e-Training practices.

Epistemological Lens of Evaluation and Competence

The aim of learning in any context is more than acquiring facts; it is the practical application of the knowledge or, in terms of valuation for the information-age learner, "what someone is able to do is more important than what they know" (Frاند, 2000, p. 24). The evaluation and alignment of knowledge along levels and degrees of competence is an age-old practice. In *The Nicomachean Ethics*, a lecture by Aristotle believed to be dedicated to his son Nicomach, knowledge is aligned within degrees of practical application with the ultimate goal of achieving fulfillment (*eudaimonia*). Aristotle's premise was that everyone and everything had a purpose and the individual acts within a social-political context as part of a community. Thus, Aristotle takes a teleological approach to describing a taxonomy of knowledge along varying levels of internalization and manifestation in actions:

Episteme is likened declarative knowledge or recall of scientific factual knowledge, and includes both theoretical knowledge (*sophia*) and awareness or common sense (*nous*). Aristotle clarifies that a person has episteme "when his belief is conditioned in a certain way, and the first principles are known to him; because if they are not better known to him than the conclusion drawn from them, he will have knowledge only incidentally" (Nicomachean Ethics Online, 1139b18-36),

Techne is knowledge based on cognitive understanding, not just knowing, but having practical "know-how" knowledge of how to apply *Episte* knowledge contextually in the physical world and is comparable to procedural knowledge. Aristotle aligns *techne* with the arts and building architecture, "...*techne* is the study of how to bring into being something that is capable either of being or of not being" (Nicomachean Ethics Online, 1140a1-23).

Phronesis is applied knowledge oriented toward actions and embodied knowledge in the individual based upon practicality of context (state) and reasoning using personal values within a social context. *Phronesis* is knowledge prudently and competently practiced. An assumed standard (level of competence) to socially judge merit of action is in place. Aristotle aligns *phronesis* with the ability "to deliberate rightly about what is good and advantageous... it is a true state, reasoned, and capable of action with regard to things that are good or bad for man. We consider that this quality belongs to those who understand the management of households or states" (Nicomachean Ethics Online, 1140a24-1140b12).

Episteme, *techne*, and *phronesis* (knowledge, attitude, and practice loosely aligned with knowing, knowing how, showing how and doing) are the components of Aristotle's system for determining excellence/competence (*arête*) and for individuals to achieve fulfillment (*eudaimonia*). Aristotle's proposed self-actualizing categorization of knowledge can be perceived in terms of a scale of excellence for engaged living and learning. Aristotle's concept of excellence or competence is it must be developed in an individual through deliberate actions within a social context, which aligns well with pragmatic approach to knowledge assessment, which emphasizes the practical function of knowledge. The modern U.S. philosophy of pragmatism of Pierce, James, Dewey, and Russian developmental psychologist Vygotsky has its roots in ancient Greek philosophy and the Aristotelean concept of knowledge. As William James has said, pragmatism is "just a new name for an old way of thought" (James as cited by W. Sahakian & M. Sahakian, 1965, p. 152) and the very word pragmatism, originally coined by Pierce, is derived from the Greek word, *pragma* meaning *that which has been done, an act or a deed* (Locke II, xxvii 20 cited by Bourgeois, 2003, p. 179). Pragmatists emphasize the practical

function of ideas and knowledge in learning, with the purpose encompassing more than utility, but purposefulness that leads to self-actualization in the sense of the Aristolean concept of fulfillment within a social context. Pragmatic approach aligns with educational principles and the study of methods for understanding the learning process because it unites theory with practice.

Competency-Based Models for Assessment of Knowledge

Aristolean pragmatic principal of the practical application of ideas is reflected in other learning assessment frameworks, including the Miller's simple model of competence (Figure 4) that was developed for assessment in medical learning and working environments.

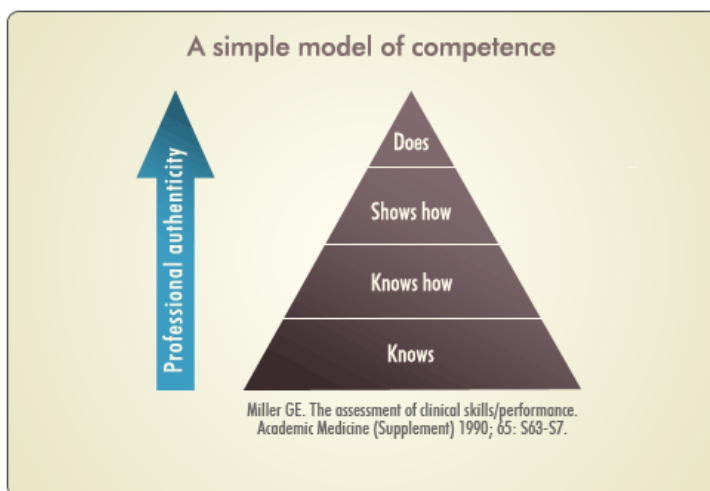


Figure 4. Miller's model of competence.

The Miller model for measures of training effectiveness and workplace competence was created in 1990 to frame the competency requirements of clinicians in the medical community, and depicts the increasing integration of knowledge and skill set from knowing to demonstrating workplace competence. It is a useful model for workplace assessment that

places learning assessment into a demonstrable evaluation framework for competency-based CE.

Knowledge taxonomies are useful to the instructional design framework, as evidenced by the popularity of Bloom's taxonomy, within the e-Training environment, and potentially for e-Training evaluation (Gagne, Briggs, & Wager, 1992). The primary goals for any training effort are improving workforce capabilities and optimizing workplace practices. Following staff training, the library administration wants to see an improvement in the services provided or work performed by the library staff. While acquisition and retention of knowledge and concepts are important, the ultimate goals of training are deep or higher level learning and the ability to apply what is learned in a meaningful way in the work environment. Atherton (2003) characterized deep learning as the ability to analyze, evaluate and synthesize, and to apply knowledge gained to novel situations. This conceptualization of deep learning fits with both the knowledge taxonomies and emerging competency-based models of demonstrable learning outcomes. This progression of learning is reflected in Anderson and Krathwohl's (2001) cognitive process dimension model (Figure 5) of the revised version of Bloom's taxonomy of knowledge within the cognitive domain.

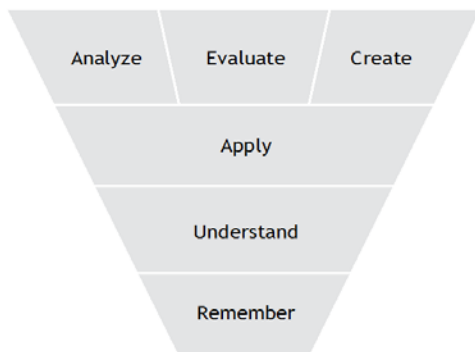


Figure 5. Anderson & Krathwohl (2001) cognitive process model of knowledge.

The graphic depicts a hierarchal processing dimension that illustrates the belief that one must remember before one can understand then in achieving a process of understanding, one may apply, etc. Anderson and Krathwohl used this framework for the continuum of processes along a learning, teaching, and assessing knowledge spectrum. The process model of learning integrates Elkeles and Philips (2007) definition of the workplace learning capabilities from Chapter 1, “learning today is less about specific job skills or application training and more about the capture, dissemination, and application of knowledge.... learners ready to assess situations, identify solutions, and overcome obstacles.”



Figure 6. Emerging IMPACT evaluation framework.

These knowledge taxonomies inform the IMPACT framework (Figure 6) for a fluid competency assessment hierarchy for learning that readily aligns within the emerging constructivist view of adult learning theory. Library administrators are concerned with both the efficiency and effectiveness of the training purchased. A knowledge, self-efficacy, and performance longitudinal evaluation framework presents a more complete assessment of training impact on workplace capability and practices.

Although public library staff training providers may align training programs within competency-based domains and regional requirements or standards, training evaluations should assess levels of competency and capabilities that transcend the learning environment to indicate demonstrated workplace learning transfer; the majority of current e-Training evaluation institutes "smile-sheets" or surveys that investigate the participants' perceptions of the course content immediately following the training participation (Philips, 2003). Project IMPACT utilizes a more longitudinal approach for assessing participants' learning internalization and transfer in terms of a demonstrable competency continuum of knowledge, self-efficacy, and workplace practices.

Lev Vygotsky, the founder of social development theory who was influenced by American pragmatism, stressed the need for methods for learning about the learning process:

The search for method becomes one of the most important problems of the entire enterprise of understanding the uniquely human forms of psychological activity. In this case, the method is simultaneously prerequisite and product, the tool and the result of the study (Vygotsky, *Mind and Society*, 1978, p. 65).

Vygotsky (1978) stressed that the same methodological and theoretical understanding that is needed to evaluate learning is also needed to enable or promote learning. Thus research that informs educational evaluation will also inform best practices in the integration of learning and modeling of learning processes. The need for methodologies and strategies for understanding learning is heightened by the proliferation of learning technologies.

Design-based Research

The current trend is for contextualized assessment, presented as design-focused or design-based research. The Design-Based Research Collective defines the design-focus as a

relevant approach for evaluation of educational innovation:

design-based research, which blends empirical educational research with the theory-driven design of learning environments, is an important methodology for understanding how, when, and why educational innovations work in practice, (Design-Based Research Collective, 2003, p. 5).

Design-based research uses mixed methods to "analyze an intervention's outcomes" and "inquire more broadly into the nature of learning in a complex system" (Design-based Research Collective, 2003, p. 7). The Design-Based Research Collective (2003) identified characteristics of best practices in design-based educational program evaluations. Design-based evaluations would ideally be conducted within a single setting over a long period and include: collection of robust, descriptive datasets; triangulation and systematic analysis of multiple sources and kinds of data to connect intended and unintended outcomes with the instructional design and an authentic educational setting; and collaboration between practitioners and researchers on appropriate measures of success and the interpretations of data. These methods are intended to "provide critical evidence to establish warrants for claims about why outcomes occurred" and inform stakeholders (i.e. designers, researchers, participants) in order to promote models of innovative practice (Design-based Research Collective, 2003, p. 7). In addition, design-based evaluation integrates theoretical learning constructs with the empirical evaluation strategy and assessment metrics. Theory is crucial to scientific investigation because it provides guidelines for investigation and links present research to previous discoveries and studies (Rudner, 1966). Theoretically and methodologically-grounded experimental evaluative research enables a continuity not afforded by loosely organized evaluation efforts. Learning theories also provide "empirically-based accounts of the variables which influence the learning process, and provide explanations of the ways in which that influence occurs" (Mayes & de Freitas, 2004, p. 5).

The use of research methods and the call for a theoretical integration within the discipline of learning and training evaluation is not new. Edward Suchman's (1967) book *Evaluative Research* was a proponent for the need for the controls in evaluation that a structured, experimental approach affords (Alkin, 2004; Shaddish et al., 1991). He cited and built on the seminal work of Campbell and Stanley (1966), *Experimental and Quasi-Experimental Designs for Research*. Suchman's work prompted an emphasis for sound theoretically and methodologically-grounded research in the field of evaluation (Shadish et al., 1991).

Learning Theory in Educational Evaluation

He who loves practice without theory is like the sailor who boards ship without a rudder and compass and never knows where he may cast. Leonardo daVinci

Wilson (1997) acknowledged that learning theory is important to understanding educational technologies and plays three essential roles in our research:

1. Theory helps us envision new worlds by changing the way we view things.
2. Theory helps us make things by generating a problem-solving design impetus.
3. Theory keeps us honest because it makes us openly and systematically examine underlying values and beliefs that drive our practices.

Theoretically grounded E-training evaluative research requires merging theory from multiple disciplines. The scope of this research study encompassed evaluation theory and learning theories applied to the e-Training environment. Theoretically-based inquiry and scientific methodologies can offset the subjective elements of identifying variables to evaluate and

deciding what standards to use (assessment criteria). By incorporating agreed upon competency-based learning objectives as the bases of assessment, the value system has some stakeholder consensus built into the evaluation process.

The study employed a pragmatic philosophical approach toward a utilization-focused evaluation within a social cognitivist and constructivist learning theory research framework in order to produce a robust assessment of relative impact of e-Training implementations and to explore relationships of instructional intervention training variables to training outcomes. The study explored the relationships between e-Training participant's online learning experiences, which varied by level of instructional intervention that was implemented, to their respective learning outcomes. Learning outcomes were measured in terms of longitudinal assessment of changes in (a) measures of knowledge acquisition (i.e., test scores on competency-based learning objectives); (b) self-efficacy beliefs in acquiring learning objectives; and (c) their learning transfer in terms of training-related workplace behaviors and performance.

Education research literature recommends more robust measures of e-Learning's impacts, going beyond the "no significant difference" comparisons of online learning versus traditional face-to-face instruction in order to inform our understanding of the limits of the current e-Learning environment and the potential for integrating emerging learning education technologies (Fahy et al., 2005; Greene, 2005; Gunawardena, 2004, 2001). The study addressed this research need by including a comparative investigative evaluation of how manipulating the e-Training instructional intervention in terms of inclusion of online facilitated support from the e-Training provider using asynchronous online communication technologies and/or inclusion of management supported face-to-face workplace e-training programming would impact staff

participants' knowledge (test scores), self-efficacy (general and tasks specific), and workplace performance (practices and behaviors attributed to the training experience). In exploring the longitudinal aspect of e-Training's impacts on knowledge (cognition), self-efficacy (social-cognition), and workplace practices attributed to training (training transfer) the study strives to integrate learning theory and evaluation theory with discussion of e-Training instructional design and delivery.

The identification and recognition of the information needs of stakeholders is a key step that is often overlooked in most evaluation studies (Guba & Lincoln, 1989). By including a comparative analysis of the levels of integration of the learning context within the workplace, the study investigated the relative benefits of self-paced independent study, outsourced-facilitation, and management programming to increase our awareness of the potential benefits of evaluation methods and learning theory for informing the public library work force and e-Training Community of Practice (CoP). Using this approach, the study addressed stakeholders' need for a more holistic conceptualization and investigation of the symbiotic roles of e-Training theoretical research and design with e-Training implementation and evaluation practices. The study hoped to inform the emerging competency-based e-Training public library CoP, including both e-Training providers and consumers.

Learning Theory Literature

Constructivism and cognitivism are not theories, but epistemological view points, perspectives on how knowledge is acquired. Scholars argue for and against using learning theories as an approach to the instructional design of e-Training, but both sides agree it can be

a viable framework for understanding underlying learning processes (Hayashi et al., 2006; Mergel, 1998). Most administrators selecting e-Training are not concerned with the theory behind the training program, they are more concerned with the impact of the e-Training on staff and library services. With libraries facing budget restrictions and increased demands on staff time, administrators need evaluative evidence to determine the most appropriate training among the plethora of options. The choice between whether to provide outsourced training facilitation or on-site programming of training is difficult. While it may be intuitive to e-Training providers that e-Training that includes online instructional intervention and on-site programming would be more effective than self-paced, there has been little proof or explanation of the theoretical underpinnings and no demonstrated comparative long-term added value within the public library e-Training community. Given the lack of convincing information, it is not surprising that over 90% of e-Training participation is self-paced (ASTD, 2006).

There is a chasm between the theory-based development and implementation of e-Training and evaluation practices. In the last decade, the field of Learning Sciences has emerged to provide a framework for more robust investigation of e-Learning that may bridge that gulf. Tom Duffy (2003) described Learning Science “as the convergence of design, cognition, and context ... It is looking at learning in context, designing learning environments based on theory, and studying learning in those environments.” The University of Georgia at Athens Context of Teaching and Learning Framework Subcommittee defined learning context as “a set of social and psychological constructs including level of conceptual knowledge, interpretation of goals, and interpretation of role as participant that the learner brings to bear in the setting or on the

task" and described context as encompassing "the learner's mental and emotional view of the exterior physical world and their mental interpretation of it" (Schell et al., 2001, n.p.). The learning context includes external social elements and a dynamic internal value system to construct knowledge or create meaning, thus emphasizing the importance of the sensemaking process in the learning experience.

Constructivist Perspective and E-Learning

This definition of context hints at a foundational epistemology that ushered in the field of Learning Sciences, *constructivism*¹² (Sawyer, 2006, p. 5). Constructivism proposes that learners create knowledge as they try to understand their experiences (Driscoll, 2000, p. 376). Jonassen and Land (2002) identified three fundamental components of the constructivist learning environment: context; construction; and collaboration. The main focus of all forms of constructivism is that the learner constructs knowledge by organizing information and giving meaning to information in learning environments through interaction in authentic activities, whether as individuals or collaboratively in a social context.

The constructivist perspective has been a recommended theoretical perspective for e-Learning evaluative research (Chen, 2003; Chen, 2007; Duffy, 1992; Duffy & Cunningham, 1996;

¹² There are multiple forms of constructivism that can be presented along two continuums from realist to objectivist and from individual to social constructivism (Geelan, 1997). Good et al. (1993) identified fifteen varying flavors of Constructivism: contextual, dialectical, empirical, humanistic, information-processing, methodological, moderate, Piagetian, post-epistemological, pragmatic, radical, rational, realist, social, and socio-historical (p. 74). Social constructivism, which has been attributed to Vygotsky's socio-cultural theory of learning, first emerged as he attempted to dissuade followers of Piagetia (McMahon, 1997). Piagetia aligned his learning theories with a cognitive, individual, developmental approach to learning, while Vygotsky emphasized social constructs--the role of context and culture in constructing knowledge. Vygotsky (1981) explained his point of departure from Piaget, "In contrast to Piaget, we hypothesize that development does not proceed toward socialization, but toward the conversion of social relations into mental functions" (p. 165).

Gagnon & Collay, 2001; Jonassen, 2003; Wilson, 1996). Recent studies praised the benefits of incorporating a social cognitivist theoretical viewpoint for e-Learning development and evaluation (ASTD, 2007). The next section outlines key constructivist instructional design elements found in an online learning environment. Understanding these course design elements informs the e-training evaluation framework. Following this discussion of the utility of key constructivist online course features is an explanation of how constructivism and social cognitivism were integrated within the IMPACT e-Training evaluation framework to create a more complete picture of the impact of the learning context on the learning outcomes.

Chen (2007) acknowledged course development principles and practices in the e-Learning environment have shifted from objectivism, where knowledge is presumed to be based on observation, to constructivism, where “knowledge is individually constructed and socially re-constructed by learners based on their interpretations of experiences in the world ...reflecting the perspective that knowledge should be generated by learners, learned in a real world context through collaboration and social negotiation”(p. 73). The first premise of constructivism is that the center of the learning environment is the learner, not the instructor, the medium of delivery, or the content. Instructional models based on the constructivist perspective stress integration of several key components:

1. Facilitated learning creates an environment where participants' views can be shared (Porter, 1997), where risk is acceptable (Spitzer, 1998), and where quality is ensured (Westera, 1999).
2. Collaborative situated learning enables cooperation among learners and with practitioners in society (Lave & Wenger, 1991; McMahon, 1997).
3. Authentic "higher order" and experiential learning involves active engagement of students in an authentic experience that requires application, analysis, synthesis, and evaluation of information (Miller, 1990) and will have benefits and

consequences (Bostock, 1998; Donovan, Bransford & Pellegrino, 1999; Kolb, 1984; SCAN, 1991).

4. Interactive learning fosters interaction at multiple levels, student-to-content, student-to-student, and student-to-instructor (Moore, 1989).

Not all learning environments support the constructivist approach to learning. Jonassen (1994) described constructivist learning environments as those that are designed for "advanced learners." He went on to say that "Constructivistic environments stress situated problem-solving tasks, because those are the nature of tasks that are called on and rewarded in the real world" (Jonassen, 1994, p. 2).

By applying the social constructivist model to e-Learning the study investigated the role of social context and organizational culture on learning as individual and social processes. There is no single established definition of a constructivist learning environment and no one-to-one mapping from instructional design constructs to learning theory (Wilson, 1996). Honebein (1996) characterized constructivist-learning environments along seven pedagogical goals in his article titled, *Seven Goals for the Design of Constructivist Learning Environments*. Table 3 lists these goals with illustrations of how these were addressed within the *Managing Difficult Patrons with Confidence* course.

The instructional design and course development of LE@D courses are built on the principles of adult learning theory and constructivism (Tranter personal correspondence, 2004). Huang (2002) identified supporting constructs and theories for investigating and evaluating adult learning under the constructivist paradigm. Huang's application of social constructivism identified several learning principles and theories applicable to the e-Training environment, including facilitated learning, collaborative learning, experiential learning, authentic (higher-

Table 3

Constructivism Goals, Principles, & Constructs

Design Goal	Principles	Construct within the Managing Difficult Patrons Course
Provide experience with the knowledge construction process.	Learner Centered High Quality	Individual review of case studies & identified issues within the course. Participant pacing & navigation of course content.
Provide experience in & appreciation for multiple perspectives.	Collaborative Facilitated	Levels 2A, 2B, & 3 provided opportunities for sharing multiple perspectives with peers & outsourced facilitator and/or on-site e-Training coordinator Linked resources within course & shared online discussion Shared opportunities for reviewing policy & patron issues & revising or developing policy for local library
Embed learning in realistic & relevant contexts.	Higher Order & Experiential Learning	Multi-media scenarios that provide a safe context for witnessing enacted difficult patron situations
Encourage ownership & voice in the learning process.	Higher Order & Authentic Learning	Assessment & discussion postings provide opportunity for voice & ownership of learning experience Example policy & procedures manuals development Training related performance & tasking to generate or review local library policy
Embed learning in social experience.	Collaborative Facilitated	Levels 2B & 3 provide varying levels of social interaction with peers & outsourced facilitator and/or on-site library continuing education programming coordinator
Encourage the use of multiple modes of representation.	Higher Order & Experiential Learning	Case studies, example policy, multi-media re-enactments of patron situations, downloadable files, discussion postings, text & graphic content provide multiple representations of the learning materials
Encourage self-awareness of the knowledge construction process.	Interactive Learning	Course learning objectives & navigation elements provide opportunities for mental modeling of knowledge embedded in the course. Interactive elements & taskings encourage participants to become aware of the application of the learning materials to personal situations

order) learning, and interactive learning. The goals for the constructivist learning environments and design elements are depicted in Table 3 aligning (a) the constructivist instructional goals presented by Honebein (1996), (b) the principles that the instructional design features reflect identified by Huang (2002), and (c) constructivism principles represented in the *Managing Difficult Patrons with Confidence* course content and learning activities to clarify the theoretical under-pinning of e-Training practice.

A constructivist approach to evaluation utilizes both quantitative analysis of outcomes

and inferential, sense-making data (such as time on task, observation, and responses to open-ended questions). This approach necessitates a mixed method design to gather both the quantitative evidence and qualitative information to clarify results and draw conclusions. The integration of constructivist learning theory with a quasi-experimental evaluative research mixed method approach informs this study and the literature review strategy. The quasi-experimental mixed method research approach is detailed in Chapter 3 in the methods section. The next sections (Facilitated Learning, Collaborative Situated Learning, Authentic Learning and Higher Order Thinking, Experiential Learning, Interactive Learning) discuss each key learning construct that supports a constructivist approach to e-Training delivery and evaluation.

Facilitated Learning

The often-heard description of the change in the role of a faculty member in technology-based instruction from "Sage on the Stage" to "Guide on the Side" often leads to the inference that the role of the instructional facilitator is somehow diminished. In fact, according to many theorists, the role, though different, is still extremely important. Carl Rogers, aligning his ideas with experiential, learner-centered learning, described the concept of facilitation theory. He believed that learning was fostered when the educator functions as a facilitator, establishing an atmosphere in which the learner feels he can reflect on new ideas and not be threatened by external factors (Laird, 1985). He held the belief that people have an innate desire to learn; resist giving up established beliefs and ideas; and experience the most significant learning as one's self-concept and identity are engaged and changed. It is the facilitator's responsibility to actively engage learners. Visser et al. (1999) showed that

significant increased direct contact between the students and the facilitator was important to ward off attrition. They promoted a Motivational Message Support System (MMSS) that instructors used to send personalized messages to orient individual student's attention and increase their confidence as they participated in the course.

Performance requirements for facilitator and the basic skills and knowledge of adult learning (andragogy techniques) have been outlined in our facilitator training course (LE@D, 2007) and reflect similar construct as those defined within a recent article in *Educause* (Riedinger & Rosenberg, 2006). Also, the American Society for Training and Development (ASTD)¹³ identified 31 competencies for trainers using learning technologies. These fall under the headings of general competencies, management competencies, distribution method competencies and presentation method competencies (Piskurich & Sanders, 1998). The present study developed an action-oriented list of 14 responsibilities of facilitators and other key stakeholders (Appendix J: Stakeholders' Responsibilities). Appendix N includes examples of facilitator discussion postings, including welcome statements, topic discussion, and other examples of online instructional interventions, which align with the responsibilities of the outsourced, online facilitator and the constructivist view of facilitation¹⁴.

Situated Learning

To achieve higher order learning and, especially, the application of learning to "real life"

¹³ ASTD was originally American Society for Training Directors; later renamed the American Society for Training and Development

¹⁴ Although it was beyond the scope of Project IMPACT to evaluate the competence of the facilitator and instructional designers, the establishment of quality standards, minimal credentials, and/or certification requirements for e-Training facilitators and designers may be an area for future research.

contexts, many theorists believe that a social collaborative learning environment is crucial (Jonassen, 1994). Situated learning views cognition as a distributive property of individuals interacting with other individuals and learning materials within a learning environment (Greeno, 1998 & 2006). Situated learning theory proposes that social identity provides an additional motivation and context for learning of the content. Lave and Wenger (1991) asserted that practical knowledge is situated in relations amidst practitioners, their practice, and the social organization and political economy. Communities of practice (CoP) and situated learning research examine the connection between knowledge, community, learning, and identity within the broader learning context (Wegner, 2009).

Jean Lave and Etienne Wenger (1991) coined the phrase "Communities of Practice" in their book *Situated Learning*, emphasizing the need for collaborative learning in practice. Brown and Solomon-Gray (1995) defined workplace CoP as:

Networks of people who work together in an organization and who regularly share information and knowledge. Such people may be, but aren't necessarily, part of formal teams or units. They often collaborate on particular projects or products, or they hold the same or similar jobs. They have been described as 'peers in the execution of real work.' Communities of practice are held together by shared goals and a need to learn from each other (p. 79).

Wegner (1998) characterized the importance of dynamic interaction among learners, "Engagement in practice - in its unfolding, multidimensional complexity - is both the stage and the object, the road and the destination. What they learn is not a static subject matter, but the very process of being engaged in and participating in developing an ongoing practice" (p. 95).

Wegner (2002) identified three constructs needed to develop a CoP:

1. CoP require a domain to define the area of shared inquiry and of key issues.

2. CoP must establish the relationships among members and a sense of belonging to the community.
3. CoP must define common practice which is comprised of the body of knowledge, methods, stories, cases, tools, and documents.

The levels of implementation of e-Training can be viewed as levels of a continuum of a CoP, from independent inoculation mode (Level 1) imposed by restricting instructional intervention and interaction with other learners to fostering organizational involvement with on-site programming and virtual community of public library participants linked using online communication technology, and outsourced facilitated instructional intervention for e-Training (Level 3). The higher levels of the pyramid can provide more collaborative learning opportunities, thus more effective learning. The cost of implementing e-Training increases significantly along these levels of implementation within a continuum of instructional intervention and involvement of organization stakeholders and/or other members of the professional community. Fostering a public library CoP within online learning programs often takes additional resources and time.¹⁵ Therefore, library administrators face making important cost/benefits decision on the degree of support and levels of instructional intervention (online facilitation and on-site programming) to secure for CE training.

Wenger's 1998 book *Communities of Practice: Learning, Meaning, and Identity* emphasized the inextricable link between making connections in the learning process to contextually create meaning and the reciprocal importance of situated learning on shaping the individual learner's social and personal identity. Within the e-Learning CE landscape for public

¹⁵ LE@D identified key activities of organizational stakeholders within the public library e-Learning community of practice that are needed to optimize the e-Training experience. These activities have been incorporated into the Stakeholders Responsibilities list (Appendix J) that was expanded for Project IMPACT to foster an integrated, learner-centric approach to implementing e-Training CoP.

librarians there are many stakeholders emerging, each playing distinct roles in facilitating exchange of professional knowledge and development of CoP. Rothwell (2002) said in the *Workplace Learner* that the focus of evaluation cannot be only on what the trainer does. He quipped, "Studying workplace training by looking at the trainer's role alone makes about as much sense to me as studying childbirth by focusing on the father's role alone" (p. xix).

Role of Management in e-Training

Each key stakeholder plays a role in the learning process. Studies attest to the importance of management support of training as a key factor of successful training efforts (Morgan & Bawden, 2006). Note that the most significant factors identified by Donna Chan (2005) for motivation to participate in professional development activities were management and the climate and culture of the libraries. She identified three critical characteristics of library climate and culture; management should: (a) establish policies that support learning culture; (b) implement policies in fair and transparent manner; and (c) address workload issues. The present study investigates training participant perceptions of management support of e-Training using Lickert scale questions, open-ended survey questions, and follow-up e-mail interviews to gain a better understanding of the impact of management support for e-Training on participant self-efficacy. In the literature, the importance of management support is reinforced by findings from a study by the Broadcast Training and Skills Regulator (BTSR) that indicated quality of training is influenced more by management attitude and organizations culture than by company size and budget:

One of the clear messages coming through is the important role that management and leadership play. Those companies that scored highly across the board are those where

there is interest in, recognition of, and input to the learning and development of staff at the very highest organisational levels. This "high level" implementation, while more costly, contains the theoretical foundations that should ensure both higher acquisition of knowledge and abilities and the application of these in the work environment. (BTSR chairman Stephen Whittle, TrainingZONE, 2007, Online)

LE@D recommendations for course implementation reinforces the importance of the organization's participation and depicts management's support as integral to the success of e-Training efforts, as presented in the e-Training Responsibilities Matrix (Appendix J: Stakeholder Responsibilities). Management has a key role in encouraging success of e-Training within their organization, and through sharing their experiences within the public library CoP. The public library e-Training CoP has the potential to address best practices for e-Training implementations and identify the strengths and limitation of e-Training programs in meeting the emerging public library competency standards. By providing feedback to the e-Training developers, providers, and participants, library management can provide a pivotal role in fostering CE and a culture of life-long learning for library personnel within the public library community of practice. There has been some discussion of *linking in* or *lynchpin* individuals and organizations and the role they play to inform the collaborative scheme of profession development. Rensis Likert (1967) initially proposed a linking pin model, and recently the network of interlinking units in a profession has been depicted by the Networked Linking Pin model. Within the literature on inter-organizational networks, Doreian and Fujimoto (2004) incorporated the model and also used the term "boundary spanners." The roles of a boundary spanner in the network involve several key activities:

1. Boundary spanners foster sustaining relationships by communicating, building trust, and resolving conflict.

2. Boundary spanners use influence and networking tactics to manage non-hierarchical domains.
3. Boundary spanners recognize and manage interdependencies.
4. Boundary spanners control roles and accountabilities within the CoP.

Boundary spanners are needed for innovation to occur within a CoP. Heye (2006) called every information professional to the role of “Acting as a linking pin: As information professionals, we have networks both inside and outside our organizations. We can recognize opportunities for innovation and pass them on to the right people” (online). This is especially important in the area of CE and competency-based training. The benefit of establishing linking pin relationships between the individual library administration and the larger library community is an area for further investigation. In public school teacher studies, Guskey (2002) identified organizational support of professional development and change as one of five key indicators for training success. A recent British study that reviewed their public school teacher CE training data discovered the presence of organizational support and change emerged as a key indicator of a higher-quality teacher training (Davies, Preston, & Shahin, 2009, abstract). The present study investigates management support and programming for training as a key variable in the learning context and uses an on-site programming packet (Appendix I) and calendar (Appendix J) to control variations in implementations.

Authentic Learning and Higher Order Thinking

Learners learn to apply concepts, refine skills, and develop strategies best when these are integrated in real environments (SCANS, 1991). Authentic learning integrates real-world problems from the participants work environment to allow learners to discuss issues, construct

perception, investigate solutions, and explore relationships in contexts. Donovan et al.

enumerated some principles of authentic learning which are presented with LE@D course constructs (Table 4).

Table 4

Authentic Learning Constructs in LE@D Courses

Authentic Learning Construct	Construct within LE@D Course
Learning should be centered around authentic tasks	Learning centered on local policy review and development
Learning should be guided with teacher scaffolding	Programming timeline for facilitated and programming sections; facilitator discussion and promptings help students progress in learning
Learning should engage students by encouraging exploration and inquiry	Learner directed navigation and pacing within an interactive, multi-media environment
Learning should provide students with opportunities for social discourse	Discussion postings and prompted questions from facilitator encourage social discourse
Course content and learning resources should provide opportunities for students to investigate meaningful problems	Real scenario re-enactments and case studies; real excerpts from existing policy manuals; links to real community of practice resources, related legislation, and shared solutions

Relating learning to real-world situations is viewed as a critical aspect of higher-order learning, which aligns with authentic learning constructs (Bostock, 1998). Learning environments that affect learner performance in higher order thinking have the following characteristics: (a) reflections of real-world problems and contexts, (b) collaboration among key stakeholders, (c) emphasis on thought provoking, wide-range discussions, (d) facilitation of exploration and investigation, (e) learner-centered learning and accountability, (f) acknowledgement of effort and participation, (g) performance and work not judged, i.e.. no failures just learning opportunities (Newman, 1990; Stasz et al., 1990; Thomas 1992). The delivery of Web-based library training at the peak of the implementation continuum entails involving the learner at multiple levels with in-course facilitation, and interaction at the organizational level as well;

thus encouraging a high probability of collaboration and authentic learning with many opportunities to address authentic learning issues (e.g. from scenario re-enactments to learner created policy statements).

Experiential Learning

In his classic text *Experience and Education*, Dewey (1938) argued that learning comes from students' direct experiences. Learning involves an internalization of learner's direct experiences, which is often characterized in curricular goals as "hand's on" learning or "learning by doing." This reflective process on experience forms the basis of the concept of experiential learning, which negates the learning experience as a didactic process of a teacher edifying the pupil and supports the concept of the adult learner as an active participant in the learning experience.

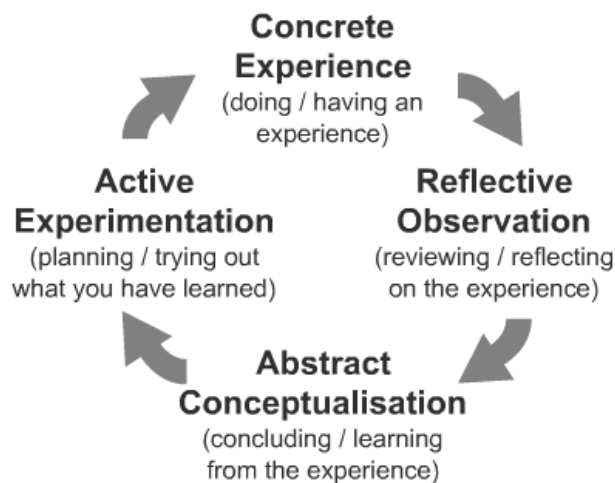


Figure 7. Kolb's (1981) experiential learning cycle

Kolb's (1981) used the experiential learning cycle (Figure 7) to depict andragogy, the adult learning process. Kolb's characterized adult learning as a four step process involving (a) a concrete experience, (b) reflective observation on the experience, (c) abstract

conceptualization to aligns the experience into the individual's beliefs, and (d) ongoing active experimentation to create meaning and increase knowledge during a lifetime.

Drawing from giants in the field of experiential learning (e.g. Dewey, Lewin, Piaget, and Kolb), Marcia Connor (2007) characterized the concept of the learner and experience as a process and reiterated the axiom of "learning by doing":

To be effective learners we must (1) perceive information, (2) reflect on how it will impact some aspect of our life, (3) compare how it fits into our own experiences, and (4) think about how this information offers new ways for us to act....We integrate what we sense and think with what we feel and how we behave. Without that integration, we're just passive participants and passive learning alone doesn't engage our higher brain functions or stimulate our senses to the point where we integrate our lessons into our existing schemes. We must do something with our knowledge. (online)

Experiential learning involves active engagement of students in learning activities with critical reflection on the significance and implications of the phenomenon being studied for the learner (Zubrick, 1990). To maximize the probability that learning will be applied in a particular environment, students should be encouraged and enabled to bring concrete examples from their work experience into the learning situation. Facilitated sections of the present study achieved this demonstrable learning through online discussion/exchange of experiences related to the training topic, and management programmed sections addressed the need for shared experience in face-to-face interaction and peer discussion of training related content and issues. Training participants must reflect on their own experiences in order to develop new skills, new attitudes, and new theories or ways of thinking (Kraft & Sakofs, 1988). The act of reflection can be viewed as the beginning of the experiential learning cycle, but the learning cycle is incomplete until active participation of the participant occurs. Training tasks to discuss and develop library policy and procedures align with the need for active participation.

Interactive Learning

Interaction is an essential ingredient of learning (Sherry et al., 1998). A high level of interaction can serve as a motivating factor (Rovai, 2004) as well as to reinforce learning, but researchers still know very little on what constitutes effective interaction:

[I]n education, while there is general agreement that interactive learning is good, very little is known about the most effective ways to implement interactive learning. In fact, the need for long-term, intensive research and evaluation studies focused on the mission of improving teaching and learning through interactive learning technology has never been greater. Both government and commercial interests are pushing interactive learning in various forms from preschool through lifelong learning, and major decisions are being made about these technologies based upon habit, intuition, prejudice, marketing, politics, greed, and ignorance rather than reliable and valid evidence provided by research and evaluation... research and evaluation efforts should be primarily developmental in nature, i.e., focused on the invention and improvement of creative approaches to enhancing human communication, learning, and performance through the use of interactive learning technologies (Reeves, 1999, Ed-Media Keynote Speech Online).

Chyung, Winiecki, and Penner (1998) promoted increased interaction among students, between students and facilitator, and between both the student and the facilitator with the content in terms of the learning objectives and status on performance expectations to decrease attrition rates of adult learners in a non-degree, distance education program; these online interaction measures successfully lowered attrition rates from 44% to 22%. The need for retention of e-Training participants in the workplace is even greater; the ASTD measured attrition rates for e-Training course in workplace training situations to be 60% or higher (Moshinskie, 2001). The present study explores the relationship of the levels of implementation to attrition rates to investigate if any patterns emerge. For over ten years researchers have explored the effects of interaction and collaboration in the digital environment and will continue to investigate methods for assessing the impact of interaction in the e-Learning

environment (Strijbos & Fischer, 2007). Vygotsky (1978) coined the phrase “zone of proximal development,” describing it as the “distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (p. 86). Learning potential is depicted as being constrained by the level of interaction with the various agents within the learning environment. Moore (1989) emphasized the need for interaction with agents within the learning environment and identified three types of interaction including student-to-content, student-to-student, and student-to-instructor. Anderson (2003) observed that the Web was changing the levels and types of interactions “between and among autonomous agents and human beings” (Abstract). Web-based learning technologies increased the number of potential interactive opportunities afforded by online learning, and thus further expanded the types of interactions to include course related online resources and networked contacts beyond the organizational walls. Thurmond (2003) expanded the definition further to include interactions with “the technological medium used in the course,” thus including content-to-content interaction, teacher-to-content interaction, and teacher-to-teacher interaction (p. 238). Dron (2007) identified with Anderson and Thurmond’s more comprehensive lists of Web-enabled learning interactions, but further identified the Web products of the network of learners themselves as a potential point of interaction for learning. In the IMPACT study, within the facilitated sections, products of networked learning that added to the content of the course included several Web products as potential points of interaction:

1. Facilitated sections included discussion postings of shared library approaches and philosophies for patron services or recommended support networks.

2. Facilitated sections included participant developed training related objects, such as flyers with policy statements or procedures for specific cases
3. Facilitated sections included exemplar policy statements from participant libraries and the Web
4. Facilitated sections included several resources from the public library community and related industry resources (e.g. resources for addressing needs of patrons with mental illness from mental health authorities and resources for assistance with collaborating with authorities from library organizations).
5. Facilitated sections included policy incidents from other libraries that were in the news.

The use of social software applications and the creation of course content related online discussions, blogs, Wikis, chat and collaborative help systems, and other Web 2.0 social software tools were depicted by Dron (2007) as additional agents for learning. Dron used a framework based on the theory of control to describe the controls and constraints in Web-based learning environments. Dron emphasized the role of social networking tools that are shaping e-Learning and identified the associated learning theories that these tools foster within the Web learning environment. Applying transactional distance theory, e-Learning is characterized as a self organizing system that fosters learning when the network of learners are given ample freedom. The transactional distance theory postulates that less control is superior because less control fosters local adaptation while allowing the entire system to evolve. The idea of loosely "controlling" learning environments was also depicted by Anderson (online, p. 3), who wrote in *Distance learning – Social software’s killer ap?* “Beyond access to content, perhaps the greatest benefit to both formal and lifelong learners afforded by the Net is the freedom to control one’s learning experience in a number of dimensions.” Rourke et al. (2001) developed a framework of e-Learning interaction called social presence; social presence is “the

ability of learners to project themselves socially and affectively into a community of inquiry” and is controlled by the learner (abstract). The impact of “social presence” and freedom of choice in the aggregate within a Web learning environment is difficult to measure; simply measuring the impact of a single emoticon, e.g. :-), within the context of a learning environment has many dimensions. Both interaction and the social context of learning have been demonstrated to be important to learning outcomes and retention. “Context is not merely noise in the system, but a major element in the phenomenon to be researched” according to a report by Thorpe (2005, p. 4). Mary Thorpe pointed out an additional aspect of interactivity, *integration*. Integration includes the organizational/institutional context of interactivity in online learning environment. She called for investigation of context that includes not only interaction depicted in interactivity, but also integration depicted in the learning environment's ability to foster a learning community and the associated impact of an organization's e-Training policies. The Project IMPACT study includes some preliminary investigation along both veins of interactivity (interaction and integration) of the lesson in the learning context and freedom of choice for interactivity. Interaction data was gathered regarding time in course, discussion postings and perception of the role of these in learning, completion rates, management levels of support for training, library organization's policy on time away from additional duties for training, and the integration data in the form of manager programming. Management programming and integration was "controlled" in the experimental sense of documenting what actually occurred and participants' perceptions of management support of e-Training.

Social Cognitivism and Self-Efficacy

In addition to the constructivist views of learning that emphasized the learning environment's impact on individual learner's sense-making, social cognitive theory investigates the interaction of internal cognitive factors in a social learning context. Beliefs, expectations, attitudes, previous experience, all impact the choices, actions, communications, and knowledge creation in the physical and social learning environment. Recent meta-analysis of the use of social cognitivist assessment constructs have proven reliable in predicting success of on-the-job performance and lend another inferential measure of training effectiveness (Hysong & Qiñones, 1997; Chen et al., 2001). The interaction of the internal cognitive with the external environmental elements and social forces is referred to as reciprocal determination, which acknowledges that the learner is not only influenced by but also influences the learning environment. Social cognitivist theory posits that learning processes and behavior are "determined" by the individual's internal cognitive processes through their interaction with external social experiences (Bandura, 1986). Self-efficacy scales, assessment devices based upon social cognitivist learning theory, are used to gauge instructional intervention effect and research internal beliefs that will predict behavioral changes. Coined by Bandura, self-efficacy is defined as a personal appraisal of "how well one can execute courses of action required to deal with prospective situations" (Bandura, 1982, p. 122). The term self-efficacy in the context of training has been characterized as "an individual's conviction about his/her abilities to mobilize cognitive, motivational, and behavioral facilities needed to successfully execute a specific task within a given context" (Stajkovic, 1998). It is important to note that self-efficacy is not concerned with assessing a person's skills "...but with judgments of what one can do with

whatever skills one possesses" (Bandura, 1986, p.391).

Self-efficacy has been identified as being useful in understanding and predicting behavior (Bandura, 1977). There are studies to support the predictive validity of using self-efficacy scores to forecast academic success (Schunk & Pajares, 2005); general behavior transfer (Machin et al., 1997; Pajares et al., 1996); on-the-job behavior influences (Sadri & Robertson, 1993; Vasil, 1992); and career selection and development (Betz, 2006; Betz & Hackett, 1981). Stajkovic and Luthans' (1998) meta-analysis identified additional work-related task performance correlates with self-efficacy, including: managerial performance; sales; learning and task related achievement; job search; research productivity; adaptability to advanced technology; career choice and academic behavior; coping with career related events; skill acquisition; newcomer adjustment to the organizational setting; and Naval performance at sea.

Because of the demonstrated predictive value of self-efficacy for performance, researches have advocated the use of a self-efficacy section on learner course evaluation forms (Lanigan, 2001). Using pre- and post-test scales, changes in self-efficacy are used to assess the effectiveness of interventions, including e-Training (Miller et al., 2003; Turner-Grievy, 2005). Self-efficacy scales ask training participants to rate how confident they are in their ability to perform the skills or apply the knowledge they have learned. Stajkovic & Luthans (1998) meta-analysis of research findings on the relationship between self-efficacy and work-related task performance calculated an average weighted correlation between self-efficacy and work-related performance of $(G)r = .38$, which converts to a 28% gain in task performance.

The model (Figure 8) is adopted from the preliminary modeling of the relationship of

self-efficacy development in online learning from the findings of a pilot project, the Health Scholar's Meatless Monday program at Johns Hopkins University through LE@D at the University of North Texas Center for Teaching, Learning, and Assessment.

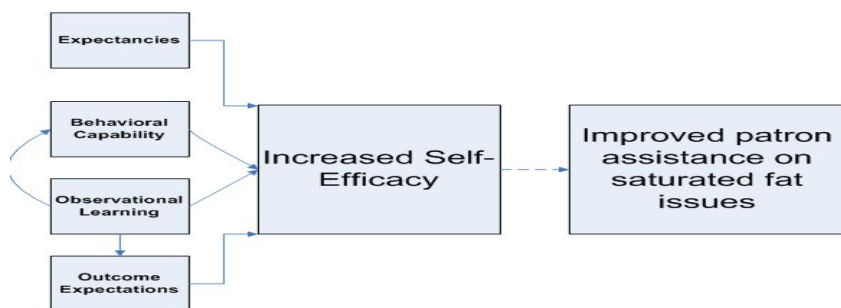


Figure 8. Turner-McGrievy self-efficacy model.

The e-Training project for public libraries, headed by Gabrielle Turner-McGrievy (2005) and implemented to 100 participants at the inoculation level (Level 1), informs this project. Training participants saw a significant increase in both short- and long-term self-efficacy and knowledge related to helping patrons with nutritional health related issues ($p < .001$ increased from the pre- to post-test, and this increase remained significant at the 6-month follow-up), and expectancies for integrating training on-the-job immediately following training were significant (pre- to post-test $p < .001$), but did not change significantly from the baseline long term ($p < .178$ at 6-month delayed post-test). Job performance evaluation indicated 39% of the participants had used the information from the course on-the-job to find resources for a patron, but only 2 of the participants had created nutrition-related library programming for patrons. This small pilot study showed that an online course can be an effective way to train librarians to work with patrons on locating nutritional health related issues. But the low response rate (29% response rate for all three phases of testing), the unchanged levels of expectancy to integrate training in the work place, low levels of implementation of training on

the job, and lack of delivery of library programs on nutrition information speak for the need for further research on the role that self-efficacy and varying levels of implementation may play in the impact of e-Training.

The present evaluation framework built on this prior research and e-Training self-efficacy model by including instructional interventions at three levels and both general and specific self-efficacy measures to investigate impact on training related self-efficacy. Since training impacts skills and learning, but should have a lesser impact on personality characteristics (general self-efficacy) the relative impact of the course participation using varying levels of instructional intervention was also investigated before (pre-test baseline T_1), immediately following training (post-test T_2), and three months after training was completed (delayed post-test T_3).

Job related Stress and Self-Efficacy

The subject area of the training, customer service and policies for difficult or problem patrons, has additional significance. Difficult patrons are a large contributor to the stress of library staff.

Relationships with library patrons are an obvious source of stress for public services staff members. On the one hand, there can be great intensity in relationships between librarians and the people they try to help, sometimes leading to feelings of inadequacy and frustration when the help cannot be fully responsive to the patron's needs. On the other hand, patrons can sometimes be rude or ill-behaved, can seem to expect miracles, can steal or mutilate materials, or can otherwise cause stress for the public services librarian.... Library staff members are also distressed at a lack of respect and recognition in their interpersonal relationships. Public services librarians and administrators usually report this as a lack of recognition of the library's role and value by people outside the library (Bunge, 1989, p. 95).

Elisa Topper (2007) recommended that the library as an organization needs to provide

training to reduce stressors in the workplace. In fact, she identified an unpublished U.K. study by Saddiq and Burke (Hamilton, 2006) presented to British Psychological Society that supports this recommendation. The study conducted by SHL, a recruitment company, interviewed 300 people in five occupations (which included 44 public librarians) and found that the most stressful work environment was the public library. Increased self-efficacy can potentially help lower the library staff stress. Studies indicate that stressors have "a less negative impact on individuals when these (individuals) have more positive perceptions about themselves, and more specifically high levels of self-efficacy" (Grau et al., 2001, p. 71). These findings are aligned with earlier self-efficacy studies (Bandura, 1997; Bheget & Allie, 1989; Schwarzer, 1999; De Rijk et al., 1998; Heinisch & Jex, 1997; Jex & Bliese, 1999; Jex & Elacqua, 1999; Parkes, 1990). If training does positively impact self-efficacy, future studies should investigate if the level of stress in the library workplace is reduced as a result of training, both for the short and the long term, which was beyond the scope of the present study. The present study explored assessment of changes in specific self-efficacy related to learning objectives in an e-Training scenario as an evidence-based measure of impact.

Taxonomy of E-Learning Evaluation

Taxonomies of approaches to evaluation or categorical prescriptions of approaches to evaluation periodically surface in the literature and explore the assumptions and limitations of the approaches (Wadsworth & Sanders, 1973; House, 1978; Stufflebeam & Webster, 1980; Williams, 1988; Eseryel, 2002b; Alkin, 2004). Eseryel (2002b) compiled a taxonomy of evaluation approaches for the e-Learning context that included: goal-based evaluation; goal-

free evaluation; responsive evaluation; systems evaluation; professional review; and quasi-legal evaluation. Table 5 describes these approaches and adds the innovative theoretically-based evaluations that are emerging in the literature (Chen, 2006). Theoretically based evaluations are often an aspect or a combination of the other approaches with grounding in a theoretical perspective.

Table 5

Modified Explanation of Eseryel (2002b) Taxonomy of Evaluation Approaches

EVALUATION APPROACH	DESCRIPTION
Goal-based	Pre-established goals and objectives and assesses the level to which learning outcomes are achieved.
Goal-free	Investigative approach to observe situated learning outcomes (both positive & negative) and attributes these to training or other learning related factors
Responsive	Outside evaluator asks specific questions about a learning program or course and learning stakeholder responds with an evaluation plan that outlines how these questions are answered
Systems	The input, outputs, processes that convert inputs to outputs, & any outside influences are analyzed to ascertain the degree of efficiency and effectiveness of the learning program or course (e.g. Outcomes Logic Model)
Professional review	Experts, often stakeholder in the professional community (such as public library association or library consultant) evaluate the value and merits of the training and suggest areas for improvement.
Quasi-legal evaluation	Accreditation agencies (such as state libraries, education boards, or certification agencies) assess the degree to which the training program or course meets competency standards for a profession or certified skill set.
Innovative & theoretically-based evaluation	Researchers evaluate a training programs or courses from the vantage point of a theory or law (learning, evaluation, and human development theories from any number of disciplines including psychology, information sciences, education, etc.,) delineating methods and identifying bench marks or best practices in training approaches and evaluation methods

Emerging Approaches to Evaluative Research

Experimental evaluation design insures that internal and construct validity issues are addressed and records a systematic method of assessment. Ausubel (1968) in his book *Educational Psychology: A Cognitive View* began to delineate the characteristics and

components of an experimental evaluative research approach for the educational setting that can be adopted for learning technologies. Later, Chen and Rossi (1983, 1987) proposed the use of theory-driven research in a quasi-experimental approach to address the shortcomings of strictly experimental evaluations, specifically threats to conclusion and external validity. Stufflebeam and Shinkfield (2007) speculated that evaluation is often not grounded in theory because: (a) evaluation approaches are not sufficiently articulated for practical use; (b) practitioners are not sufficiently competent to carry out the evaluation approaches; (c) practitioners are unwilling to include evaluation measures they have not previously used; or (d) evaluation approaches lack convincing evidence that their use produces the needed evaluation results (p. 62). A theory-based “experimental” evaluation approach followed by academic researchers is often an innovative combination of the other approaches, but grounded in theory and research methods. Experimental evaluations have several advantages that were identified by Stufflebeam and Shinkfield (2007):

1. The focus of experimental evaluation is on results, not intentions or judgments.
2. Experimental evaluation provide strong methods for establishing relatively unequivocal causal relationships between treatments and outcome variables.
3. Experimental evaluation have widespread credibility due to their success rates in medical and agricultural settings (p. 175).

In *Evaluation Roots*, Chen and Rossi (2004) discussed their conceptualization of the most appropriate and comprehensive design, which included use of quantitative empirical data, qualitative data, and mixed method approach and the same constructs that Stufflebeam and Shinkfield identified, but Chen and Rossi also stressed the importance of drawing real-world conclusions. They recognized that a comprehensive evaluation should have both empirical and

practical implications to achieve “future directedness” that informs our planning and problem solving; thus insuring “credibility” not just in the scientific world but for key evaluation stakeholders in the real world; this “holistic approach” assessed not only the intrinsic value, but also the context in which the value was assigned (Chen, 2004, p. 134). The holistic approach aligns well with the pragmatic mindset. Tashakkori and Teddlie (1998, p. 30) stated that pragmatism is a good fit for evaluation for the following reasons:

because it gives us a paradigm that philosophically embraces the use of mixed-method and mixed model designs, (b) because it eschews the use of metaphysical concepts (Truth, Reality) that have caused much endless (and often useless) discussion and debate, and (c) because it presents a very practical and applied research philosophy: Study what interest and is of value to you, study it in the different ways that you deem appropriate, and use the results in ways that can bring about positive consequences within your value system.

The IMPACT study embraced the holistic, pragmatic evaluative research design. Within a holistic framework Stake (1967) identified key questions and strategic methods for defining the scope and identifying limitations of evaluation design. Stake's questions address the need for transparency in evaluation and are discussed in detail in Appendix B *Transparency in Evaluation*.

Intersection of Learning, Evaluation, and Theories

I appreciate theories that are respectful of the things they're trying to explain.

Wilson

Models and theories in e-Learning evaluation are meaningless if they fail to address the purpose behind e-Learning, which is to adapt and implement Web technologies in the most effective and efficient way possible to allow people to pursue lifelong learning and to perform

and achieve fulfillment in their everyday lives. Dewey (1897), the pragmatic education theorist, considered learning part of the process of living, stating in *My Pedagogical Creed*, "I believe that education, therefore, is a process of living and not a preparation for future living" (online). The entire premise behind theoretically grounded online instructional design is to strive to integrate learning using technology in a way that is intuit of the knowledge-building, sense-making process and the way learners live, so that both the theoretical framework and the technology disappear. Effective e-Training centers on the contextualized learner experience, not learning and evaluation theory or technology. Likewise, e-Training evaluative research should focus on the contextualized learner experience to observe the learning processes with an eye grounded in theory and practical application. Online learning and e-Training researchers are being challenged to investigate what contributes to success in e-Training environments in regard to the participant and the implementation (Bernard et al., 2004; Fletcher et al., 2007; Gunawardena & Mclsaac, 2004; Russell, 1999; Zhao et al., 2005). Current research has been dominated by studies that compare online learning outcomes to those obtained in traditional classroom instruction. These studies, in the analyzing online versus traditional classroom delivery of the same course, are comparative in nature and have some similar considerations to this study, but the evaluands have a completely different focus. In traditional studies the object of the investigation is the delivery medium-the technology, as opposed to the instructional intervention that was investigated in the IMPACT study. Researchers have concluded that learning outcomes have little to do with the technology medium and far more to do with the instructional methods and interventions (Phipps & Merisotis, 1999). This finding is known in online learning circles as the "No Significant Difference Phenomenon" (Russell, 1999). E-

Training researchers can safely conclude from the numerous studies and meta-analysis of these studies that e-Training can be as effective as traditional classroom training (Russell, 1999; Zhao et al., 2005). This traditional vein of comparative evaluative research of online versus traditional learning environments does not inform learning theory, address the need for innovative evaluation methods, or contribute to the discussion on best practices for online learning implementations (Zhao et al., 2005; Gunawardena & Mclsaac, 2004). There is a need for research that is grounded in learning theory (Gibson, 2003; Perraton, 2000) and provides Evidence-based direction for best practices in implementing e-Training programs (Bernard et al., 2004; Camasso, 2004). The IMPACT study begins to address these needs.

Summary

Chapter 2 provided an interdisciplinary look at the e-Training evaluative research context and explored the public library staff CE environment. The literature investigation identified trends towards demonstrated accountability of core competencies and quality standards for CE training and e-Training courses. This introductory material was followed by a historic look at pragmatic learning taxonomies useful for formulating competency-based assessment. The major portion of the remaining chapter provided the theoretical framework that informed the e-Training evaluative research agenda from both the learning theory and evaluation theory perspectives, concentrating on the applicability of utilizing constructivist and social cognitivist learning theory perspectives to inform our understanding of the e-Training learner experience and application to pragmatic, evidence-based learning assessment. The literature overview concluded with the integration of traditional evaluation strategies to

address the need for new approaches to e-Training evaluative research. Chapter 3 will illustrate an innovative, theoretically-grounded, summative evaluative research design framework that was used in the IMPACT study. Chapter 3 also details the holistic evaluative research methodologies used to assess the individual e-learner experience within the context of emerging librarianship competency standards to comparatively evaluate the impact of four levels of e-Training instructional interventions.

CHAPTER 3

METHODOLOGY

The focus of research design is on identifying junctures in the research process at which steps can be taken to help clarify cause-effect relationships traced out in complex research settings. Research design is all about how to 'develop' and organize data in the first place in ways that can enhance our ability to interpret it later.... The more thoughtful we can be about the quality of the data we develop for subsequent analysis, the fewer compromises we have to accept later when selecting and using analysis tools/techniques.

Hicks

Introduction

This evaluative research study integrated multi-disciplinary theory and pragmatic, evidence-based assessment to comparatively evaluate multiple implementations of a competency-based, asynchronous e-Training course for public library staff. Chapter 1 provided introductory information on the need for evaluative research data on public library competency-based e-Training courses and outlined the scope of the Project IMPACT in Public Libraries research study. Chapter 2 presented a literature blueprint that set the research context and provided an overview of the key areas of research that inform this study, specifically social cognitivist and constructivist learning theories and evidence-based impact evaluation theory. The present chapter outlines the study's mixed method, quasi-experimental evaluative research design framework. This framework was used within an evidence-based impact evaluation model (a) to comparatively evaluate short- and long-term outcomes of four e-Training implementations of a LE@D continuing education (CE) e-Training course and (b) to investigate the relationships between the type of mediated interaction and impacts on public

library staff CE e-Training participants' knowledge, self-efficacy, and performance in the workplace. Chapter 3 describes the evaluation model, research methods, and procedures used in the current study; the outline of the chapter topics includes (a) description of the learning content, (b) review of participant qualification and sampling methodology, (c) general discussion of the evidence-based impact evaluation model, (d) overview of quasi-research design issues and mixed method approach in research design, (e) delineation of IMPACT data collection procedures, including assessment and survey instruments, and (f) presentation of the data analysis techniques for each research questions and the hypotheses testing. This study utilized a quasi-experimental, mixed method design within an Evidence-based Impact Evaluation model to examine relationships between training implementation and participants' assessment scores, self-efficacy scores, and measures of training transfer to on-the-job performance following participation in a competency-based, CE e-Training course.

Learning Content and LE@D Course Description

The delivery of the course was via a courseware management system that supports Web-based delivery of content. Although the courseware has capability to include synchronous "live" training and tools for real-time virtual document collaboration (e.g. Wikis, blogs, whiteboards, and podcasts), these components were not included in the present study. These components were thought to be beyond the scope of the current research agenda, because the majority of online training courses use asynchronous technologies as the primary mode of instruction (ASTD, 2006; Jones, 2005, p. 184).

The e-Training course included many instructional tools, specifically: assessment tools,

reporting tools, password protected security login settings, navigation aids, and content management features. The study did not evaluate the learning management system, but did document the use of online tools and access to content. LE@D Web-based course content includes text, images, animations, and media files according to current e-Training design approaches for the adult learner.

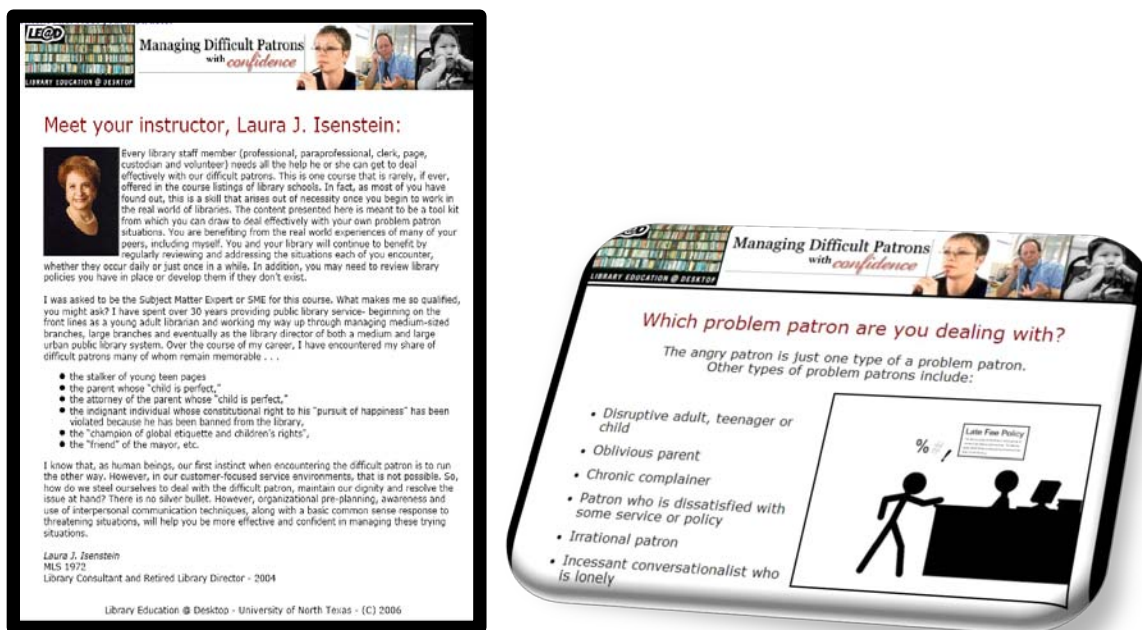


Figure 9. Managing difficult patron with confidence screen shots.

The study was limited to the LE@D CE course, *Managing Difficult Patrons with Confidence*, for which Laura Isenstein, a professional librarian with over thirty years experience served as the subject matter expert (Figure 9). All LE@D courses are authored by contracted library professionals that are recognized subject matter experts, and the multi-media content was developed by a team of trained instructional designers. LE@D follows a rigorous course design process that is built upon a simplified instructional systems design (ISD) model, ADDIE, which is the acronym for the key instructional design processes: analyze, design, develop, implement, and evaluate (Tranter, personal communication, January 5, 2008). The process is

not linear; it is an iterative process of design and development with review and stakeholder input. LE@D implements the following testing roll out schedule for each online course:

1. Alpha testing where developers, LE@D staff, a subject matter expert, and often other stakeholders review content for accuracy and alignment with learning objectives and certification requirements
2. Beta testing of completed course for review of technical functionality; integration of assessment , media components, and online discussion tools; and final approval of course content by LE@D administration, subject matter expert, and instructional designer
3. Pilot testing by a select group of approximately ten participants from the field who are provided full access to content, tools, and assessments.

At each stage feedback and recommended changes are given to the instructional designer, who completes the changes and secures stakeholder approval prior to the full roll out for course.

LE@D library courses have been approved for credit toward the Western Council of State Libraries (WCSL) Library Practitioner Certification Program. Each certified LE@D course maps to WCSL certification requirements and list of core competencies in a specific competency group. The Managing Difficult Patrons with Confidence course provided in the IMPACT study is worth three hours of CE credits, and the course learning objectives are certified for the core competency area of *Policies and Procedures*¹⁶ (LE@D, 2008). The course is representative in quality and delivery to other CE courses within the WCSL accreditation system (see Appendix H: Press Release and LE@D Quick Facts and Marketing Highlights). The LE@D training course has also been adopted for distribution by WebJunction, a national e-Training and learning

¹⁶ WCSL Policies and Procedures core competencies requirements addressed by the LE@D course Managing Difficult patrons with confidence include the following: (1) Articulate the value of written and approved policies, (2) Articulate the difference between policies and procedures, (3) Lead the process of local library policy development to meet community needs, (4) Write, implement and evaluate library-user-centered policies and procedures, (5) Review policy documents regularly and revise as needed, (6). Know the components of standard library policies, (7) Identify problem areas relating to the local library where policies are needed.

community for public library staff. With this formative evaluation process, the content of the course has passed stringent certification criteria. *Managing Difficult Patrons with Confidence* was LE@D’s most requested course from 2003-2007. This LE@D CE course presents materials related to staff procedures for addressing difficult patron issues and developing appropriate library policies. The topic of patron customer service issues was the most requested topic in a 2003 LE@D survey of potential topics for CE courses.

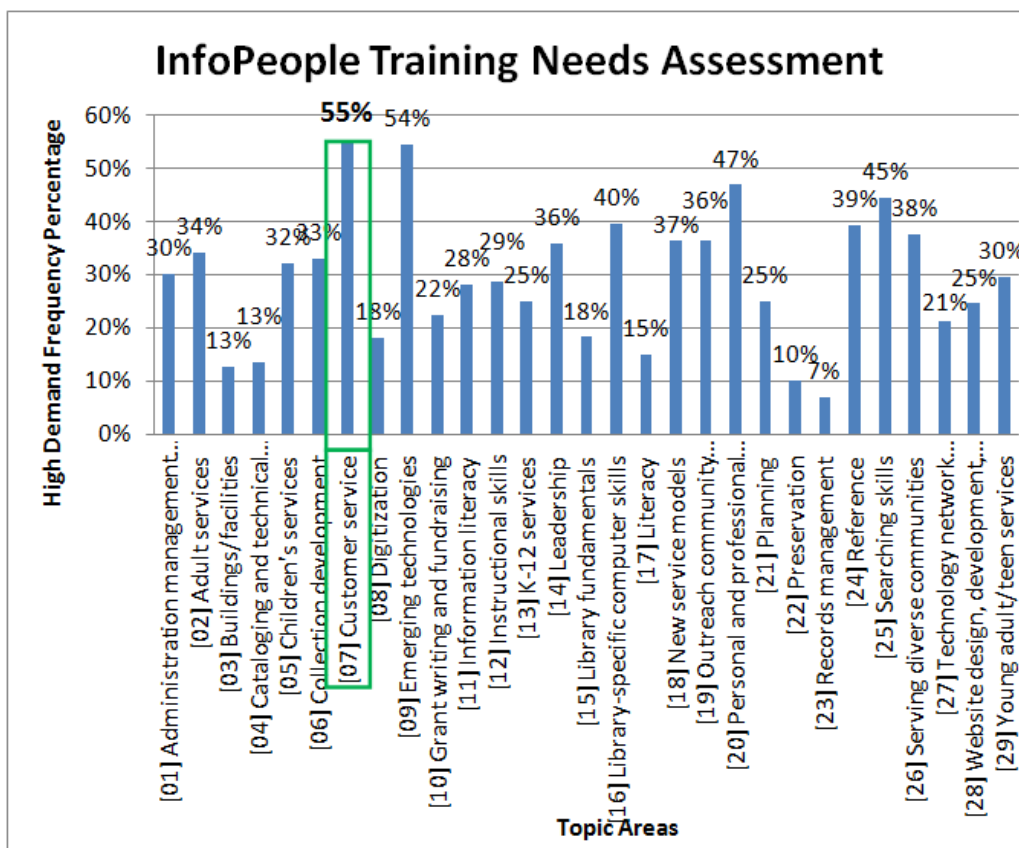


Figure 10. InfoPeople training needs assessment.

A recent study by InfoPeople (2007) surveyed 586 public library staff in California, and found similar results; demand for customer service training was still rated “High” the most frequently (55%) out of thirty training topics, rated even higher than emerging technologies (54%) (Figure 10).

The decision to select the customer service to difficult patrons course was based on (a) this known demand for the course content, (b) recommendations from advisors, and (c) the history of the online LE@DS course being well-received and in continued demand. In spite of the popularity of the course and the demand in the field for customer service training, it was not without some hesitation that the topic was chosen, as the topic was perceived as a "complex" and wrought with emotive, legal, and political considerations.

Competencies and Complexity within the Learning Content

Roughly, by a complex system I mean one made up of a large number of parts that interact in a nonsimple way. In such systems, the whole is more than the sum of the parts, not in an ultimate, metaphysical sense, but in the important pragmatic sense that, given the properties of the parts and the laws of their interaction, it is not a trivial matter to infer the properties of the whole (Simon, 1962).

Public library staff competencies for dealing with difficult patrons is considered a complex topic. In fact, Nadolski and colleagues (2003) state that "(c)ompetencies always include complex skills because different constituent skills need to be performed in an integrated and coordinated fashion in order to deal with realistic situations" (p. 2). Merriënboer (1999) identifies a link between instructional design, competencies, and cognitive complexity of learning content. Jeroen J.G. van Merriënboer (1999) observed competency-based training is by nature complex.:

Learning tasks that aim at the development of competencies involve complex learning. They must allow that the acquisition of cognitive and interpersonal skills and constituent skills, the construction of subordinate knowledge, and the formation of attitudes and values take place in a simultaneous, integrated process. It is precisely the integration and coordination of all aspects that characterize a competency which allows for transfer to new problems and new situations and for lifelong retention (p. 5).

Studies have shown predictors of the effectiveness of training can be moderated by the

cognitive complexity of expected competencies (Pilati & Borges-Andrade, 2008). Because of this complexity, the evaluative research findings may not be generalizable to all asynchronous training courses, but may provide some insights into e-Training implementation practices for enhancing capabilities for workplace core competencies. Instruments are emerging for defining task level complexity across multiple domains (e.g., Bonner, 1994; Campbell, 1988; Wood, 1986) and within specific domains (e.g. Byström & Järvelin, 1995 in information seeking; Campbell & Gingrich, 1986 for programming assignments; Nadolski et al., 2003 in field of law), but Gill and Hicks (2006) point out that “no complete, consistent definition exists” (abstract). So, although a dichotomous classification of workplace training as either complex or simple is arbitrary; it would be safe to classify *policy and procedures training for customer service to difficult patrons* as a complex topic for several reasons, including: the intensity of the workplace psychological experience, the need for higher level cognitive processing, the multifaceted environment of public service, the multiple resolution paths of the task structure, and the cognitive, emotive, and political context that factor into on-the-job tasks and workplace practices. Because of the complexity of the topic, it was anticipated that findings from this evaluative study would not be applicable to all training contexts, but intended that the research study would inform future core competency training research by investigating a comparative evaluation framework for assessment of impact of instructional intervention on competency-based e-Training. Because educational evaluation is so context dependent, researchers should not generalize findings to other learning scenarios, but analyze results against the backdrop of courses within the same topic, similar organizational characteristics, shared participant profiles, etc. The IMPACT evaluation demonstrated a summative evaluation framework to enable

comparative analysis of multiple implementations of the same public library staff e-Training course in patron policy and procedures under varying levels of instructional intervention.

Participants

The population for this study included public library staff that participated in the Managing Difficult Patrons with Confidence course offered by Project LE@D between October 1, 2007 and December 15, 2007. Initially, 400 scholarships were made available through grant funding through the Institute of Museum and Library Services. Of the 406 scholarship applications that were received; 386 were eligible library participants representing 27 states. (Note that some initial applications were ineligible because they were received from persons not employed in public libraries or some participants submitted duplicate applications.) Of the 386 eligible participants all were provided authenticated access to the course. An additional 48 of the 386 became ineligible because they did not complete the IRB agreement to participate. There were 338 participants who made it through the screening for eligibility. These participants were eligible for participation and agreed to participate, in that they (a) were employed in a public library at the time of the study, (b) agreed to participate by completing an IRB form, and (c) entered the course using a user identification and an authentication code.

Of these 338 participants, 317 completed a pre-test (T_1) before completing the post-test (T_2). The final participant count that completed pre-test (T_1), posttest (T_2), and delayed posttest (T_3) was 193 participants; 57.4% of the 338 eligible participants (respondents whose scholarship application were received, their employment status fit requirements, their IRB agreement were signed, and participants entered the course) completed all three testing

phases of the study. Of the 193 participants that completed all phases including the three-month delayed post survey and assessments, there were 5 participants, whose data on "time within course" statistics were incomplete because of a technology error, leaving 189 with complete data. In total, 386 eligible library participants from 27 states were eligible; 189 participants completed all three phases of e-Training study (pre-test, post-test, and delayed post-test) with no errors in data collected. The sample for the IMPACT study was restricted to U.S. public library staff members. Participants in this study did not have prior LE@D training and had not taken the LE@D Managing Difficult Patron with Confidence course through the WebJunction interface, but some participants did have previous e-Training experiences and/or participated in other customer service training, which was documented in the study through self-report with the following survey item:

Prior to taking the Project IMPACT LE@D course had you taken an online course for training or educational purposes? (Select all that apply)

- I have never taken an online course.
- I have taken at least one self-paced online course without a facilitator.
- I have taken a blended course, where some of the course material was online and there was a face-to-face component to the course.
- I have taken an online course with an online facilitator, and the course was asynchronous so the facilitator was not necessarily online when I was.
- I have taken an online course with an online facilitator, and the course was synchronous so the facilitator and the participants communicated with chat or audio real-time communication and everyone was online at a set time.

Of the final 193 participants, 111 or 57.2% had some form of previous e-Training experience (Table 6). To insure that each level did not have significantly more inexperienced e-learners a chi square test was performed and found that there was no significant difference in computer based training experience among treatments.

Table 6

Chi Square Table of Computer-based Training Experience by Section

CBT Experience	L1	L2A	L2B	L3	Row Total	Incremental Chi Square
No Experience	9	27	17	29	82	3.982
expected	15.295	21.668	17.420	27.617		
Previous Experience	27	24	24	36	111	2.942
expected	20.705	29.332	23.580	37.383		
Columns Total	36	51	41	65	193	Chi Square Total
					Grand Total	6.924
				DF	3	
				P	.074	

The chi square test result of the observed frequencies of variables was not significant using a one-tailed test

Recruitment and Sampling Procedures

Participants were initially solicited through e-mail notifications sent to CE coordinators at State Library offices¹⁷ in states not previously enrolled in LE@D CE courses. Additional announcements of the study were distributed to local, regional, and district public library contacts (Appendix D: Recruitment through State Library CE) and LE@D newsletter recipients in October and November (Appendix C: Recruitment of Participants). In October each contacted state library representative was asked to announce the study and disclose availability of CE credit through an IMLS scholarship that waived all fees for the e-Training for participants in the study. In November LE@D staff also sent direct e-mail invitations to public libraries in states that were not yet represented in the project to insure that adequate numbers of groups participated in the study and to encourage participation from states not actively engaged in CE through the state library. Public libraries from underrepresented states were identified through

¹⁷ LE@D maintains a database of email addresses of state library staff training coordinators. Similar public library contact information is available online at the PublicLibraries.com Website or National Center for Education Statistics Website <http://nces.ed.gov/surveys/libraries/librarysearch/>.

listings in the *E.D. TAB: Public Libraries in the United States: Fiscal Year 2005* (NCES, 2008-301).

A mass e-mail solicitation and open scholarship application form was thought to be a fair and unbiased means of notifying public library staff of the e-Training opportunity. Although these e-mail announcements were the primary means of soliciting participants, comments from some participants indicated that news of the free e-Training opportunity was also shared by word of mouth; a mild snowball sampling¹⁸ effect did occur in the December groups as notification of the scholarship opportunity spread and IMPACT participants encouraged colleagues to sign up for the IMLS LE@D Scholarships through the IMPACT study.

Distribution of Scholarships and Authentication Codes

Within the scholarship announcement and participation solicitation e-mail, LE@D provided the URL link to a scholarship application form (Appendix E: IMLS & LE@D Scholarship Request Form). Interested library staff members that visited the Web page were asked to complete a scholarship application, after which an automated form acknowledged receipt of the application was sent to applicant and LE@D. Participants who had previously enrolled through LE@D in online, CE accredited course prior to participating in this study were ineligible to participate. LE@D and IMPACT staff confirmed eligibility and staff provided access instructions as per the protocol for all registered e-Training participants. Prior to release of the course, IMPACT staff provided additional instructions and welcome messages to all participants. The content of the messages varied based on group assignment and role of participant.

¹⁸ Snowball sampling, also known as network sampling, is a technique for developing a research sample where some participants are identified by earlier participants in a study. Snowball sampling is sometimes used in qualitative research where existing study participants recruit future participants to the study.

Size of the Library

For this study the participants were stratified according to the size of the population base of the public library service area where they were employed. The target populations of these library patron bases were defined as public libraries that were either small or large organizations. A small organization was defined as a U.S. public library or branch with a service area population of 25,000 or less, and a large organization was defined as a U.S. public library or branch with a service area population over 25,000. The researcher relied on Bachus (1978) definition of a service area and provided the following definition within the data collection instrument “A service area for a particular branch can be defined as the zone of influence of the branch, or, that portion of the overall land of the city from which the branch draws most of its users.” Delayed post-test data collected from participants on the size of their library using the following question:

Is your library's service area population 25,000 or less?

- YES
- NO

Note. “A service area for a particular branch can be defined as the zone of influence of the branch, or, that portion of the overall land of the city from which the branch draws most of its users” (Bachus, 1978).

The results from this question were used to verify the data gathered from the public library 2006 statistics data files maintained by IMLS and, in some instances, obtain updated information for new libraries or more granulated data for library branches within large parishes or districts.

A clarifying description of small libraries can be derived from the specification found in the eligibility requirements for *Library Journal's* competition for the best small library in America. The classification of small libraries is restricted to those libraries or library branches

...serving a community with a population of 25,000 or less whether the library is rural; situated in a larger geographic region (e.g. county); or assign to the legal jurisdiction of larger aggregated legal service area, such as a Parish (Library Journal, n.d.; online). Libraries serving “small” and “average to large” populations. Of the final 193 that completed all three phases of the study 105 were from large libraries and 87 were from small; and one undefined "floater."

In a stratified random sample, the researcher divides a large pool of subjects into different groups (strata) and then randomly select subjects from within each group. As scholarship applications were received, the study added the participants data to an excel spreadsheet and sorted by U.S. zip code and then library name. The researcher corrected errors in zip code and established authoritative file of library names and used the authoritative library name and 5 digit zip codes to confirm solo (i.e., Level 1 or Level 2A) or group level (i.e., Level 2B or Level3) participation. Thus, participants were first divided by solo participants or group participant based on if other staff members from their library would participate with them. The researcher then divided this group by either large or small libraries as determined by statistics information from IMLS based on zip code. Solo participants were randomly assigned to group 1 or 2A and groups of participants in 2B or 3. Randomness was achieved by randomly placing every other solo participants or every other group of participants in either of two appropriate groups. This process was followed for each additional batch of participants that submitted applications until the four training levels had reached approximately 85-100 participants each. A preliminary pre-test (T_1) investigation in early November revealed that large and small library staff members showed no significant difference on pre-test knowledge assessment scores or general self-efficacy scale scores, but preliminary scores did show significant difference on their

specific task-level self-efficacy with larger libraries scoring higher than smaller libraries. It was decided to conduct a post-stratification of results based on library size following the delayed post-test to determine if any significant difference on outcomes were correlated to the size of the library. Results of the impact of library size are presented in Chapter 4.

Participant Technology Requirements and E-Mail Restrictions

The technology requirements for LE@D courseware management system access for Fall, 2007 are presented in Table 7 per the LE@D Web site on technology requirements.

Table 7

Technology Requirements

LE@D Courseware Management System requires personal computer with Internet access, using one of the following operating systems:

- ✓ PC: Windows 98 (2nd edition), 2000, XP or
Mac: OS 9, OSX; a recent Web browser.
- ✓ For PCs: PC:
- ✓ Microsoft IE - 5.5 (SP2), 6.0; Netscape - 7.0, 7.1, 7.2; AOL - 8.0, 9.0; Firefox - 1.0.
- ✓ For Mac: Microsoft IE - 5.1 (OS X.10.1) and 5.2 (OS X 10.2); Netscape - 7.0, 7.1, 7.2; AOL - (OS X); Firefox - 1.0 (OS X); Safari 1.2.

Participants were informed of the technology requirements through the course information provided on the LE@D Website prior to training. The feature of the participants' computer operating systems were assumed to meet LE@D technology requirements. Two library systems, which received passwords, did not complete the training because of technology issues. According to troubleshooting records, they had operating systems that met the minimum requirements, but were unable to participate in the training because of interoperability issues thought to be caused by firewall restrictions on their system and/or popup blocker settings on their browser applications. The system administrators at these

libraries had strict security policies not to change computer settings and the issues were not resolved. The scholarships for these two libraries were made available to other library systems; since the participants never logged into the course they were not included in the attrition rates. The training delivery was administered on-schedule and there were no unscheduled technology outages reported that lasted more than a few minutes.

A technology issue related to the course access (but unrelated to the courseware management system) was the restrictions placed on public library e-mail correspondence. Most troubling was the policy that all e-mails from outside some library systems that contained attachments, multiple recipients, or links to Web sites (including the LE@D learning management system log in site) were being automatically deleted or sent to the e-mail spam or trash folders. The extent to which this impacted the study is not fully known. The e-mail technology limitations necessitated phone notification and resolution of password issues. Evaluating technology limitations and issues, though beyond the scope of the present study, should be considered when planning or implementing comprehensive e-Training assessment.

Evidence-base Impact Evaluation Model

The study utilizes a comparative analysis within an evidence-based impact evaluation model. This evaluation model has emerged from the medical literature related to evidence-based practice, and the approach has gained popularity in social and education program studies (Camasso, 2004). Camasso defined evidence-based practice and the related studies that use this approach as a practical tool for comparison:

Evidence-based practice, defined as practice based on empirical studies preappraised for scientific validity and prescreened for clinical relevance....Studies that purport to

demonstrate scientific validity are required to establish clear, verifiable, and replicable impact estimates.... impact studies establish the marginal change in client functioning caused by program or therapeutic intervention. The crux of impact analysis is a comparison of what happened to the client because of the intervention and what would have happened to the client had the intervention been withheld (Camasso, 2004, p. 233).

The evidence-based evaluation research model has several strengths that made it a good fit for this study. First it is well represented in adult learning programs and has been utilized in current training evaluation scenarios within the medical community (Camasso, 2004; Emerson & Records, 2008); early childhood programs (Groark, 2007); gifted education (Robinson, Shore & Enersen, 2007); high school equivalency programs (Cameron, 1993); higher education (Perry & Smart, 2007); information and communication technologies (Valcke & De Wever, 2006); technologies and teacher education (Overbay, Grable & Vasu, 2006); vocational training for the unemployed (Benus & Byrnes, 1993); and social action program staff training for WorldBank (Barbu, 2008) and a recommended approach for future of educational evaluation endeavors (Moss, 2007; Slavin, 2002; McMillan & Schumacher, 2006). Another reason Evidence-based Impact Evaluation is a good fit for this study is that evidence-based evaluation research is a natural fit for comparison studies (Camasso, 2004). The present study is predominantly comparative in nature, comparing the differing impacts of using various implementation levels of the same course. *Educational Research*, 5th edition, states the purpose of comparative studies is "to investigate the relationship of one variable to another by simply examining whether the value(s) of the dependent variable in one group is the same as or different from the value(s) of the dependent variable(s) of the other group. In other words, a comparative study compares two or more groups on one or many variables" (McMillan, 2008, p. 189). Stufflebeam and Shinkfield (2007) stated that comparative studies are especially useful

if the audience for the evaluation includes "consumers who need to choose a product or service"(p. 22). They also discussed the advantages of periodic comparative evaluation "after development or sustained use in order to open the way for improvements or radical alternatives" (Stufflebeam & Shinkfield, 2007, p.22). Thus, an Evidence-based Impact approach for comparative evaluation has practical application for both consumers and producers of e-Training courses.

Another strength of the evidence-based impact evaluation approach is its scalability to the "cohort" training format (Camasso, 2004, p. 239). The ability to scale a training evaluation approach to multiple iterations of the same training competency would be very useful to the public library CE community and enabled staggering multiple training sessions to limit class size. The present IMPACT study utilized four groups, three treatment groups, and a comparison "control sample" group that participated in CE e-Training in a cohort fashion according to the specifications of the evidence-based intervention impact methodology (Camasso, 2004, p. 235). The comparison group was enrolled in the same training course without the intervention treatments (no outsourced online facilitation and no management supported library programming) in order to have a baseline for the e-Training. All the participants shared the specific contextual variable, which in this study was the requirement to utilize the same e-Training course, but the "treatments" (levels of online, outsourced facilitation and on-site, library programming) under investigation are controlled. This scenario aligns with the real-world public library environment because library staff are generally required to participate in some form of library CE training program to receive certification and denial of CE training would be unethical and counter-productive to the need for a lifelong learning in Librarianship. The

experimental treatments were conducted in the same way as the instruction would be applied in a real world online CE settings, which increases the external validity of the study. Higher external validity increases the degree to which the results of the study can be generalized to other competency-based e-training customer service course¹⁹.

The comparative design includes four training groups that are alike except for the levels of online facilitation and in-house programming, which are the levels of intervention (treatments) that are being tested. Reeves (1999), in explaining how best to study education intervention practices, makes an analogy to health treatment studies:

Unfortunately, the level of our knowledge about interactive learning is somewhat analogous to what health practitioners know about the functions of vitamins and herbs in supporting good health. There is general agreement within the healthcare professions that most vitamins and many herbs have health benefits, but there is considerable disagreement about the proper dosages, regimens, and protocols for using various products. Similarly, in education, while we can and do generally agree that interactive learning is good, we know very little about the most effective ways to implement interactive learning (Reeves, 1999, Ed-Media Keynote Speech Online).

Applying this analogy from the medical world to the present study, individuals requesting a course for independent study are randomly assigned to two groups. The first group can be construed as the Level 1-Comparison "Placebo" Group for independent students that were randomly assigned to no intervention, and the second group can be construed as the Level 2A-Outsourced Online Facilitation "Vitamin" Treatment Group that included the other random half of those individuals that did not sign up as a library team and are assigned to an outsourced facilitator that used online communication tools for instructional intervention. Levels 2B and 3 include participants requesting a course as part of a library group of two or

¹⁹ Competency-based courses frame content around key learning objectives which are linked to library staff core competency areas. These competency areas are defined by professional organizations and defined based on specific staff service job positions within the library.

more staff members from the same library building; these participant teams are randomly assigned to either 2B, the local management programming group or Level 3, the group with both library programming and the online, outsourced facilitation. The Level 2B-In-Library Management Programming can be seen as the "Homegrown Herbal Tea" Treatment Group with individuals requesting a course for a team of two or more staff members who uses a local, on-site library CE programming coordinator for face-to-face e-Training integration. The Level 3-can be considered the "Super Vita-Tea" intervention that includes both outsourced online facilitation "Vitamins" and In-Library Management Programming "Homegrown Herbal Tea" to form a Dual Treatment Group. L3 is the group with individuals requesting a course for a team of two or more staff members where they are treated with BOTH an outsourced online facilitator utilizing online communication tools AND a local, on-site library CE programming coordinator using face-to-face e-Training integration. This design of experiment is common in health and agricultural sciences, but not often implemented in training comparative studies. In this study, the treatment being investigated is the instructional intervention; the level of implementation of instructional intervention is the evaluand, the primary variable being scrutinized for comparative impact and relative return on investment²⁰.

Research Design Quasi-experimental Overview

The term methodology is defined by Crotty (1998) as "the strategy, plan of action, process of design lying behind the choice and use of particular methods and linking the choice

²⁰ Tamarro (2005) in a report to the IFLA highlighted the literature regarding industry evaluation practices in educational setting and concluded, that "An educational enterprise has to take a more holistic approach, not limiting by the processes, product or service approaches of the industrial model" (p. 10) The present study limits the evaluation to a comparative model and restricts the "return" to self-report of changes in on-the-job performance and training related task performance.

and use of methods to the desired outcomes” (p. 3). Project IMPACT utilizes a quasi-experimental design.

Study what interests and is of value to you, study it in the different ways that you deem appropriate, and use the results in ways that can bring about positive consequences within your value system (Tashakkori & Teddlie. 1999, p. 30).

The study utilized a mixed method approach within a quasi-experimental design. In describing the mixed method approach, Tashakkori and Teddlie stated, “This is a type of research design in which qualitative and quantitative approaches are used in the types of questions, research methods, data collection and analysis procedures, and/or inferences” (Tashakkori & Teddlie, 2003, p. 711). In the IMPACT study as this chapter explains, the quantitative portion of the study entails a quasi-experimental , correlation design using comparative descriptive statistic and analysis of variance data. The qualitative portion of the study clarifies the quantitative findings and explores explanations for the outcomes. Van Lier (1988, p. 9) states that the primary objective of educational evaluation is to answer three questions: "Does it make a difference?" "How effective is it?" and "How can we improve it?" A primary decision that should be made when evaluating the effectiveness of training is the choice of evaluation criteria (i.e., the dependent measure used to operationalize the effectiveness of training) (Arthur et al., 2003).



Figure 11. NIOSH / TIER model of training-learning-action continuum.

The TIER model regards five types of study variables as integral to training effectiveness research: independent, dependent, modifying, intervening, and confounding variables. The TIER model examines variables along a training-learning-action continuum as illustrated in the Figure 11 (DHHS-NIOSH, 1999).

Independent Variables

An independent variable is defined as a variable that is controlled or manipulated by the researcher. Independent variables can include modifications to the educational approach under study (Gagné, 1985). Within this study, the quasi-experiment manipulates one independent variables with four categories of instructional intervention: (a) No instructional intervention, (b) Outsourced e-Training facilitation that utilized online, in-course communication tools, (c) On-site library CE e-Training programming that utilized collaborative management integration, and (d) both online and onsite instructional intervention. Note that the time elapsed for training may be viewed as an additional independent variable, but is controlled within the present study for both uniform availability of access to the course and in respect to the delivery of assessments. The study required distributing instrument measurements at three uniformly spaced testing intervals at the pre-Training , pre-test (T_1) stage, the post training posttest (T_2)stage, and a consistent three-month delayed posttest (T_3) stage. The study also provided all participants the same time interval (two weeks) to complete training²¹.

²¹ The only exception to the 14 day time allotment was for those that participated during the Thanksgiving holiday, who were provided two additional days to complete the training.

Confounding, Modifying, and Intervening Variables

A confounding factor is a variable that is related to one or more of the variables in the study that, when not controlled or measured, may introduce bias in the study's findings. Confounding factors that were measured in the present study include: size of the library, years of public library work experience, and degree/non-degree status. As mention in the Chapter 1, the size of library (25,000 and less in the service area population for small libraries or service area populations of more than 25,000 for large libraries) was tested by a two-stage stratification process of randomly assigning small and large library participants to one of the four levels through data analysis techniques. Stratified sampling is an approach used to ensure that an adequate number of individuals or entities from multiple categorical groups are sampled so that a comparison of the parameter of interest can be made between two or more groups within a population. This was the approach taken for the size of the library because the study administered a purposive sampling of equal numbers of participants from small and large libraries. For all other confounding factors, post stratified analysis was used. Post stratification is when data is divided into strata after it was collected, including stratifying data on the pre-test (T_1) scores for those that had a library degree and those that did not; and for the years of experience in libraries to investigate if there were significant differences in pre-test (T_1) scores on knowledge and on self-efficacy and if participants with these characteristics were dispersed equally among groups.

Dependent Variables

In a quasi-experimental design, the researcher strives to uncover "durable relationships"

between dependent variables and the treatments received (Cronbach, 1964 cited by Stake, 1967). The experiment measured the impact of the treatment on the following dependent variables:

1. Content Mastery/Knowledge Acquisition was measured in a pre, post, and delayed post tests assessment schedule using test items that are aligned with Western Council of State Libraries core competencies and the course learning objectives
2. Self-efficacy was measured by Specific (task-level) Self-efficacy and General Self-efficacy Scales in a pre, post, and delayed post tests data schedule
3. Changes in workplace practices and performance attributed to CE training course participation was indicated by self-report open end survey question responses on the delayed post survey

Additional data collected was collected on course participation, learning involvement, and attrition rates by staff participants.

Instructional Interventions as Four Levels of Asynchronous Training

To evaluate an educational program, we must examine what teaching, as well as what learning, is intended.

Stake

The four levels of implementation (introduced in Chapter 1 as seen in the Figure 12) are the key independent variables under investigation reflecting Gagné's (1985) recommendation to research modifications to the educational approach under study.

Content mastery (changes in pre to post, post to delayed post, and pre to delayed post test scores), self-efficacy (pre to post, and delayed post scale scores) , self-report of on-the-job behavior, number of participants demonstrating or perceiving transfer of training to the workplace, and measures of course participation are assessed dependent variables.

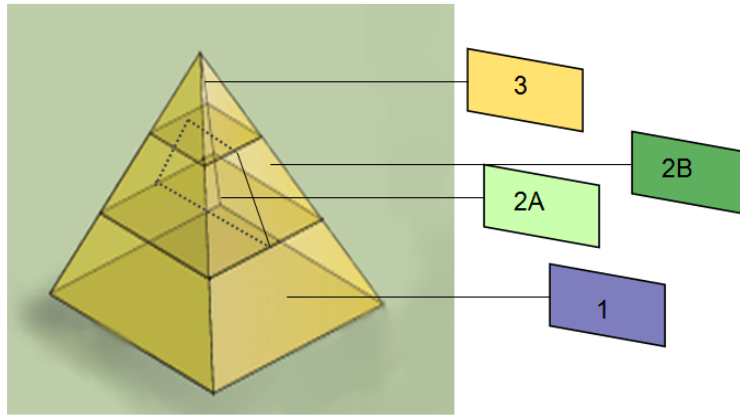


Figure 12. E-Training implementation pyramid.

Level 1 - “Inoculation” approach with no interaction within the online lesson and no management e-Training programming in the library/organization

Level 2A - Outsourced facilitation within online lesson for independent learners and no management e-Training programming within the library/organization

Level 2B - “Canned” online lesson with no interaction or facilitation within the online lesson and face-to-face management-fostered programming of staff learning teams within the library/organization

Level 3 - Outsourced facilitation within the online lesson and face-to-face management-fostered programming of staff learning teams within the library/organization

(Adapted from Turner, 2003)

Note that evaluation models should account for potentially modifying, intervening, and confounding variables that may occur within learning (DHHS-NIOSH, 1999). Examples for the current study included impact of learner differences, such as variance in years of library work experience of the participants and prior experience with online courseware. Data was collected on these variables and analyzed. Controls are in-place for group size, learning content, and testing procedures. Additionally, Project IMPACT e-Training evaluation study addressed the call in the literature for new approaches in evaluative research design that inform both theory and practice. The quasi-experimental design utilizes Evidence-based evaluation format similar to methods applied in medical clinical trials and utilizes the internal comparison group in lieu of a

control group to fit the practical restrictions found in CE setting, aligning with Evidence-based impact assessment using quasi-experimental design (Camasso, 2004).

Level of Implementation Scope and Limitations

The comparison group completed the study as independent learners without any facilitated or management programmed instructional intervention, the typical implementation approach for majority of e-Training programs. A comparison group should be alike to the treatment groups in every way but the treatment being investigated, which in this comparative study are varying instructional interventions. As an example in a medical aeronautical study, investigating the effects of flight vertigo intervention is most logical and effective when the treatment group and non-treatment group are in the same training situations, i.e. simulated flight conditions. The study would make no sense if the control group subjects were sitting behind a desk while the test subjects were harnessed upside down in a G-force simulator with the chamber spinning around. Robert and Yeager (2004) defined and explained the unique purpose of control and "comparison groups" for comparison with educational and social interventions or medical treatments and cite numerous evaluative research studies and experts that support their comprehensive description:

The generally acknowledged preeminence of random clinical trials (RCT) in providing unbiased estimates of intervention impacts can be directly traced to this design's capacity to create an "internal" control group--that is, nontreated comparisons from a random subset of would be participants.... Impact estimates from quasi-experimental designs that use external controls do not compare well with estimates from randomized experiments in studies where both randomized and external controls are used (Roberts & Yager, 2004 p. 236 citing *Bell, Orr, Blomquist, & Cain, 1995; Shadish, Cook & Campbell, 2002; Bell, Orr, Blomquist, & Cain, 1995; and Shadish, Cook & Campbell, 2002*).

Roberts and Yager (2004) also state that in quasi-experimental design internal comparison groups "provide opportunities to conduct credible impact assessment when RCTs are impractical"(p. 237).

Bamberger, Rugh, and Mabry (2006) further explain that a control group is selected at the beginning of a project and is meant to represent the "counterfactual," a condition that indicates what would have happened had a the treatment groups not received special intervention (p. 210). The special interventions that the treatment groups received (training facilitation and management programming) were not given to the comparison group, but the comparison group was identical to the treatment groups in every other way, i.e. they were selected from the same sample of employed public library staff and had access to the same online course content. Because the study was measuring the impact of the added intervention it was important that the control group have equal opportunity (two-week access) to the course materials to make a comparative evaluation of the impact of the added training interventions.

The requirements of the second group (Level 2A) mandated using an outsourced online facilitator with explicitly defined duties within the course, but no organized library management programming of training at the workplace. All course learning interaction was to be conducted online using in-course communication tools, i.e. course announcements, discussion board postings, and e-mail correspondence (which was both in course and available through Web based e-mail accounts). Since the facilitator was required to provide personal contact information in the course discussion area e-Training participants were also provided additional facilitated support to resolve issues or ask questions by phone. It is common practice for

facilitators to provide personal contact information and/or business office hours at the beginning of an asynchronous training course. The design of the study included using an internal evaluator which means the researcher/evaluator is also assigned the role of "facilitator" within those implementations that require an outsourced facilitator, Level 2A and Level 3. Although there are some cautions in the literature regarding the use of an internal evaluator (de Laat, 2008; Mathison, 2006); and this may be perceived as a threat to evaluation external validity, limitations on staffing required this design. To protect the external validity and to insure that the generalizability would not be threatened by this action research element of the study, the evaluative research project was administered under academic supervision following strict research protocol. The assumption was that the study was fair and unbiased because the academic supervision governed the internal evaluation component. Also, by detailing the credentials necessary to serve in the capacity of online LE@D course facilitators, the study assured facilitator competence levels²² that diminished the potential for bias inherent in internal evaluation. Consistency of facilitation was maintained by using a single facilitator for all sections and was documented with online log of online discussion activity and interaction for each section.

The third group (Level 2B) did not have an outsourced online facilitator and all in-course communication was disabled, but each participating library participated in the training as a small group. Resources and recommendations for management and learning managers for how to provide organizational training support within the library included *Managing Difficult Patrons*

²² In an assurance of competence, we provided the following validations for qualifications to facilitate the training: four years experience teaching face-to-face, blended, and facilitated online courses with as many as sixty students from bachelor's to Ph.D. level; experience as an instructional designer and subject matter expert for LE@D courses; experience as an on-site public library trainer; and contributed to the review of the LE@D facilitator training course and developed the on-site library CE programming coordinator course packet (Appendices I and J).

with Confidence IMPACT On-site Programming Guide with (a) the on-site library CE programming e-Training checklist; (b) staff flyers; (c) training integration guide; and (d) training schedule. Appendix I & J includes the On-site Programming Packet and Calendar.

Level 3 Implementation of e-Training

The final group (Level 3) had both the on-line facilitator with the same explicitly defined duties within the course as Level 2A and an on-site staff CE leader with the same recommendations for how to implement the training and provide on-site organizational programming support within the library as Level 2B. The scope and limitations that applied to both Level 2A and to Level 2B were applicable to Level 3.

Experimental Design for Levels of Training Interventions

The experimental treatments are done by a factored 2X4 design; first by size of library (large or small) and then by types of treatment intervention (No intervention-Control/Comparison Group; Outsourced Online Facilitator Group, Management On-site Programming Group; and Compound Treatment of both Online Facilitator and On-site Programming Group). There were four levels of intervention (column indicates intervention treatment) and initially two types of libraries (the columns indicate the size of the library), which is illustrated in the chart below (Figure 13). In this factored design the number of numbers indicates how many factors (2) which include the intervention and the size of the library. Once the pre-test (T_1) indicated that the scores from small library participants did not vary significantly from large, the design was modified to a single factor analysis of the intervention method.

2 X 4 Design

	1- Small Library	2- Large Library
1. X_{CONTROL}	L1 CONTROL/COMPARISON	L1 CONTROL/COMPARISON
2. Facilitator - X_1	L2A ONLINE FACILITATOR	L2A ONLINE FACILITATOR
3. Library Programming - X_2	L2B ONSITE PROGRAMMING	L2B ONSITE PROGRAMMING
4. Both Interventions - X_1+X_2	L3 ONLINE & ONSITE	L3 ONLINE & ONSITE

Figure 13. IMPACT design. (*Note.* X_{CONTROL} =no instructional intervention; X_1 =online facilitation; X_2 =on-site programming; $X_1 + X_2$ =both types of intervention.)

The study used a 1X4 design for significance testing of the single factor and comparison at four instructional intervention levels as shown in the Table 8. Although the pre-test indicated that there was no significant difference between scores from individuals from large and small libraries, and the decision was made to use a 1X4 Design, the study used post stratification of data to indicate possible confounding factors in longitudinal studies. So, the size of the library was moved to a possible confounding factor, but no longer considered an independent variable.

The chart below shows the intervention schedule.

Table 8

Quasi-experimental Design and Timeline

Time	T ₁ Baseline (Day 1)	Intervention (2 Weeks)	T ₂ Post-test (Training End)	T ₃ Delayed Post-test (3 months after training)
L1 COMPARISON	L1 T ₁	X_{CONTROL}	L1 T ₂	L1 T ₃
L2A FACILITATOR	L2A T ₁	X_1	L2A T ₂	L2A T ₃
L2B CE MANAGER	L2B T ₁	X_2	L2B T ₂	L2B T ₃
L3 BOTH X_1+X_2	L3 T ₁	$X_1 + X_2$	L3 T ₂	L3 T ₃

Note. X_{CONTROL} =no instructional intervention; X_1 =online facilitation; X_2 =on-site programming; $X_1 + X_2$ =both types of intervention; T₁=baseline pretest; T₂= posttest; T₃=delayed posttest.

Summary of Quasi-Experimental Approach

The IMPACT evaluative research study is characterized as a quasi-experiment because it does not have pure random assignment to a control and treatment groups, but involves purposive sampling and non-random assignment to a comparison group and three treatment groups. Each of the groups represented a level of intervention and was designed through purposive stratified sampling to be homogeneous in regards to number of total individuals per group and proportions of participants from large and small libraries within groups. The purposive sampling insured that each test group started the study with equal numbers of large and small library participants and the libraries with multiple participants were assigned to participate as a team for those sections (Level 2B and Level 3). The solo participant assignment to either Level 1 or Level 2A was random. The team assignment to either Level 2B or 3 was random. All other sampling procedures and participant characteristics were randomly assigned.

The study uses a Cohort design to keep class sizes small. Cohort analysis is used with successive groups that attend the same program or course at different intervals (Bamberger et al., 2006, p. 214). The advantage to a cohort design is its usefulness for training programs and training providers whose content for a given program or course remains constant in regard to content, assessment, and learning objectives. In core-competency-based educational programs the learning objectives of the content does not typically change unless the competency standards are changed by the stakeholders, and thus cohort evaluation data can be tracked for a provider or group of providers over time.

The IMPACT study can be further characterized as a modified longitudinal study involving pre, post and three-month delayed post test measurements. The researcher included

a delayed post-test or "delayed post-test follow up examination" to include a longitudinal aspect, but it is not considered longitudinal in the purest sense because it does not include assessments at four or more points in time, such as if the course would have had a midterm or additional points of assessment during training or following the training experience (Bamber et al., 2006, p. 210). Bamberger, Rugh, and Mabry (2006) call the mixed method, pre-test-post-test with the comparison group the "Strongest General-Purpose RealWorld (sic) Evaluation Design" (p. 213).

Overview of Mixed Method Design

The quasi-experimental design for this study was further enhanced by introducing a mixed method qualitative study component within the evaluative research study, a recommended approach in the evaluation literature. Stufflebeam (2001) provides a synopsis of the history of mixed method research within the field of evaluation. Much of the literature on evaluative research often characterizes the perception of mixed method approach as a "war" among the various epistemological approaches (Plano-Clark & Creswell, 2007, p. 11; Tashakkori & Teddlie, 1998). When conducting mixed method, quasi-experimental research, the investigator used methodologies from multiple camps. Those historic figures, renown evaluation theorists who if in the same room would have waged civil war, are called upon to invoke the structure, define the steps, devise a strategy for analysis, and ultimately reside peacefully amongst one another in the pages of an evaluative research report. The research design provides the roadmap that set the pace and direction for the research process.

Mix method is currently the recommended design²³ for e-Learning evaluation (Ruhe & Zumbo, 2009, p. 10). Stufflebeam and Shinkfield (2007) identified several researchers that pioneered or supported mixed method approach to educational program evaluations, including Tyler, Guba & Lincoln, Kidder & Fine, Miron, Patton, & Scatzman, and Strauss (p. 189). Stufflebeam and Shinkfield said that mixed method is almost always the best choice in the educational context for two reasons: (a) "including both types of information [qualitative and quantitative] usually strengthens such studies" and (b) enables the evaluator to "take advantage of the opportunities to obtain any and all potentially available information that is relevant to assessing a program's merit and worth" and (p.189). Stufflebeam & Shinkfield further stated:

The key point is to choose methods because they can effectively address the study's questions, not because they are either qualitative or quantitative. Key advantages of using both qualitative and quantitative methods are that they complement each other in ways that are important to the evaluation's audiences (p. 189-190).

IMPACT used a sequential, mixed method, confirmatory design that first utilizes quantitative data collection to test hypotheses followed by qualitative data collection, where the qualitative data is meant to confirm or clarify the quantitative findings (Onwuegbuzie & Teddlie, 2003). There are four primary issues in mixed method design: priority, theoretical perspective, implementation, and integration (Creswell, Plano, Clark, Guttman & Hanson, 2003). Figure 14 depicts the priority and sequencing of evaluation implementation issues in the IMPACT study.

²³ Although according to a recent meta-analysis by Randolph (2008, p. 70) of research methodologies in e-Learning technologies studies (that are found in peer reviewed journals and involve human participants) indicated that only 8.1% of these studies utilized mixed method, it is the most logical and robust research design for comparative studies.

Mixed-Methods Design Decisions & Practical Steps

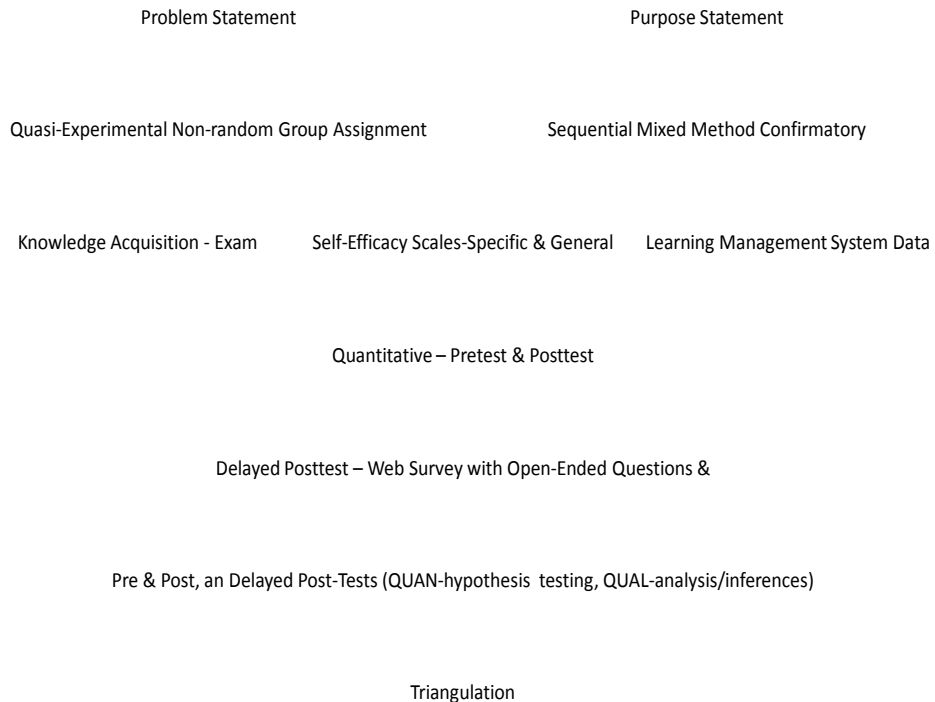


Figure 14. Mixed method design decisions and practical steps.

The sequencing of the project defines both the timing and priority for addressing evaluation steps and decisions that were required to investigate the impact of e-Training implementation approaches. Included in this prioritization process is communicating the project problem and purpose statements to stakeholders, defining the strategy and design of the study, developing data collection tools and defining appropriate procedures. In a sequential mixed method design and also in a longitudinal study, the data collection and data analysis is iterative with final interpretation of the data relying on triangulation methods.

IMPACT's Utilization of Triangulation

A distinction between what reasoning or knowledge to pursue fundamentally separates quantitative and qualitative enquiry. Perhaps surprisingly, the distinction is not directly related to the difference between quantitative and qualitative data, but a difference in searching for causes versus searching for happenings. Quantitative researchers have pressed for explanation and control; qualitative researchers have pressed for understanding the complex interrelationships among all that exists (Stake, 2000, p. 37).

Project IMPACT used a mixed method approach to gain insights through (a) observation of impacts potentially attributable to varying the implementation of the course and (b) pursuit of an understanding of the complex interrelationships and potential durable relationships for the observed results. Evaluation researchers have historically and recently recommended using mixed method of evaluation to triangulate findings and to expand the types of evaluative research questions addressed (Campbell & Stanley 1963; Denzin & Lincoln 1994; Scriven 1991; Rossi & Freeman 1993; Johnson & Onwuegbuzie, 2004; Greene, 2005; Ruhe & Bruno, 2009).

Triangulation is the means to gain the richness of understanding that is not afforded by unsubstantiated empirical research. Scriven (1991) defines triangulation:

Originally the procedure used by navigators and surveyors to locate ("fix") a point on a grid. In evaluation, or scientific research in general, it refers to the attempt to get a fix on a phenomenon or measurement (and, derivatively, an interpretation) by approaching it via several - quite often, more than three - independent routes. ... In short, you avoid dependence on the validity of any one source by the process of triangulation. ... Triangulation provides 'redundant' (really, confirmatory) measurement; it does not involve the conflation of ontologically different qualities into estimates of merit (worth, value, and so on.)(p. 364).

The mixed method approach uses triangulation of the data as a fundamental method of establishing the accuracy of observed data by comparing multiple (three or more) types of independent points of view on data sources impacting the findings for the constructs (Bureau of Justice Center for Program Evaluation, Web Site). In this study, methods of establishing the

accuracy of the information include: (a) pretest, posttest, and delayed posttest content mastery, (b) General and Specific Self-efficacy scales, (c) participate course interaction documentation, (d) participate self-report of training outcomes and interview data, and (e) facilitator and Programmer observations.

Organization of Results

Greene and Caracelli (2003) recommended, that research results should be organized by the research questions being answered rather than strictly by the type of research methodology, qualitative or quantitative in order to facilitate triangulation of the data. For this reason the results of this study are presented in Chapter 4 according to the original list of research questions that the data was intended to address answers and the related hypotheses that were being proposed.

Concluding Comments on Mixed Method Design

The evaluative research approach believed to be the best fit for this study was both eclectic and pragmatic, borrowing methods and techniques from multiple disciplines and gathering both qualitative and quantitative data. This quasi-experimental longitudinal study integrated constructs from social cognitivist and constructivist online learning theories to support a mixed method design in order to gain insight into the impact of different levels of e-Training instructional intervention. Greene (2005) characterized the strengths of a mixed method approach in educational research:

A mixed method way of thinking is an approach to applied social inquiry, including educational research and evaluation, that actively includes, even welcomes, multiple

methodological traditions, multiple ways of knowing and multiple value stances ...a mixed method way of thinking seeks better, more comprehensive understanding of educational phenomena, understanding that is woven from strands of particularity and generality, contextual complexity and patterned regularity, inside and outside perspectives, the whole and its constituent parts, change and stability, equity and excellence and so forth. That is, a mixed method way of thinking seeks not so much convergence as insight (Greene, 2005, p. 209).

Greene(2005) emphasized that the key purpose of a mixed method approach is to enable enhanced understanding about the learning context by utilizing a combination of different viewpoints or lenses that provide a unique perspective on the phenomenon being investigated.

Overview of Instrumentation

The instrument used in this study was comprised of three subparts. The first part of the instrument included a 20 item knowledge assessment; the second part of the instrument included two sections, an 8 item general self-efficacy scale and an 8 item specific self-efficacy scale, and the third part of the instrumentation included survey questions to gather demographic information, self-assessment of on the job performance, and participant perception of training and management support. This supplemental information for the third part of the instrumentation was gathered using Lickert scale format, binary data entry format, short answer and open-ended survey questions. Each sub-part used in the project evaluation instrument is discussed below.

Knowledge Assessment

As discussed previously, the five learning objectives for the course content aligned with

the Western Council of State Libraries (WCSL) core competency requirements, and LE@D training has been certified to meet WCSL requirements. Learning objectives specific to the topic of training are often recommended in the literature for measuring knowledge acquisition. The researcher measured the amount of knowledge acquisition related to the learning objective for the LE@D course, *Managing Difficult Patrons with Confidence*. Participants are tested on their knowledge of the training material using a twenty question knowledge assessment instrument, four questions for each learning objective. LE@D and IMPACT staff developed the test questions to assess knowledge of each of the learning objectives in the training course to assess changes in participants' knowledge over time. To achieve the highest level of validity and interpret scores, the instrument development procedures were formulated under the direction of Ron Carriveau, Assessment & Measurement Specialist from the Center for Teaching, Learning, and Assessment at the University of North Texas and Arlita Harris, the LE@D Coordinator. The assessment was based upon the core competencies and the learning objectives that have been included within the assessment test used within the *Managing Difficult Patrons with Confidence* course for the past four years. A quality assurance checklist (see Appendix F: Assessment Development Checklist) was used for the development of the instrument. Prior to administering the questionnaire to participants, the instruments were quality tested and refined through semi-structured e-mail interviews with a small focus group and a subsequent pilot test among ten end-users. Five professional librarians knowledgeable about the course content area provided initial input through an online focus group. The interchange was used to gain additional insights and knowledge about current public library practices, the fit of the training objectives for frontline staff responsibilities, and the

appropriateness of the questions. These library professionals were provided access to the *Managing Difficult Patrons with Confidence* course and then asked to scrutinize the test questions. These reviewers were instructed to analyze the questions from the vantage point of a student who has just completed the course. They were then asked the following questions:

1. Do the items match the outcomes/learning objectives?
2. Are the questions fair and reasonable in terms of the learning objectives?
3. For each item is there one unequivocally correct answer and two options that are plausible but not correct, or in the case of a "best" type question, are the two plausible options that are also correct to some degree not the best choice?
4. Are there any items student will be able to get correct without taking the class?

The field testers discussed via e-mail and by phone any need for clarification of the questions and identified any revisions that were needed to assure face validity. The questions and items on the test were updated per the recommendations of these five professional librarians. The instrument was then tested on a pilot group of ten participants (with one dropping out because of scheduling conflicts) and open discussion of these questions was solicited from the pilot test group. Minimal adjustments in wording of one of the questions was made to the knowledge assessment instrument based upon comments from participants.

Knowledge Assessment Instrument

The final list of approved questions are listed by learning objective (LO) in Table 9. Construct validity could not be confirmed through the pilot testing of the questionnaire, because the sample was too small to ascertain statistical internal criterion validity, therefore professional judgments were provided by the Center for Teaching, Learning, and Assessment

staff who guided the development of the test instrument and provided advice on the measures.

This development process and the participation of public library experts in the refinement of the test instrument helped to address face and content validity concerns.

Table 9

Knowledge Acquisitions and Associated Learning Objectives (LO)

LO	4 questions (3 choices with the correct answer underlined) for each Learning Objective (LO)
Assist with reviewing, revising and/or creating library policies that address a variety of problem patron situations.	<p>Question 1-1: In order to manage the majority of patron problems in a library, which two written documents should all libraries have?</p> <ul style="list-style-type: none"> a. Patron policy and procedures manual b. Homeless policy and computer use policy c. Patron policy and complaint form <p>Question 1-2: What group normally approves and adopts patron policies after they are developed by library administration?</p> <ul style="list-style-type: none"> a. City council b. Library board c. Library staff <p>Question 1-3: Why is it fairly easy to identify potential problem patron situations when writing policies?</p> <ul style="list-style-type: none"> a. Most problem patron situations are predictable. b. Most library staff have already been trained in patron policies c. Most cities already have policies that address problems in public buildings. <p>Question 1-4: How can staff be effective role models for patron rules and policies?</p> <ul style="list-style-type: none"> a. Make certain that each person who enters the library sees the posted policies b. Follow the same rules that they expect of patrons c. Host public programs on proper library behavior
2. Apply a number of coping techniques to be able to maintain composure in stressful problem patron situations.	<p>Question 2-1: How should you respond to a patron's complaint?</p> <ul style="list-style-type: none"> a. Listen carefully and control your emotional response. b. Respond at their emotional level to identify with them. c. Interrupt the patron and ask them to relocate to a less public place. <p>Question 2-2: What are some ways that you can show interest and sincerity toward a problem patron?</p> <ul style="list-style-type: none"> a. Try to get them to talk about themselves or something pleasant in order to divert their attention from their problem. b. Offer them coffee or other refreshments to make them feel comfortable and calm down. c. Maintain eye contact, nod your head, and use an occasional "I see" or "Uh-huh" to show that you are listening. <p>Question 2-3: What are some ways to keep your cool that will help maintain control of the problem situation?</p> <ul style="list-style-type: none"> a. Take a deep breath, speak slowly, be courteous and respectful toward the patron. b. Let them know that you are being friendly toward them by touching the patron's arm and smiling. c. Use humor and laughter to help the patron take the situation less seriously. <p>Question 2-4: What is the first thing to do in handling a mentally-ill patron who is out-of-control?</p> <ul style="list-style-type: none"> a. Remain calm and approach them in a non-threatening manner and tone of voice. b. Ask them about their mental illness so you can understand their problem and help cope with it. c. Call the police and have them removed from the library. <p style="text-align: right;"><i>(table continues)</i></p>

Table 9 (continued).

<p>3. Decide when to call for security or the police.</p>	<p>Question 3-1: When should security or police always be called?</p> <ul style="list-style-type: none"> a. When you feel threatened or sense the patron may be dangerous. b. When a patron first becomes angry or uses a loud tone of voice. c. When a posted written policy has been broken. <p>Question 3-2: If a customer is verbally abusive, what is the proper first response for a library staff member?</p> <ul style="list-style-type: none"> a. Tolerate it and continue to help them because they are members of the public in a public building. b. Let them know that you are upset and will call security or the police if they do not stop. c. Calmly inform them that you cannot help them if they continue to use abusive language. <p>Question 3-3: If a customer is making inappropriate use of the internet, what is the proper first response for the library staff member?</p> <ul style="list-style-type: none"> a. Shut off their computer access and ask them to leave. b. Show them the library policy and ask them to stop immediately. c. Show them the library policy; then threaten to call security or the police <p>Question 3-4: If someone is drunk and disorderly in the library, what is a proper first response for the library staff member?</p> <ul style="list-style-type: none"> a. Ask them to leave and come back when they are sober. b. Call security or police to have them removed c. Let them "sleep it off" in the library
<p>4. Discern how to determine when the problem patron cannot be satisfied and to whom and how to communicate such problems.</p>	<p>Question 4-1: How does a staff member know if they have the authority to solve a patron's problem situation?</p> <ul style="list-style-type: none"> a. Written library policies and procedures b. Verbal approval from the director or staff member in charge c. Training and a certificate in how to handle problem patrons <p>Question 4-2: If a patron demands something that is not possible, what should the staff person do?</p> <ul style="list-style-type: none"> a. Remember that "rules are made to be broken" and "the customer is always right"; then find a way to meet their demands and keep them happy. b. Politely state what you can and cannot do and consider that you may need to call a supervisor for confirmation. c. Make an exception this one time, but tell them that you will not do it again. <p>Question 4-3: What responsibility does the library director have in managing problem patron situations?</p> <ul style="list-style-type: none"> a. Establish policies and procedures to deal with problem situations and then support staff when they implement them. b. Make certain that he/she is always available in person or by phone in case a problem situation arises. c. Personally handle all problem patron situations <p>Question 4-4: What are some good tools for identifying situations that might lead to frustration and anger from your patrons?</p> <ul style="list-style-type: none"> a. Review police reports b. Review complaints to the city hall c. Review library comment cards and customer service surveys <p style="text-align: right;"><i>(table continues)</i></p>

Table 9 (continued).	
5. Apply a variety of communication techniques to positively manage various problem patron situations.	<p>Question 5-1: What is the best opening question to ask in determining your patron's problem?</p> <ol style="list-style-type: none"> a. What is your problem? b. How may I help you? c. What do you want me to do for you? <p>Question 5-2: How should you handle a situation where the parent is oblivious to their child who is climbing the shelves in the periodical area?</p> <ol style="list-style-type: none"> a. Remove the child from the shelves and take them to their parent. b. Lead the child to the children's department because they should not be playing in the adult area. c. Approach the parent and state that you are concerned for the child's safety and ask them to keep an eye on their child. <p>Question 5-3: What is the best way to awaken someone who is sleeping in the library, when there is a policy against it?</p> <ol style="list-style-type: none"> a. Gently touch them to awaken them; then tell them there is a policy against sleeping in the library. b. Ask them, in a louder tone of voice than normal, if they are all right? Then explain the library policy against sleeping in the library. c. Call the security officer or police to awaken them and remove them from the library. <p>Question 5-4: Teenagers come to the library in groups and want to work together; yet this is frequently seen as disruptive behavior to others using the library. How can the library satisfactorily solve the problem of disruptive teens?</p> <ol style="list-style-type: none"> a. Direct them to the teen center or other place in your community that permits them to be noisy. b. Post written policies stating that noise is not permitted; then ask the teens to leave after a first warning. c. Create a place in the library where teens can work and socialize together without disturbing other patrons.

Self-Efficacy Overview

What people think, believe, and feel affects how they behave (Bandura, 1986, p. 25).

Specific and general self-efficacy beliefs were measured using self-report instruments that followed Bandura's (1977) original rating methodology for both general and specific self-efficacy assessment. The social cognitivist model and the self-efficacy construct accounts for changes in self-efficacy as a result of experiences (Bandura, 2006). An individual's sense of self-efficacy is a result of cognitive processing of social experiences that produce self-efficacy information, which includes training experiences (Bandura, 1997). Measuring self-efficacy for skills learned in training and to assess employee levels of confidence for customer service related tasks following training is an area of interest in evaluative research.

Specific Self-Efficacy Scale

What is missing in some of the competency frameworks and training needs analyses is an appreciation of where the learners are situated, and how they situate themselves (Urquhart et al., 2005)

Using social cognitive theory constructs to assess impact of learning required development of a quantitative self-report competency-based specific self-efficacy scale to measure perceived task specific self-efficacy. The scale development utilized the course learning objectives that were aligned with public library staff competency standards. Development of a scale to measure self-efficacy followed criteria established by Bandura's (2006) *Guide for Creating Self-Efficacy Scales*, which specifies how to utilize task requirements to develop specific self-efficacy scales. The scale was developed to assess participant perceived self- efficacy for completing tasks over a range of increasing difficulty. This structure followed the recommendations defined by Bandura (1977; 2006) and Pajares, Hartley, and Valiante's (2007) recommendations for the response format in writing self-efficacy assessment scales. Self-efficacy measures of magnitude and strength were tailored for tasks and strategies addressed within the course content. Within the literature, training-transfer to job performance self-efficacy scales are created based upon the learning objectives for the training material (Lorenz et al., 2000). In fact, Bandura (2006) states that in creating specific self-efficacy scales, "There is no all-purpose measure of perceived self-efficacy... Scales of perceived self-efficacy must be tailored to the specific domain of functioning that is the object of interest" (p. 307-308). In the *Managing Difficult Patrons with Confidence* course the following five learning objectives (which are aligned with competency requirements) were used to construct the Specific Self-efficacy Scale:

1. Apply a variety of communication techniques to positively manage various problem patron situations.
2. Apply a number of coping techniques to be able to maintain composure in stressful problem patron situations.
3. Determine when the problem patron cannot be satisfied and to whom and how to communicate such problems.
4. Decide when to call for security or the police.
5. Assist with reviewing, revising, and/or creating library policies that address a variety of problem patron situations.

Self-efficacy measures of magnitude and strength were tailored for tasks and strategies for addressing these learning objectives. The specific self-efficacy scale presented the participants with varying levels of task difficulty (e.g., from basic to advanced difficult patron issues and policies) and the participant indicated whether the degree of confidence in performing those skills using a rating scale (e.g., 0 = no confidence to 100 = absolute confidence). Measuring self-efficacy for skills learned in training was supported in the literature (Bandura, online), and the scale readily addressed those areas. The positive results in the literature for training performance related specific self-efficacy was discussed in the literature investigation section on social cognitivist theory (Chapter 2); additionally researchers have noted high correlations between the strength of the confidence estimations for complex tasks, including counseling skills (Larson et al., 1992); customer service skills (Carter, 2008); academic environment (Pajares, 1996); military training (Artino, 2008); and general career skills (Lent & Hackett, 1987). There has also been some initiative toward the study of self-efficacy for measures of self-efficacy within the lifelong learning environment (Derrick, 2003).

Prior to administering the Specific Self-efficacy Scale (Figure 15), the measurement scales were quality tested and refined through a semi-structured focus group e-mail interview

process and a subsequent pilot test (the same instrument development process discussed above in the Knowledge Acquisition section) to insure content or "face validity"(Litwin, 1995). Because of the limited number of responses construct validity and reliability of the task level self-efficacy test instrument could not be established during the pilot test.

On a Scale from 0% to 100%, with 0% = NO CONFIDENCE AND 100% = COMPLETE CONFIDENCE, please rate how confident you are in the following activities associated with addressing difficult patron related situations in the library environment:

1. I am confident in my ability to maintain composure in stressful problem patron situations by using coping and listening techniques, such as speaking slowly, breathing deeply, maintaining eye contact, nodding, etc.
2. I am confident in my ability to locate my library's policy guidelines and procedures manual.
3. I am confident in my ability to contact security or the police to address a difficult patron situation at the appropriate time.
4. I am confident in my ability to assist in the development of sections of the patron policy and procedures manual that addresses difficult patron situations.
5. I am confident in my ability to acknowledge the limits to my authority to address a problem patron situation and direct the difficult patron to appropriate person in the library.
6. I am confident in my ability to speak to patrons in a calm and professional manner to positively manage various problem patron situations.
7. I am confident in my ability to remain calm and approach mentally ill patrons in a nonthreatening manner and tone of voice.
8. I am confident in my ability to identify situations that may lead to problem situations.

Figure 15. Specific self-efficacy scale

General Self-Efficacy Scale

This study included use of the *New General Self-Efficacy Scale* (Chen, Gully & Eden, 2001) modified from Lickert scale format to Bandura's original rating (0-100%) methodology (Figure 16). General self-efficacy scales differ from specific self-efficacy scales in that they are intended to rate individual's perception of "trait-like generality dimension of self-efficacy" (Chen et al., 2001, p. 63). The general self-efficacy scale scores were analyzed and compared with specific self-efficacy scores to see the potential impact of the training on both specific task

level efficacy and general trait efficacy. Since trait scores are thought to be less influenced by targeted training, the general self-efficacy scores would be used as a point of contrast to specific self-efficacy scores to explore the impact participation in the training had on each type of self-efficacy. Studies located in the literature review did not address this application of general and specific self-efficacy test instrument, but the approach was an experimental application of social cognitivist theory tools for training evaluation.

On a Scale from 0% to 100%, with 0% = NO CONFIDENCE AND 100% = COMPLETE CONFIDENCE, please rate how confident you are in the following activities:

1. I will be able to achieve most of the goals that I have set for myself.
2. When facing difficult tasks, I am certain that I will accomplish them.
3. In general, I think that I can obtain outcomes that are important to me.
4. I believe I can succeed at most any endeavor to which I set my mind.
5. I will be able to successfully overcome many challenges.
6. I am confident that I can perform effectively on many different tasks.
7. Compared to other people, I can do most tasks very well.
8. Even when things are tough, I can perform quite well (Chen et al., 2001).

Figure 16. General self-efficacy scale.

Although theorist diminish the utility of the general self-efficacy construct in theory and practice (Bandura, 1986, 1997; Mischel & Shoda, 1995; Stajkovic & Luthans, 1998), the very criticisms by Bandura that stated that general self-efficacy beliefs “bear little or no relation either to efficacy beliefs related to particular activity domains (specific self-efficacy) or to behavior” (p. 42) spoke to the potential to integrate general self-efficacy findings as a contrast with the anticipated changes in specific self-efficacy and performance attributable to training. The publicly available 8-item general self-efficacy scale (Figure 16) had several advantages, besides the limited number of items; it went through a rigorous process of content, construct, and predictive validity and showed high reliability:

Principal components analyses yielded a single-factor solution for these 8 NGSE items on three occasions ($\alpha = .87, .88, \text{ and } .85$, respectively). The test-retest reliability coefficients for the 8-item NGSE scale were high, $rt1 - t2 = .65$, $rt2 - t3 = .66$, $rt1 - t3 = .62$. Thus, the final 8 NGSE items yielded a scale that is theory based, unidimensional(sic), internally consistent, and stable over time (Chen et al., 2001, p. 69).

Performance Self-Report

This study included the development of a quantitative and qualitative self-report instrument with items to measure perceived changes in workplace performance attributed to LE@D course content. The areas of self-report on workplace performance were based upon the five learning objectives listed in the *Managing Difficult Patrons with Confidence* course; participants were asked to self-report job performance attributed to training participation on final delayed post test survey. Participants were asked to provide information on their individual on-the-job performance or policy development accomplishments to illustrate their transfer of training to the workplace. Participants that served as the on-site library CE e-Training programming coordinator were asked to self-report the completion of the checklist of items needed for minimal management support and programming of e-Training by e-mail acknowledging on-site group discussion and presentation of certificates; participants were also asked to rate their perceptions of management support of training. Since the evaluation of job performance uses a training specific assessment that is directed at measuring the utility of the training content for changing on-the-job performance, it is limited in scope to measuring training specific outcomes and presented as an accountability measure of this specific training. Training transfer is usually defined in terms of the generalization and maintenance of knowledge and skills acquired during training (Baldwin & Ford, 1988; Salas & Cannon-Bowers,

2001). Generalization involves adaptive expertise, the capability to modify knowledge, skills, attitudes, behaviors, and other characteristics acquired during training to effectively meet workplace situations (Schmidt & Bjork, 1992; Smith, Ford & Kozlowski, 1997). A broad range of factors at the individual, team, and organizational levels can influence whether the knowledge, skills and abilities gained from training transfer into changes in work practice. Burke and Hutchins (2007) identified three categories of factors that influence training transfer: learner characteristics, intervention design and delivery, and work environment. Goldstein and Ford (2002) have characterized four primary barriers to the transfer of training that align with Burke and Hutchins categories:

1. Failure to consider trainee's personal characteristics when designing training (learner characteristics)
2. Conducting training in isolation from the job trainees perform (intervention delivery)
3. Failure to consider strategies that may potentially enhance or detract from the trainee's ability to translate new skills into practice (intervention design)
4. Failure to consider the role or aims of the organization (work environment)

Qualitative comments from participants were included in the final delayed post evaluation to identify and clarification potential factors that may have impacted training transfer to on-the-job performance and policy development activities. Participants self-report related training performance and participation on final delayed post test survey. There are limitation when using a subjective self-report of job performance, as self-reports can be biased as a result of staff inflating individual performance ratings (Behrman & Perreault, 1982). To overcome the potential for bias, participants were informed that (a) the submissions would be presented in the aggregate and (b) coded for anonymity to assure test scores, scales, and

questionnaires would not be linked to participant's name or library. A number of studies that have examined the validity and reliability of self-report surveys report that there is a remarkable uniformity between self-reported answers and official records (Blackmore, 1974; Gibson et al., 1970; Voss, 1963). An "accomplishment record" or self-report tool of workplace training execution has traditionally been used for job selection methods (Hough, 1984; Hough, Keyes & Dunnette, 1983; Sackett, Schmitt, Ellingson & Kabin, 2001; Schmidt, Caplan, Bemis, Decuir, Dunn & Antone, 1979; Schmidt & Hunter, 1998), but may also be useful for documentation of training-related performance in core-competency areas²⁴. For the IMPACT study self-report was deemed reliable indicator of training performance and training transfer.

The evaluation was limited in scope to measuring targeted training outcomes and core competencies. To achieve this limitation in scope, the evaluation of job-performance used a training specific assessment that was directed at measuring the utility of the training content for increasing on-the-job performance of training-related tasks. In addition, qualitative data and interview comments collected from participants during the delayed post-test survey provided additional input for clarification of the quantitative data on training transfer, workplace integration and discussion of training materials, and policy development activities attributed to participation in the training.

²⁴ There is a need for more research in the use of self-report as a means to integrate an accomplishment record component within core-competency assessment for e-Training. LE@D Staff had begun integrating a LE@D Development Toolbox™ to address the need for a permanent record of staff training. The Web-based training management application has the potential to keep a record of learning accomplishments aligned with core competencies for both the library staff member's personal records and for accountability for CE certification of LE@D courses.

Overview of Data Collection

This section of the chapter presents the data collection methodology first in tabular format with identified strengths and challenges followed by a summary of the quantitative and qualitative data collection processes. The study followed all University of North Texas Internal Review Board (IRB) guidelines for securing and processing the data and for instrument and scale development (Office of Research Services, 2003). All participants were asked to complete a Web form that was comprised of (a) an IRB-approved information sheet that described the purpose of the study, (b) a delineation of potential risks/benefits they could expect from their participation, and (c) a checkbox for digital signature of acceptance (Appendix E: Scholarship request and IRB form). Table 10²⁵ lists the source of data collection (i.e., survey, e-mail interview, in gray above the specified methods of data collection). Each of the methods of data collection used in this study is listed with corresponding strengths and challenges encountered for each of these tools.

Some general strengths in the quasi-experimental mixed method approach to data collection included (a) utilization of a counterfactual group (equal course content experience, but no intervention), which strengthens the relationships among evaluands and specific variables; (b) operationalization of hypotheses that were statistically tested and then confirmed using qualitative data; and (c) deployment of a the pretest, post-test , delayed post-test design for testing and observation. Using a mixed method approach still posed some general challenges in that (a) the quantitative portion required purchasing and learning of statistical

²⁵ Table 14 was developed from a list of data collection methodologies presented in the School of Library and Information Sciences Seminar in Communication and Use of Information (Schamber, 2004) and definitions of data types used in educational research (Randolph, 2008).

Table 10

Data Types with Strengths and Weaknesses

Method of data collection	Strengths	Challenges
Online Surveys and Exams in Courseware Management System and Survey Monkey		
<p>Survey items-Included both open-ended questions that enabled participants to provide detailed qualitative information to for robust data that was reviewed for awkward wording, omissions or inaccurate data, analyzed for patterns and coded when applicable</p> <p>Knowledge Instrument-Factual knowledge exams addressing course training objectives utilized multiple choice questions with a expert review, a focus group review, a pilot test, and final additional review by a assessment subject matter expert</p> <p>8 item General Self-efficacy scale were freely available and used Lickert-scale rating, ranking</p> <p>8 item specific (task level) self-efficacy scales were aligned with the training learning objectives and core competencies and constructed using a prescribed self-efficacy scale format</p>	<p>Controlled, consistent intervention so data collection was streamlined</p> <p>Was not overly burdensome or invasive and the interface had easy to follow instructions</p> <p>Had an acceptable response rate</p> <p>Zip Code Data was entered by participants and could be cross referenced by town and library to confirmed any inaccurate entries</p> <p>Data on years of service, name, library related degree, job title, IRB information</p>	<p>Instrument and survey items had to go through a rigorous expert evaluation, focus group review, IRB approval, and pilot test which secured content validity, but because of the limited number of participants and large number of survey items, construct validity was not established.</p> <p>Since the survey was not face to face researcher could not confirm the participant was who they said they were and there was no opportunity to clarify any ambiguous responses for the entire population; follow up interviews were used to clarify some results.</p> <p>Researcher did not include drop down entry so all fields had to be entered by hand by participant and all entries required review for inaccuracies and re-entry by hand. Since there was a three month delay for the delayed post tests some e-mail accounts had gone inactive.</p> <p>Delayed post-test and survey required a subscription to Survey Monkey™ and follow-up e-mail and phone calls to request participation from library systems. Many had security programs or e-mail filters that discarded all e-mails messages that contained active links or attachments. Some systems redirected messages where multiple recipients were specified in the BCC (anonymous send field) so every e-mail was required to be sent separately. Since the information was entered by hand several e-mail addresses had to be resubmitted. E-mail technology glitches posed more challenges than initially anticipated. Could not control the response rate.</p>
<i>(table continues)</i>		

Table 10 (continued).		
Method of data collection	Strengths	Challenges
E-mail Interviews to gather additional qualitative data following delayed post-test		
Structured (scripted questions) to solicit unstructured (free discussion) from participants	Collected richly detailed responses Allowed clarification of ambiguous data and additional participant input	Time-consuming for participant and additional data analysis time Some participant were uncomfortable with format for security reasons when they were critical of management or revealed personal information on fears of dealing with disruptive patrons. After three month delayed post-test some respondent recall ability was low. Sample size was limited.
Observation data as facilitator		
Participant (researcher observes as a member of the facilitated sections	Provided holistic view and shared experience with rich observational data on how the instructional design was being operationalized Utilized prior e-Training experience	Very intense processing so many participants, facilitating as a subject matter expert, researching authoritative resources and attending to demands of a multi-phase experiment Difficult to stay unbiased in interactions with participants; may lose some objectivity
Machine-readable source		
Time in course and number of times accessed Zip codes were entered into Goggle maps so that a graphic of each participant could be viewed	Course statistics on time in course and content reviewed were gathered automatically and unobtrusively	Inability to determine why data for three subjects were not recorded for time in course beyond a small technology glitch Inaccuracies in the zip code data entry. Participants sometimes worked in one zip code and lived in another and were confused about which to enter Some students entered the wrong zip codes and required extra time to secure
Unobtrusive sources		
Existing documentation on library size to confirm self-reports of population base of library service area	Data was readily available on the Web at no cost The source for the data was reputable Allowed confirmation of library size	Required additional time to collate and enter manually
<i>Note.</i> Adapted from Schamber (2004) SLIS 6700 class notes and Randolph (2008) definitions of data types used in educational research.		

analysis tools and techniques; (b) the semi-random assignment for pre stratification of large and small libraries required much attention to detail to address controls and semi-random assignment; and (c) even with the mixed method, the study was unable to control for all extraneous or intervening variables.

Summary of Quantitative and Qualitative Data Collection

During enrollment, additional demographic information was collected for LE@D records and maintained in research database and spreadsheets within the following categories: Class Number, Registration Deadline, E-mail Reminders Sent to Participants, Number Enrolled in Course Sections, Generated Student Identification Number, Last Name, First Name, Phone, E-mail, Library System, Library Branch Name, Library Type (to verify U.S. public library status), Size of the Library, Years of Experience, Position, Address, City, State, Zip, Desire for CE Credit.

All personal information was removed from data to comply with Internal Review Board requirements and to preserve participant anonymity. To assess the correlation between course instructional intervention level (L1, L2A, L2B, L3) for each of the two types of libraries (small and large) and the students content mastery, self-efficacy, and training transfer, a series of analyses were calculated using the SPSS 16.0™ (2007) and EZAnalyze (Poyton, 2007) Microsoft Excel™ 2007 Addin statistical analysis tool for educators. A delayed posttest questionnaire was administered three months following completion of the training to gather additional qualitative data and feedback on the learning experience and learning context, including (a) self-report of course content-related job performance, (b) perceptions of management support, and (c) specific interactive training elements. Courseware management system automatically

collected detailed log files on participants and facilitator's online interactivity and communications that supplemented the qualitative information collected on the final survey. The delayed post survey included open-ended questions on content-related job performance. The delayed post survey was a Web-based form administered through a secure commercial survey hosting service. The form automated collection of the data in tabular format, but the coded assessment of open-ended questions required manual entry and validation. The researcher:

1. Summarized data on a coded master sheet.
2. Determined any missing questions and decide what to do with the record.
3. Obtained verification of data master sheet coding for consistency through the Center for Teaching, Learning, and Assessment statistician.
4. Reviewed the data for any mistakes.
5. Calculated job-performance measures/indicators.
6. Created relevant frequency distributions tables.
7. Statistically analyzed data to test hypotheses on associations between variables.

The post hoc data analysis was conducted around the following variables: (a) size of library; (b) level of implementation of the lesson i.e., L1, L2A, L2B, and L3; (c) content mastery as measured by 20 item pretest, posttest, and delayed posttest; and (d) level of participant's learning involvement as measured by time on task, viewed content pages, and discussion postings activity. Analysis of variance was conducted for size of library (S_z) and level of instructional intervention (1, 2A, 2B, 3) as independent variables and content mastery (pretest, posttest, and delayed posttest gain scores), completion and number of participants, self-efficacy scales, on-the-job behavior and learning outcomes application, and each measure of

learning involvement as dependent variables. The survey results were coded and analyzed to answer the research questions. The Evidence-based impact evaluation and comparative effectiveness assessment methods were built upon learning and evaluation theories; methods from the medical and education program evaluation communities; expertise of University of North Texas Center for Teaching, Learning, and Assessment (CTLA) staff statisticians and investigators; and the knowledge of LE@D personnel in the collection and analysis of the data.

Restatement of the Research Questions with Operationalized Hypotheses

A theoretically sound conceptual framework sounds like something "The Music Man" would sell to the good people of River City to keep their children out of pool halls. Conceptualizing an evaluation framework doesn't require some grandiose and theoretical posture or a voluminous and vortiginous vocabulary. That grand old evaluation savant Rudyard Kipling offered all the conceptual framework one needs I keep six honest serving men; They taught me all I knew: Their names are What and Why and When and How and Where and Who (Patton, 2008, p. 394).

Hypotheses testing in a quasi-experiment involves a statement based on theory or previous research followed by experimentation and data analysis (Randolph, 2008). To streamline presentation of the hypotheses since both qualitative and quantitative data analysis methodologies were used to answer the research questions, the specific approaches to answering each of the research questions (and associated operationalized hypotheses) are listed below. The hypotheses, which were delineated in Chapter 1, are included with the data analysis listed below to streamline presentation of data analysis strategies. The study was structured around the research questions and the associated instruments and data that answered each of the research questions and hypotheses.

Knowledge Assessment

Research Question 1 (RQ1) Knowledge Assessment: Do all levels of instructional intervention of e-Training impact knowledge acquisition of learning objectives equally and is Web-based training equally effective for both short- and long-term knowledge acquisition at all levels of instructional intervention?

RQ1-1. On-site, face-to-face management programming of e-Training does not impact knowledge acquisition.

RQ1-2. Outsourced online course facilitation with use of in-course communication tools does not impact knowledge acquisition.

RQ1-3. There will be no significant short-term gain as measured by the scores of knowledge assessment post-test data over the pre-test data ($T_2 - T_1$) at all levels of implementation (L1, L2A, L2B, L3).

RQ1-4. There will be no significant long-term gain as measured by the scores of knowledge assessment delayed post-test data over the pre-test data ($T_3 - T_1$) for library participants at all levels of implementation (L1, L2A, L2B, L3).

RQ1-5. There will be no significant long term loss as measured by the knowledge assessment delayed post-test scores over the post-test ($T_3 - T_2$) at all levels of implementation (L1, L2A, L2B, L3).

Knowledge Acquisition analysis included quantitative analysis of the pre, post, and delayed post-test data (Mean, Sd) correlated with levels of instructional intervention and t-test for comparative data. Measuring for significant difference in knowledge acquisition required analysis of:

1. Pre-test data at all levels of implementation (L1, L2A, L2B, and L3)
2. Post-test data at all levels of implementation (L1, L2A, L2B, and L3)
3. Delayed post-test data at all levels of implementation (L1, L2A, L2B, and L3)

Measures of significant difference in long-term scores included:

1. Short-term gain as measured by the scores of post-test data over the pre-test data ($T_2 - T_1$) at all levels of implementation (L1, L2A, L2B, L3)

2. Long-term gain as measured by the scores of delayed post-test data over the post-test data ($T_3 - T_1$) at all levels of implementation (L1, L2A, L2B, and L3)
3. Long-term loss as measured by the post-test and delayed post-test scores ($T_3 - T_2$) at all levels of implementation (L1, L2A, L2B, and L3)

Quantitative Analysis of the pre, post, and delayed post-test data (Mean, Sd) were correlated with other participant characteristics in relation to level of intervention and t-test scores to further investigate this hypotheses.

Self-Efficacy Scales Short- and Long-Term

Research Question 2 (RQ2) Self-efficacy Scales Short- and Long-Term: Do all levels of instructional intervention of e-Training impact self-efficacy equally and is Web-based training equally effective for both short- and long-term general and specific self-efficacy at all level of instructional intervention?

RQ2-1. On-site, face-to-face management programming of e-Training does not impact general or specific self-efficacy.

RQ2-2. Outsourced online course facilitation and use of in-course communication tools do not impact general or specific self-efficacy.

RQ2-3. There will be no significant short-term gain as measured by the self-efficacy scale post-test data over the pre-test data ($T_2 - T_1$) at all levels of implementation (L1, L2A, L2B, L3).

RQ2-4. There will be no significant long-term gain as measured by the self-efficacy scale delayed post-test data over the pre-test data ($T_3 - T_1$) for library participants at all levels of implementation (L1, L2A, L2B, L3).

RQ2-5. There will be no significant long term loss as measured by the self-efficacy scale delayed post-test data over the post-test ($T_3 - T_2$) at all levels of implementation (L1, L2A, L2B, L3).

Self-efficacy scales analysis involved quantitative analysis of the pre, post, and delayed post-test self-efficacy ratings correlated with level of instructional intervention of e-Training. Measuring for significant difference in self-efficacy required analysis of:

1. Pre-test (T_1) data at all levels of implementation (L1, L2A, L2B, and L3)
2. Post-test (T_2) data at all levels of implementation (L1, L2A, L2B, and L3)
3. Delayed post-test (T_3) data at all levels of implementation (L1, L2A, L2B, and L3)

Self-efficacy analysis included quantitative analysis of the pre, post, and delayed post-test data (Mean, Sd) correlated with levels of instructional intervention and t-test for comparative data.

1. Short-term gain as measured by the scores of post-test data over the pre-test data ($T_2 - T_1$) at all levels of implementation (L1, L2A, L2B, and L3)
2. Long-term gain as measured by the scores of delayed post-test data over the post-test data ($T_3 - T_1$) at all levels of implementation (L1, L2A, L2B, and L3)
3. Long-term loss as measured by the post-test and delayed post-test scores ($T_3 - T_2$) at all levels of implementation (L1, L2A, L2B, and L3)

Practices On-the-Job

Research Question 3 (RQ3) Practices On-the-Job: Do all levels of instructional intervention of e-Training impact participant's work practices equally?

Null hypotheses for Research Question 3 (RQ3) regarding on-the-job performance are:

RQ3-1. On-site, face-to-face management programming of e-Training does not impact participant work practices.

RQ3-2. Outsourced online course facilitation and use of in-course communication tools do not impact participant work practices.

Participant work practices were comparatively analyzed by level. Qualitative responses (data and descriptive statistics from the delayed post-test and survey) were analyzed and additional delayed post-test questionnaire open-ended questions were coded and correlated with instructional intervention levels to assess:

1. Self-professed changes in how they respond to difficult patron situation that were attributed to participation in e-Training course
2. Self-professed performance of training related tasking to update (review, revise, and/or write) library policy and procedures manual for addressing difficult patron situations

Learning Involvement and Attrition Rates

Research Question 4 (RQ4) Learning Involvement and Attrition Rates Can the levels of instructional intervention impact amount of learning involvement as measured by the participation statistics generated by courseware management system and the attrition rates for each level?

Null hypotheses for Research Question 4 (RQ4) regarding learning involvement and attrition rates are:

RQ4-1. There will be no significant difference in amount of learning involvement from participant as measured by courseware management system statistics for participants among each of the four levels of implementation (L1, L2A, L2B, and L3).

RQ4-2. There will be no significant difference in attrition rates among all levels of implementation (L1, L2A, L2B, L3) as measured by number of participants that complete all three phases of the study.

The hypotheses for Research Question 4 (RQ4) regarding learning involvement and attrition rates required analysis for variations in:

1. Amount of learning involvement from participant as measured by time in course statistics for participants at each of the four levels of implementation (L1, L2A, L2B, and L3)
2. Attrition rates among all levels of implementation (L1, L2A, L2B, L3) as measured by number of participants that complete all three phases of the study.

ANOVA was conducted for each level of instructional intervention (among all 4 levels) and correlation matrix was analyzed for statistical significance.

Library Size

Research Question 5 (RQ5) Library Size Does size of the library system impact knowledge acquisition, self-efficacy, participant work practices, or attrition rates?

Null hypotheses for Research Question 5 (RQ5) regarding library size are:

RQ5-1. There will be no significant difference in knowledge acquisition between participants from large and small libraries.

RQ5-2. There will be no significant difference in self-efficacy between participants from large and small libraries.

RQ5-3. There will be no significant difference in training related work practices between participants from large and small libraries.

RQ5-4. There will be no significant difference in attrition rates between participants from large and small libraries.

Library size analysis involved comparisons of responses of small libraries against those of large libraries and measured for significant differences:

1. Measuring for significant difference in each instrument as measured by the t-test scores of small library data against large library data for pre, post, and delayed post-test scores and completion rates
2. Self-professed changes in work practices attributed to training participation.

Hypothesis testing

In hypothesis testing one creates a testable, a priori hypothesis.... For example, a researcher might posit from theory or previous research that the method of instruction is more important than the medium of instruction in terms of student academic achievement. The researcher would then conduct an experiment in which evidence could be gathered that would either support or discredit that hypothesis (Randolph, 2008, p. 36).

The criterion for rejecting the null hypothesis was set at an alpha (α) level of 0.05, as this is the convention used to determine statistical significance and the criterion used for rejecting the null hypothesis. The significance level is used in hypothesis testing as follows: First, the difference between the results of the experiment and the null hypothesis is determined. Then,

assuming the null hypothesis is true, the probability of a difference between the independent variable being investigated (e.g. small and large libraries) is computed. Finally, this probability is compared to the significance level. If the probability is less than or equal to the significance level, then the null hypothesis is rejected and the outcome is said to be statistically significant.

Data Analysis

The pre-test (T_1) self-efficacy and knowledge acquisition scores for all of the four treatments in large and small libraries were observed by library size to see if there are any differences. The same was done for knowledge acquisition scores to investigate if there was significant difference in the scores based on library size. This was used to determine if participants from larger libraries would have more self-efficacy in the topic area and be more knowledgeable. The same pre-test examination of scores was done based upon years of service and library degree and non-degree.

To analyze the changes over time of dependent test variables for knowledge acquisition and self-efficacy, ANOVA was used within levels (e.g. pre, post, and delayed post) and then comparatively between levels (L1, L2A, L2B, and 3). The mean movement over three testing periods and the mean of means for each treatment were calculated to show the changes in knowledge and self-efficacy mean values over the three testing phases for each of the four treatments. Pair-wise comparison, comparison between two group means, of the various treatments was also conducted using L1 as a comparison group.

Multiple Treatment Analysis with Comparison Group

Multiple treatment models are models with multiple groups wherein the relationship among groups is such that each test group is selected from the same population and uses the same comparison or control within the study, but all test groups are given a different treatment or combination of treatments. This design allows testing on more than one experimental intervention at the same time. To facilitate understanding of the design or the multiple treatment group it is important to remember one group acts as an Evidence-based, "impact" comparison group, a counterfactual group that shares the same contextual variables but does not receive the intervention(s) under study. The comparison group strengthens the discernment of a stronger causal relationship between the intervention and the measured outcomes and indicators. The Level 3 group was a dual intervention in the multiple treatment model as it uses both treatments, i.e. outsourced online facilitation and library administrator training support, but Level 2A and 2B received only one of these interventions respectively. Level 1 received neither on-site programming nor outsourced online facilitation, but participated in the same multimedia training content as all other levels. Level 1 was the comparison group in this design.

Synopsis of Procedures and Research Design Scope

The study was limited to participants who were employed at U.S. public libraries that have not previously enrolled in LE@D CE courses. The study examined learning outcomes for knowledge acquisition as measured by an online, twenty-question assessment tool administered at the pre, post and delayed post phase. The study also administered a scale to

longitudinally measure general and task level self-efficacy of participants in course content related job performance. The study examines the impact of training on two classes of self-efficacy variables: (a) domain-specific measures of self-efficacy for executing tasks related to managing difficult patrons and creating patron policy and (b) general self-efficacy measures of participant's beliefs in themselves as efficacious persons in general life situations. Finally, the study investigated if the training influenced on-the-job performance of managing difficult patrons and policy development tasks. The study included qualitative data on training transfer captured in open-ended survey questions.

In the IMPACT study, the courseware management system required authenticated login through the Web and data was correlated to the participant, but self-report and e-mail address confirmation was the primary means of distributing training information and establishing that the participant was who they claimed to be. In this study, course availability was restricted to approximately fourteen days for each session, with exclusion of national holidays, specifically the Thursday and Friday for the Thanksgiving holiday weekend.

The Web-based course materials were developed within a Learning Management System platform by LE@D instructional designers. The selection of the course was based on its popularity, longevity, and prior amenability to research. The course was the single most requested topic in a survey conducted by LE@D, the course was the first developed by LE@D, and the course was used in prior research studies (Pre-proposal Meeting, October 25, 2007).

Although participants in this study did not have prior LE@D training or take the LE@D *Managing Difficult Patrons with Confidence* course through the WebJunction interface, some participants did have previous e-Training experiences and/or participated in other customer

service training, which was documented in the study. The delivery system was limited to the LE@D courseware management system e-Training platform, with variations in the course communication tools within an asynchronous learning environment; synchronous communication tools like Chat and Live Blackboard were not utilized. The study focused on evaluating variations in impact at four levels of asynchronous e-Training implementation because of the extensive use and availability of asynchronous staff training.

Summary

This chapter presented the evaluation model, research methods, and procedures used in the IMPACT research project, including discussion of the study's mixed method, quasi-experimental evaluative research design framework. The chapter topics include description of the learning content; review of participant qualifications and sampling methodology; general discussion of the evidence-based impact evaluation model; overview of quasi-research design issues and mixed method approach in research design; delineation of IMPACT data collection procedures, including assessment and survey instruments; and presentation of the data analysis techniques for the research questions and hypotheses testing.

The chapter discussed the utility of an evidence-based impact evaluation model, a model often utilized in medical and social program settings, which was incorporated in this study to comparatively evaluate short- and long-term outcomes of e-Training instructional interventions. The chapter discussed the four levels of e-Training instructional intervention used in the asynchronous deliver of the LE@D *Managing Difficult Patrons with Confidence* CE e-Training course. The chapter explained the instruments and data analysis that were used to

investigate the relationships between the type of instructional interventions and impacts on public library staff CE e-Training participants' knowledge, self-efficacy, and performance in the workplace. The next chapter presents the results of the IMPACT study organized by the research questions.

CHAPTER 4

DATA RESULTS

[Evaluation] is neither the defense desired by some, nor the attack sought by others. It is an effort to produce a candid assessment rooted in extensive data collection, supplemented by past research and years of personal experience in the field. The aim is to let the data speak for themselves and to allow the chips to fall where they may.

Levine

This e-Training evaluation explored relationships between instructional intervention levels and participants' short- and long-term: (a) knowledge assessment (K) scores, (b) specific (SSE) and general (GSE) self-efficacy scales, and (c) learning transfer to workplace performance (P). Chapter 4 presents the results of the statistical analyses that were used to address the study's research questions. The data results are divided into three main sections:

1. Preliminary data screening techniques
2. Analyses for knowledge assessment instrument and self-efficacy scales
3. Results in tabular format organized around each research question

The results included both quantitative descriptive statistics identifying correlations among the variables and integrating additional qualitative data where indicated. Table 11 encapsulates the sources and rationale for the data collection for the study, including the purpose of the study, sources of data on training, and additional data that was collected on the participants and the library organization.

The presentation of the findings around the data related to the individual research questions follows Greene and Caracelli (2003) recommendations that research results should not be presently strictly by the type of research methodology, qualitative or quantitative, but

Table 11

Overview of IMPACT Study's Key Features

IMPACT Study's Key Features
Purpose of the Study
Provide data on e-Training lesson's impact on short- and long-term gains in knowledge and self-efficacy (generalized and specific)
Determine impact of e-Training on workplace performance based upon self-report of training related performance and on-the-job practices attributed to training
Provide information on how variations in instructional interventions (specifically varying levels of implementation through in-course facilitation and/or management programming) impacted learning & performance
Sources of Data on Training
Quantitative data
Pre-test, post-test, and delayed post-tests
Knowledge assessment
Self-efficacy scales (General Self-efficacy & Specific Self-efficacy)
Lickert-scale survey questions related to use of training
Participation statistics from the Courseware Management System (Time and Postings)
Performance related questions (self-report of on-the-job use of training and policy development status)
Qualitative data
Open-ended questionnaire
Facilitator notes (exceptions/perceptions)
Additional feedback in e-mail correspondence and interviews
Additional Data About Participants and Libraries
Sample (number of participants)
Data collected about participants
Previous e-Learning experience
Master's degree obtained in Library or Information Science
Number of years of library work experience
Size of library
Group assignment (purposive, with random element)

organized by the research questions in order to facilitate confirmation or triangulation of the data. The sections are divided by the key assessment instruments that were used to gather data for each comparative evaluative research question: (a) knowledge assessment, (b) self-efficacy, (c) training performance and workplace practice, and (d) additional measurements of confounding variables (e.g., previous e-Learning experience, master's degree obtained in Library and Information Sciences, number of years of library work experience, and size of

library). The hypotheses for each research question and related findings are presented with applicable data within each section. The last chapter, Chapter 5, elaborates on key data presented in this chapter and includes discussion of findings, research recommendations, and potential research agenda items based on the theoretical implications of the results presented in this chapter.

Data Screening

Prior to full analysis, data were examined for accuracy of data entry and missing values. First, the minimum and maximum values, means, and standard deviations of each survey item were inspected for plausibility (Tabachnick & Fidell, 2007). All values were deemed reasonable. Next, the quantity and patterns of missing data were analyzed. According to Tabachnick and Fidell (2007), if missing data represent less than 5% of the total and is missing in a random pattern from a large data set, “almost any procedure for handling missing values yields similar results” (p. 63). Of the 386 participants that began the study (i.e. there is record of password access to the course), 193 completed all three phases of the study and were eligible for inclusion as employees in public libraries. All phases of the assessment data was collected online. Because of limitation in the survey tool, surveys without all questions completed were not saved to the online databases. Those participants that did not complete all sections of the delayed post-test assessment were not able to submit their responses to the study; so there was very little missing data. All data from the final 193 respondents is accounted for except seven cases where the course timer information (*total time in course*) is not recorded. These students were provided authenticated access to the course and completed assessments within

the course, but for some technological reason the courseware did not collect their timer information, (3.61% of the total sample had missing values on this particular variable and there was no perceived pattern to the omission in regard to the section, participants' library, etc.). Ultimately, because removal of, at most, seven cases represents less than 5% of the total sample, listwise deletion of these cases was used for all subsequent analyses of "time in course" variable (Schafer & Graham, 2002; Tabachnick & Fidell, 2007). Listwise deletion in SPSS and other statistical analysis tools will not include participants that have missing values on the variable(s) under analysis. When correlating multiple variables, then listwise deletion removes participants if there is a missing value on any of the variables under analysis, in this case the "time in course." Otherwise these participants are treated normally in other analyses.

Validity, Reliability, and Objectivity

The Great Triad consists of (1) validity, 'Does the instrument measure what it says it measures?'; (2) reliability, 'Does the instrument measure accurately and consistently?'; and (3) objectivity, 'Is the instrument immune to the personal attitudes and opinions of the researcher?' (Yount, 2006, Section 8 p.7).

Validity pertains to whether a test measures what it is intended to measure. Validity of a test instrument refers to the "appropriateness, meaningfulness, and usefulness of the specific inferences made from test scores" (American Educational Research Association, American Psychological Association, and National Council on Measurement in Education, 1985, p. 9). In instrument development, there are primarily three types of validity: content, criterion, and construct (Litwin, 1995): Content involves a review of the instrument by subject matter experts without the use of quantifiable statistics to determine if the items actually measure learning of the content of the course (Litwin, 1995). Tests which ask questions over material not covered

by learning objectives violate content validity. Criterion validity is calculated as a correlation coefficient between the test instrument in question and another test instrument (for concurrent validity) and outcomes (for predictive validity). Construct validity is a measure of a survey instrument's usefulness or meaningfulness of fit for a practical application, but is difficult to achieve (Litwin, 1995). The literature does not provide an established standard for the minimum number of participants to establish construct validity (MacCallum, Widaman, Zhang & Hong, 1999). In fact the literature often conflicts on the numbers that are proposed. Osborne and Costello (2005) proposes that even with a twenty participants per initial survey item the error rates are well above the standard (where alpha = .05 level). Comfrey and Lee (1992) suggest general guidelines that "the adequacy of sample size might be evaluated very roughly on the following scale: 50 – very poor; 100 – poor; 200 – fair; 300 – good; 500 – very good; 1000 or more – excellent" (p. 217). The number of survey items exceeded 35 questions. Based on this recommendation, the study did not meet the minimum number of participants that were needed "to achieve adequate statistical power and precision of parameter estimates in a CFA study" (Brown, 2006, p. 412). Thus, the sample size of 189 cases was deemed inadequate for the confirmatory factor analysis and assessment of construct validity.

For this study the test instruments were created and validated used content validity (review for representativeness of course materials) and face validity. The review process for content and face validity involves a "validation panel" of a half-dozen experts in the field of study for the instrument under development. The panel judges the clarity and meaningfulness of each of the questions or test items. Thus, to the limited number of participants and the scope of the study, content and face validity were used for the Knowledge Assessment

instrument and the Specific Self-efficacy Scale. The General Self-efficacy instrument that was used had established construct, criterion, and predictive validity; developers state that the 8-item New General Self-efficacy Scale was "theory based, unidimensional(sic), internally consistent, and stable over time" (Chen et al., 2001, p. 69). In addition, the NGSE reliability results under stringent testing conditions of thousands of participants delivered Cronbach alpha scores of .85 or greater on three separate occasions.

Reliability pertains to the reproducibility or consistency of data, results, and outcomes produced by an evaluation method. As explained by Guilford, "The reliability of any set of measurements is logically defined as the proportion of their variance that is true variance... We think of the total variance of a set of measures as being made up of two kinds of variance: true variance and error variance... The true measure is assumed to be the genuine value of whatever is being measured" (Guilford, 1965, p. 488). Thus, reliability is a ratio of true variance to observed variance used to measure relative reproducibility of results. The most popular estimator of raw-score reliability is the Kuder-Richardson 20 (KR-20), which is a special case of Cronbach's Alpha. KR-20 is an index of the repeatability of raw scores with the focus being whether the test produced repeatable measures for a given sample. There are three types of test reliability: correlation coefficients of stability, internal consistency, and equivalence. Reliability coefficients vary from 0.00 to +1.00 (no reliability to perfect reliability). Generally a coefficient of 0.80 or higher is considered an indicator of reliability, but a coefficient of 0.60 or higher on a 20-item test may be considered an acceptable level of reliability for research purposes.

Rational equivalence coefficients statistical formulas were used in the IMPACT study to

compare internal reliability statistics for the knowledge test. There are a number of statistical formulas for quantitatively estimating the coefficients of reliability of an exam. The Kuder-Richardson formula 20 (KR20) calculates a reliability coefficient based on the number of test items (k), the proportion of the responses to an item that are correct (p), the proportion of responses that are incorrect (q), and the variance (σ^2). Kuder-Richardson formulas (KR 20 and KR 21) are used to estimate reliabilities when items are scored dichotomously (e.g., correct or incorrect). (Note that Cronbach's alpha is used when items are not scored dichotomously, but are scaled or ordinal, which was the case for the self-efficacy scales, which follow.) The scores for the assessment of knowledge were coded dichotomously and KR 20 was used because questions were considered equally difficult. (KR 21 is thought to be a better formula for items that vary in difficulty.) For this study the pre-test received a KR20 score of .6522, which is below optimum levels, but a starting point for investigating public library policy and procedures competency-based assessment.

Table 12

Knowledge Assessment Pre-test (T₁) Reliability Calculator

Mean for Test	87.59
Standard Deviation for Test	7.05
KR21	0.6820
KR20	0.6522
	<u>Questions</u>
	20
	<u>Subjects</u>
	318

Delayed Post-test GE Reliability Calculator

Cronbach's alpha is a coefficient (a number between 0 and 1) that is used to rate the reliability of an instrument. It is also referred to as an alpha coefficient. Just like the KR20 formula this computes internal reliability and consistency. The only difference between the two

measures is that Kruder-Richardson formulas are used for dichotomous data and the Cronbach's alpha is used for ordinal and continuous data that is found on scales. The reliability of the General Self-efficacy scale was extremely high Cronbach's Alpha .96 (Table 13), which was expected since the instrument has been established as a reliable tool (Chen et al., 2001) and the Specific Self-efficacy scale Cronbach's Alpha .83 (Table 14) was also relatively strong considering that the instrument was newly created based upon the course learning objectives.

Table 13

Delayed General SE Post-test Reliability Calculator

Cronbach's Alpha	0.9652934
Split-Half (odd-even) Correlation	0.90563523
Spearman-Brown Prophecy	0.9504812
Mean for Test	91.968628375
Standard Deviation for Test	5.90217286
Questions	Subjects
8	257

Table 14

Delayed Specific SE Post-test Reliability Calculator

Cronbach's Alpha	0.83352025
Split-Half (odd-even) Correlation	0.67429862
Spearman-Brown Prophecy	0.80546996
Mean for Test	89.43774325
Standard Deviation for Test	7.3173698
Questions	Subjects
8	257

Objectivity in educational evaluation is the extent to which the test instrument or any assessment measures is not biased by the evaluative researcher or the evaluation process. A bias occurs in a test instrument when the results indicate an unfair advantage or disadvantage based on group affiliation or participant ethnographic characteristics. To insure objectivity for

this study the methods and instruments were made transparent to the stakeholders. In addition, the study documented a detailed record of successes and failures in the evaluation process. Finally, the assessment criteria for all instruments were derived from the core certification requirements and learning objectives for the course. In competency-based assessment, the core competencies create a shared mental model of the learning and working environment that enables the stakeholders in the learning environment to share a vision of the objectives and outcomes from the learning processes and evaluate progress toward these goals. Mental models are the mental structures researchers use to “understand systems and solve problems arising from the way systems work” (Winn & Snyder, 1996, p. 123). Shared mental models of the learning environment facilitate objectivity in evaluation and open the dialog with stakeholders on potential limitations of the learning system, the underlying values, or misconceptions that may drive the evaluation.

Review of Research Questions and Hypotheses

Evaluating the impact of each level of instructional intervention using comparative evaluation of scores, ratings, and results among the various levels informed our understanding of the relative effectiveness of each level and efficiency of using higher (more costly) levels of instructional intervention. As discussed previously, this section is structured around the research questions and the instruments and data that answer each of the research questions. The research questions and related hypotheses are organized by assessment instruments. Because of the amount of data, a series of data tables presents scores from each instrument (i.e. scores the knowledge assessment tool, ratings from the self-efficacy scales, and results of

training performance and workplace practices self-report questionnaire). The section includes a restatement of the research question and associated hypotheses quoted from Chapter 1 and a review of the results for the hypotheses for each research question based upon the data results and any qualitative data that may inform the discussion of the data analysis.

Results for Knowledge Assessment

Results for Research Questions 1 (RQ1) answered the question: *Do all levels of instructional intervention of e-Training impact knowledge acquisition of learning objectives equally both short- and long-term?*

The null hypotheses for RQ1 were:

1. Online, outsourced course facilitation with use of in-course communication tools does not impact knowledge acquisition.
2. Management programming with face-to-face integration of e-Training does not impact knowledge acquisition.
3. There will be no significant short-term gain as measured by the scores of post-test data over the pre-test data (T2- T1) at all levels of implementation (L1, L2A, L2B, L3).
4. There will be no significant long-term gain as measured by the scores of delayed post-test data over the pre-test data (T3-T1) for library participants at all levels of implementation (L1, L2A, L2B, L3).
5. There will be no significant long term loss as measured by the delayed post-test scores over the post-test (T3-T2) at all levels of implementation (L1, L2A, L2B, L3).

Knowledge Acquisition was measured overall (using ANOVA) and then by each level (with paired t-tests): Quantitative Analysis of the pre, post, and delayed post-test data (Mean, Sd) correlated with levels of instructional intervention. The following steps were used to determine significant difference in knowledge acquisition by level required analysis of each time interval:

1. Pre-test (T_1) data for all levels of implementation (L1, L2A, L2B, and L3).
2. Post-test data (T_2) for all levels of implementation (L1, L2A, L2B, and L3).
3. Delayed post-test data for all levels of implementation (L1, L2A, L2B, and L3).

This was followed by paired t -tests measuring for significant long term difference in scores:

1. Short-term gain as measured by the scores of post-test data over the pre-test data ($T_2 - T_1$) for all levels of implementation (L1, L2A, L2B, L3).
2. Long-term gain as measured by the scores of delayed post-test data over the post-test data ($T_3 - T_1$) at all levels of implementation (L1, L2A, L2B, and L3).
3. Long-term loss as measured by the post-test and delayed post-test scores ($T_3 - T_2$) at all levels of implementation (L1, L2A, L2B, and L3).

To investigate the impact of the levels of instructional intervention on knowledge acquisition of learning objectives, results were first obtained using an ANOVA on all levels for the pre-test, post-test, and delayed post-test at all levels of instructional intervention and then investigations of significant short-term gain in scores (pre to post-test gain), significant long-term gain in scores (pre to delayed post gain), and significant long-term loss (post to delayed post loss) by level using paired t -tests. The analysis of variance test is an extension of the t -test, but does not give directional indicators of the significance. A t -test is often used when comparing two populations or paired pre and post exams for before and after scores "in order to assess progress" (Berman, 2002, p. 105). Analysis of variance tests are used when comparing more than two populations or exams to determine the similarity or difference among means of scores of the sampled populations. The key value obtained is called an F -statistic, and since it is derived from a square it is in its absolute value form. Absolute values do not provide directional information (gains or losses). The basic premise is that the smaller the value (of the variance), the more similar are the samples. Other important values include the F -critical value, which is

comparable to the t -critical value in the t -test, and the P-value, which is interpreted the same as the t -test p -value.

Table 15

Repeated Measures ANOVA for Knowledge

Assessment All Levels						
Repeated Measures ANOVA Variables						
	T ₁ KA	T ₂ KA	T ₃ KA			
N Valid:	193	193	193			
N Missing:	0	0	0			
Mean:	17.585	18.927	18.326			
Std. Dev:	1.416	1.512	1.316			
ANOVA Table						
Source of Variance	SS	DF	MS	F		
Factor A	174.415	2.000	87.207	75.835		
Factor S	714.674	192.000	3.722			
A x S	441.585	384.000	1.150			
Total	1330.674	578.000				
	P	.000				
	Eta Squared	.283				
Case Processing Summary - N removed due to missing data						
N Removed	.000					
The ANOVA results indicate that at least two of the repeated measures differed significantly						
Post Hoc tests	Comparison	Mean Difference	T-Value	P - Unadjusted	P - Bonferroni	ta
T ₁ KA	T ₁ KA & T ₂ KA	1.342	11.536	.000	.000	08
	T ₁ KA & T ₃ KA	.741	7.307	.000	.000	17
T ₂ KA	T ₂ KA & T ₃ KA	.601	5.502	.000	.000	6

Since the ANOVA does not indicate direction of significance because it identifies absolute differences in the means of the assessments, paired t -tests are used to examine the direction of

differences between paired assessments. Since there was no significant difference in size of library on the pre-tests, a one-way ANOVA (includes just one classification variable-Training level assignment) where groups differ by type of training received was used (Table 15). Paired t-tests are provided in table format for before and after results and graphs to depict the similarity or difference between the test means. The paired t-test was used to test the null hypotheses that the difference between the pre-test and post or delayed post-test is zero. The t-critical value (two-tail) is calculated with an alpha level of 0.05 (which represents 5% on either side of 2 standard deviations from the mean). If the *t*-statistic is greater than this number, one rejects the null hypothesis (that the two samples are the same), and indicates that there is a statistically significant difference between the two samples. Knowledge Assessment data is presented below first for all levels and then each level individually.

When testing for all levels without differentiating the instructional intervention (Table 16) there was significant difference in knowledge gains and losses. Further investigation by level indicated if this trend was seen equally by all levels of instructional intervention (Tables 17-20).

Table 16

Knowledge Gains and Losses for All Levels

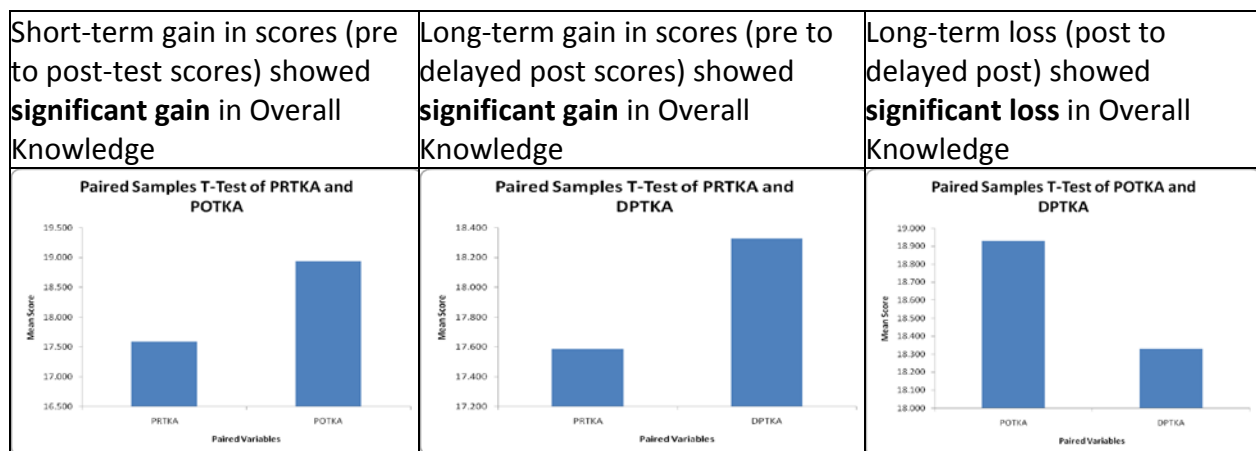


Table 18

Knowledge Gains and Losses Level 2A

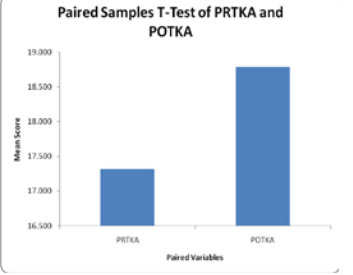
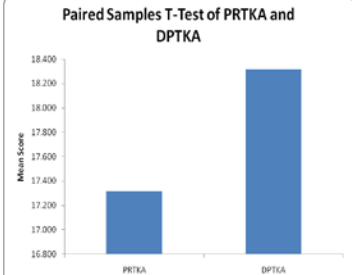
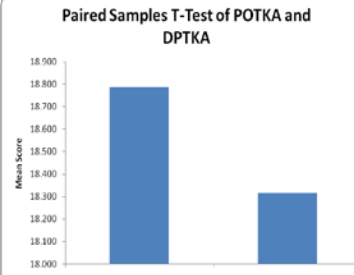
<p>Short-term gain in scores (pre to post-test scores) showed significant gain for Level 2A</p>	<p>Long-term gain in scores (pre to delayed post scores) showed significant gain for Level 2A</p>	<p>Long-term loss (post to delayed post) showed significant loss for Level 2A, but it was the least of all groups</p>																																																																																										
																																																																																												
<table border="0"> <tr> <td></td> <td>T₁KA</td> <td>T₂KA</td> </tr> <tr> <td>Mean:</td> <td>17.314</td> <td>18.784</td> </tr> <tr> <td>Std. Dev.</td> <td>1.643</td> <td>1.254</td> </tr> <tr> <td>N Pairs:</td> <td>51</td> <td></td> </tr> <tr> <td>Mean</td> <td></td> <td></td> </tr> <tr> <td>Difference</td> <td>-1.471</td> <td></td> </tr> <tr> <td>SE of Diff.:</td> <td>.225</td> <td></td> </tr> <tr> <td>Eta Squared:</td> <td>.457</td> <td></td> </tr> <tr> <td>T-Score:</td> <td>6.546</td> <td></td> </tr> <tr> <td>P:</td> <td>.000</td> <td></td> </tr> </table>		T ₁ KA	T ₂ KA	Mean:	17.314	18.784	Std. Dev.	1.643	1.254	N Pairs:	51		Mean			Difference	-1.471		SE of Diff.:	.225		Eta Squared:	.457		T-Score:	6.546		P:	.000		<table border="0"> <tr> <td></td> <td>T₁KA</td> <td>T₃KA</td> </tr> <tr> <td>Mean:</td> <td>17.314</td> <td>18.314</td> </tr> <tr> <td>Std. Dev.:</td> <td>1.643</td> <td>1.257</td> </tr> <tr> <td>N Pairs:</td> <td>51</td> <td></td> </tr> <tr> <td>Mean</td> <td></td> <td></td> </tr> <tr> <td>Difference:</td> <td>-1.000</td> <td></td> </tr> <tr> <td>SE of Diff.:</td> <td>.204</td> <td></td> </tr> <tr> <td>Eta Squared:</td> <td>.321</td> <td></td> </tr> <tr> <td>T-Score:</td> <td>4.905</td> <td></td> </tr> <tr> <td>P:</td> <td>.000</td> <td></td> </tr> </table>		T ₁ KA	T ₃ KA	Mean:	17.314	18.314	Std. Dev.:	1.643	1.257	N Pairs:	51		Mean			Difference:	-1.000		SE of Diff.:	.204		Eta Squared:	.321		T-Score:	4.905		P:	.000		<table border="0"> <tr> <td></td> <td>T₂KA</td> <td>T₃KA</td> </tr> <tr> <td>Mean:</td> <td>18.784</td> <td>18.314</td> </tr> <tr> <td>Std. Dev.:</td> <td>1.254</td> <td>1.257</td> </tr> <tr> <td>N Pairs:</td> <td>51</td> <td></td> </tr> <tr> <td>Mean</td> <td></td> <td></td> </tr> <tr> <td>Difference:</td> <td>.471</td> <td></td> </tr> <tr> <td>SE of Diff.:</td> <td>.216</td> <td></td> </tr> <tr> <td>Eta Squared:</td> <td>.085</td> <td></td> </tr> <tr> <td>T-Score:</td> <td>2.181</td> <td></td> </tr> <tr> <td>P:</td> <td>.034</td> <td></td> </tr> </table>		T ₂ KA	T ₃ KA	Mean:	18.784	18.314	Std. Dev.:	1.254	1.257	N Pairs:	51		Mean			Difference:	.471		SE of Diff.:	.216		Eta Squared:	.085		T-Score:	2.181		P:	.034	
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Table 19

Knowledge Gains and Losses Level 2B

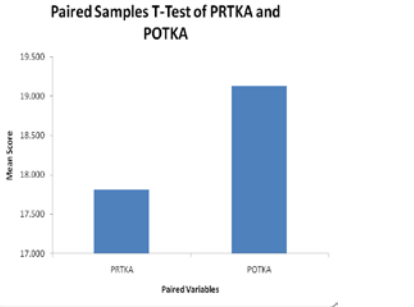
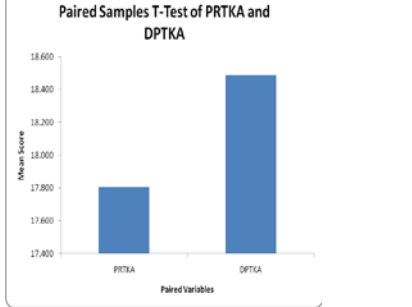
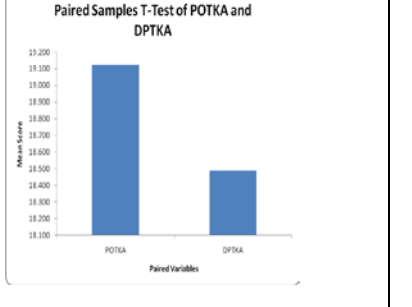
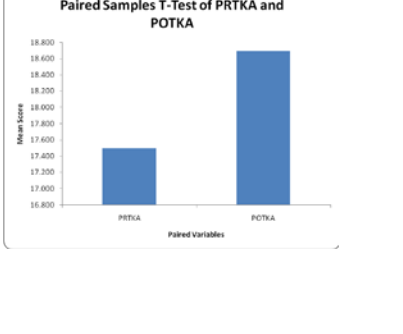
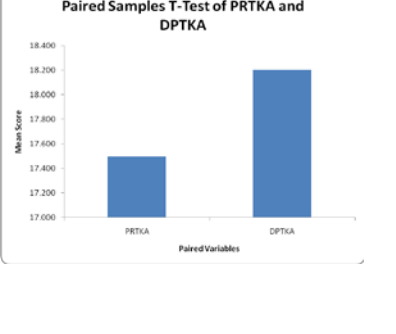
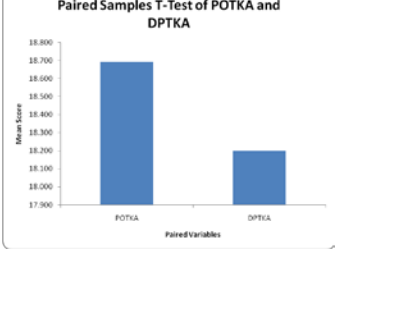
Short-term gain in scores (pre to post-test scores) showed significant gain for Level 2B	Long-term gain in scores (pre to delayed post scores) showed significant gain for Level 2B	Long-term loss (post to delayed post) showed significant loss for Level 2B																																																																																	
																																																																																			
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T-Score:	2.810																																																																																		
P:	.008																																																																																		

Table 20

Knowledge Gains and Losses Level 3

Short-term gain in scores (pre to post-test scores) showed significant gain for Level 3	Long-term gain in scores (pre to delayed post scores) showed significant gain for Level 3	Long-term loss (post to delayed post) showed significant loss for Level 3																																																																																	
 <p>Paired Samples T-Test of PRTKA and POTKA</p>	 <p>Paired Samples T-Test of PRTKA and DPTKA</p>	 <p>Paired Samples T-Test of POTKA and DPTKA</p>																																																																																	
<table border="0"> <tr> <td></td> <td>T₁KA</td> <td>T₃KA</td> </tr> <tr> <td>Mean:</td> <td>17.492</td> <td>18.692</td> </tr> <tr> <td>Std. Dev.:</td> <td>1.324</td> <td>1.540</td> </tr> <tr> <td>N Pairs:</td> <td>65</td> <td></td> </tr> <tr> <td>Mean Difference</td> <td colspan="2">-1.200</td> </tr> <tr> <td>SE of Diff.:</td> <td colspan="2">.158</td> </tr> <tr> <td>Eta Squared</td> <td colspan="2">.469</td> </tr> <tr> <td>T-Score:</td> <td colspan="2">7.575</td> </tr> <tr> <td>P:</td> <td colspan="2">.000</td> </tr> </table>		T ₁ KA	T ₃ KA	Mean:	17.492	18.692	Std. Dev.:	1.324	1.540	N Pairs:	65		Mean Difference	-1.200		SE of Diff.:	.158		Eta Squared	.469		T-Score:	7.575		P:	.000		<table border="0"> <tr> <td></td> <td>T₁KA</td> <td>T₃KA</td> </tr> <tr> <td>Mean:</td> <td>17.492</td> <td>18.200</td> </tr> <tr> <td>Std. Dev.:</td> <td>1.324</td> <td>1.502</td> </tr> <tr> <td>N Pairs:</td> <td>65</td> <td></td> </tr> <tr> <td>Mean Difference</td> <td colspan="2">-.708</td> </tr> <tr> <td>SE of Diff.:</td> <td colspan="2">.165</td> </tr> <tr> <td>Eta Squared:</td> <td colspan="2">.220</td> </tr> <tr> <td>T-Score:</td> <td colspan="2">4.285</td> </tr> <tr> <td>P:</td> <td colspan="2">.000</td> </tr> </table>		T ₁ KA	T ₃ KA	Mean:	17.492	18.200	Std. Dev.:	1.324	1.502	N Pairs:	65		Mean Difference	-.708		SE of Diff.:	.165		Eta Squared:	.220		T-Score:	4.285		P:	.000		<table border="0"> <tr> <td></td> <td>T₂KA</td> <td>T₃KA</td> </tr> <tr> <td>Mean:</td> <td>18.692</td> <td>18.200</td> </tr> <tr> <td>Std. Dev.:</td> <td>1.540</td> <td>1.502</td> </tr> <tr> <td>N Pairs:</td> <td>65</td> <td></td> </tr> <tr> <td>Mean Difference</td> <td colspan="2">.492</td> </tr> <tr> <td>SE of Diff.:</td> <td colspan="2">.155</td> </tr> <tr> <td>Eta Squared:</td> <td colspan="2">.134</td> </tr> <tr> <td>T-Score:</td> <td colspan="2">3.171</td> </tr> <tr> <td>P:</td> <td colspan="2">.002</td> </tr> </table>		T ₂ KA	T ₃ KA	Mean:	18.692	18.200	Std. Dev.:	1.540	1.502	N Pairs:	65		Mean Difference	.492		SE of Diff.:	.155		Eta Squared:	.134		T-Score:	3.171		P:	.002	
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Results for Self-Efficacy Scales

Results for Research Questions 2 (RQ2) answered the question: *Do all levels of instructional intervention of e-Training impact general and specific self-efficacy equally both short- and long-term?*

The null hypotheses for RQ2 were:

1. Management programming with face-to-face integration of e-Training does not impact general or specific self-efficacy.

2. Online course facilitation and use of in-course communication tools do not impact general or specific self-efficacy.
3. There will be no significant short-term gain as measured by the scores of post-test data over the pre-test data (T₂- T₁) at all levels of implementation (L1, L2A, L2B, L3).
4. There will be no significant long-term gain as measured by the scores of delayed post-test data over the pre-test data (T₃- T₁) for library participants at all levels of implementation (L1, L2A, L2B, L3).
5. There will be no significant long term loss as measured by the delayed post-test scores over the post-test (T₃-T₂) at all levels of implementation (L1, L2A, L2B, L3).

Self-efficacy was measured overall and then by each level for both general self-efficacy and specific self-efficacy. Quantitative analysis of the pre, post, and delayed post-test data are correlated with levels of instructional intervention. The following steps were used to determine significant difference in knowledge acquisition by level required analysis of each time interval:

1. Pre-test (T₁) data for all levels of implementation (L1, L2A, L2B, and L3).
2. Post-test (T₂) data for all levels of implementation (L1, L2A, L2B, and L3).
3. Delayed post-test data (T₃) for all levels of implementation (L1, L2A, L2B, and L3).

This initial analysis was followed by paired ANOVA measuring for significant long term difference in scores:

1. Short-term gain as measured by the scores of post-test data over the pre-test data (T₂- T₁) for all levels of implementation(L1, L2A, L2B, L3)
2. Long-term gain as measured by the scores of delayed post-test data over the post-test data (T₃-T₁) at all levels of implementation (L1, L2A, L2B, and L3)
3. Long-term loss as measured by the post-test and delayed post-test scores (T₃-T₂) at all levels of implementation (L1, L2A, L2B, and L3)

Table 21

General Self-efficacy All Levels



Repeated Measures ANOVA Variables

	T ₁ GE	T ₂ GE	T ₃ GE
N Valid:	193	193	193
N Missing:	0	0	0
Mean:	89.191	94.150	92.812
Std. Dev:	8.047	5.605	6.937

ANOVA Table

Source of Variance	SS	DF	MS	F
Factor A	2541.138	2.000	1270.569	71.681
Factor S	20898.522	192.000	108.846	
A x S	6806.541	384.000	17.725	
Total	30246.201	578.000		
P		.000		
Eta Squared		.272		

Case Processing Summary - N removed due to missing data N Removed .000

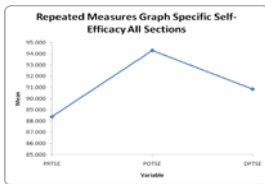
The ANOVA results indicate that the repeated measures differed significantly:

Pre-test (T₁) to Post-test (T₂), Post-test (T₂) to Delayed Post-test (T₃), and Pre-test (T₁) to Delayed Post-test (T₃) scores.

Post Hoc tests	Comparison	Mean Difference	T-Value	P - Unadjusted	P - Bonferroni	Eta Squared
T ₁ GE	T ₁ GE & T ₂ GE	4.959	12.288	.000	.000	.439
	T ₁ GE & T ₃ GE	3.621	7.640	.000	.000	.232
T ₂ GE	T ₂ GE & T ₃ GE	1.339	3.310	.001	.003	.054

Table 22

Specific Self-efficacy All Levels



Repeated Measures ANOVA Variables

	T ₁ SE	T ₂ SE	T ₃ SE
N Valid:	193	193	193
N Missing:	0	0	0
Mean:	88.387	94.309	90.858
Std. Dev:	9.108	6.166	8.307

ANOVA Table

Source of Variance	SS	DF	MS	F
Factor A	3414.453	2.000	1707.227	58.677
Factor S	25304.250	192.000	131.793	
A x S	11172.535	384.000	29.095	
Total	39891.239	578.000		
	P	.000		
	Eta Squared	.234		

Case Processing Summary - N removed due to missing data N Removed
 .000

The ANOVA results indicate that at least two of the repeated measures differed significantly

Post Hoc tests	Comparison	Mean Difference	T-Value	P - Unadjusted	P - Bonferroni	Eta Squared
T ₁ SE	T ₁ SE and T ₂ SE	5.921	11.073	.000	.000	.388
	T ₁ SE and T ₃ SE	2.470	3.944	.000	.000	.075
T ₂ SE	T ₂ SE and T ₃ SE	3.451	7.254	.000	.000	.214

Level 1 Inoculation Approach General and Specific Self-efficacy

Table 23 presents the results of a repeated measure ANOVA for variables related to general self-efficacy for Level 1.

Table 23

General Self-efficacy Level 1

Repeated Measures Graph General Efficacy Level 1 Independent Study					
	T ₁ GE	T ₂ GE	T ₃ GE		
N Valid:	36	36	36		
N Missing:	0	0	0		
Mean:	89.553	95.195	93.387		
Std. Dev:	8.284	5.718	7.673		
ANOVA Table					
Source of Variance	SS	DF	MS	F	
Factor A	597.703	2.000	298.85	13.286	
Factor S	4032.649	35.000	115.21		
A x S	1574.551	70.000	22.494		
Total	6204.903	107.000			
	P	.000			
	Eta Squared	.275			
Case Processing Summary - N removed due to missing data					
N Removed				.000	
The ANOVA results indicate that at least two of the repeated measures differed significantly					
Post Hoc tests	Mean Difference	T-Value	P - Unadjusted	P - Bonferroni	Eta Squared
T ₁ GE					
	T ₁ GE & T ₂ GE	5.642	7.031	.000	.579
	T ₁ GE & T ₃ GE	3.835	3.106	.004	.211
T ₂ GE					
	T ₂ GE & T ₃ GE	1.808	1.438	.159	.054

Table 24

Specific Self-efficacy Level 1



Repeated Measures

ANOVA Variables	T ₁ SE	T ₂ SE	T ₃ SE
N Valid:	36	36	36
N Missing:	0	0	0
Mean:	87.213	95.795	92.892
Std. Dev:	8.475	4.863	7.329

ANOVA Table

Source of Variance	SS	DF	MS	F
Factor A	1372.260	2.000	686.130	
Factor S	3268.642	35.000	93.390	24.594
A x S	1952.907	70.000	27.899	
Total	6593.809	107.000		
P		.000		
Eta Squared		.413		

Case Processing Summary - N removed due to missing data

N Removed	.000
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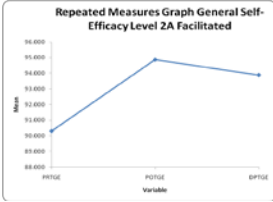
The ANOVA results indicate that at least two of the repeated measures differed significantly

Post Hoc tests	Comparison	Mean		T-Value	P - Unadjusted	P - Bonferroni	Eta Squared
		Difference					
T ₁ SE	T ₁ SE & T ₂ SE	8.583	7.174	.000	.000	.588	
	T ₁ SE & T ₃ SE	5.680	4.162	.000	.001	.325	
T ₂ SE	T ₂ SE & T ₃ SE						

Level 2A Outsourced, Online Facilitation

Table 25

General Self-efficacy Level 2A



Repeated Measures ANOVA Variables

	T ₁ GE	T ₂ GE	T ₃ GE
N Valid:	51	51	51
N Missing:	0	0	0
Mean:	90.302	94.875	93.887
Std. Dev:	7.598	4.614	6.139

ANOVA Table

Source of Variance	SS	DF	MS	F	
Factor A	590.790		2.000	295.395	23.040
Factor S	4552.709		50.000	91.054	
			100.00		
A x S	1282.115		0	12.821	
			152.00		
Total	6425.613		0		
		P	.000		
		Eta Squared	.315		

Case Processing Summary - N removed due to missing data

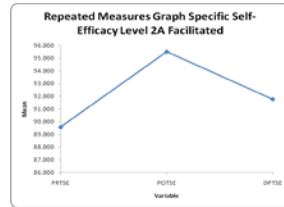
N Removed .000

The ANOVA results indicate that at least two of the repeated measures differed significantly

Post Hoc tests	Comparison	Mean Difference	T-Value	P - Unadjusted	P - Bonferroni	Eta Squared
T ₁ GE	T ₁ GE and T ₂ GE	4.574	6.218	.000	.000	
	T ₁ GE & T ₃ GE	3.586	4.606	.000	.000	
T ₂ GE	T ₂ GE & T ₃ GE	.988	1.644	.107	.320	.431
						.294
						.050

Table 26

Specific Self-efficacy Level 2A



Level 2A Facilitated Study Repeated Measures ANOVA for Specific Self-Efficacy

Repeated Measures ANOVA Variables

	T ₁ SE	POTSE	DPTSE
N Valid:	51	51	51
N Missing:	0	0	0
Mean:	89.581	95.512	91.777
Std. Dev:	7.768	4.428	6.536

ANOVA Table

Source of Variance	SS	DF	MS	F
Factor A	917.311	2.000	458.655	18.648
Factor S	3673.510	50.000	73.470	
A x S	2459.529	100.000	24.595	
Total	7050.349	152.000		
	P	.000		
	Eta Squared	.272		

Case Processing Summary - N removed due to missing data

N Removed .000

The ANOVA results indicate that at least two of the repeated measures differed significantly

Post Hoc tests	Comparison	Mean Difference	T-Value	P - Unadjusted	P - Bonferroni	Eta Squared
T ₁ SE	T ₁ SE & T ₂ SE	5.931	5.981	.000	.000	.412
	T ₁ SE & T ₃ SE	2.196	1.890	.065	.194	.065
POTSE	T ₂ SE & T ₃ SE	3.736	4.994	.000	.000	.328

Level 2B On-site, In-Library Programming

Table 27

General Self-efficacy Level 2B

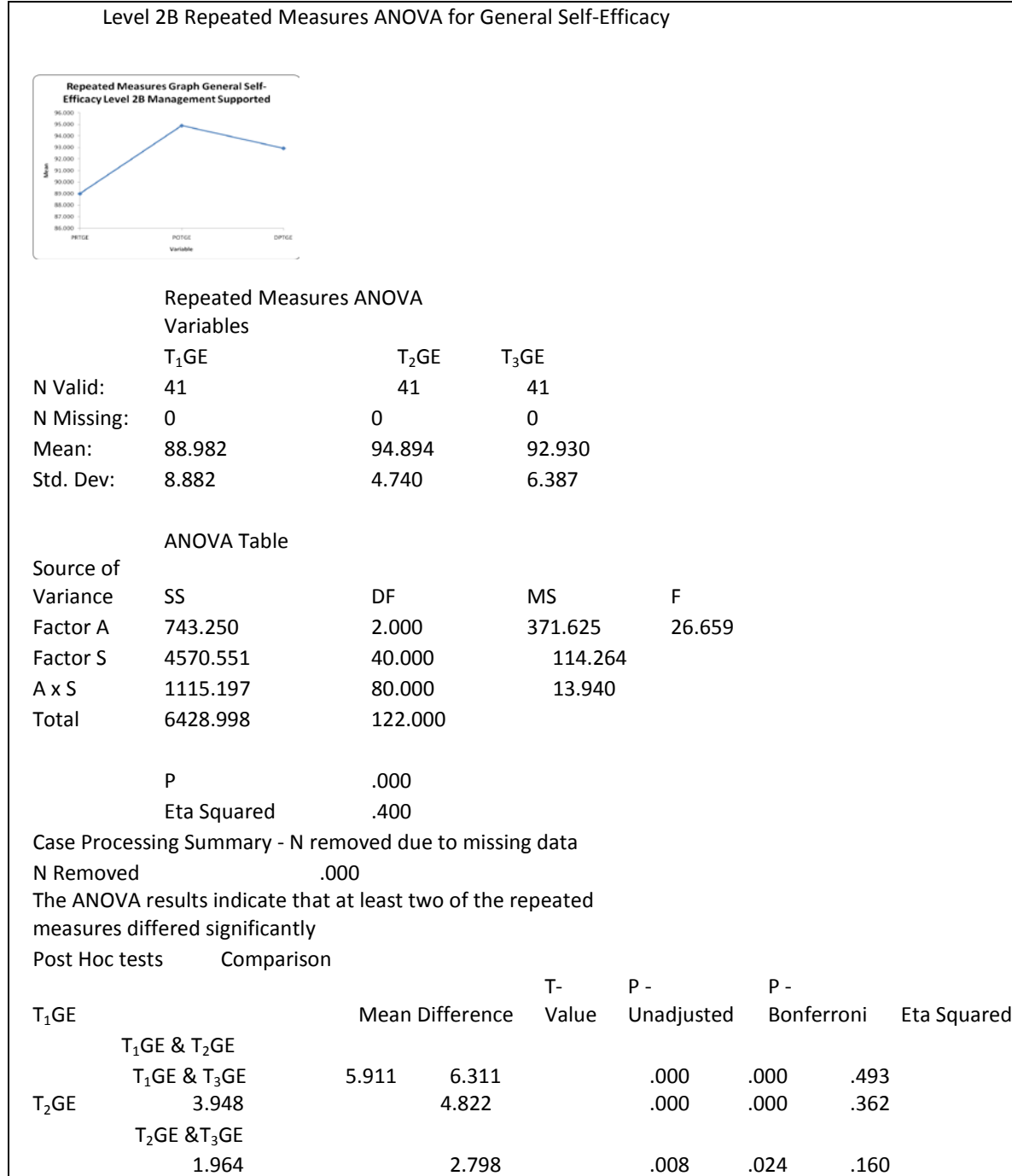
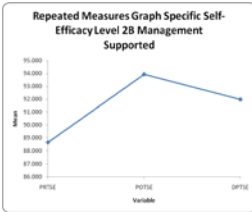


Table 28

Specific Self-efficacy for Level 2B



Level 2B Repeated Measures ANOVA for Specific Self-Efficacy

Repeated Measures ANOVA Variables

	T ₁ SE	T ₂ SE	T ₃ SE
N Valid:	41	41	41
N Missing:	0	0	0
Mean:	88.644	93.924	91.969
Std. Dev:	9.246	6.153	7.285

ANOVA Table

Source of Variance	SS	DF	MS	F
Factor A	584.471	2.000	292.235	15.198
Factor S	5518.565	40.000	137.964	
A x S	1538.308	80.000	19.229	
Total	7641.344	122.000		
	P	.000		
	Eta Squared	.275		

Case Processing Summary - N removed due to missing data

N Removed	.000
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The ANOVA results indicate that at least two of the repeated measures differed significantly

Post Hoc tests	Comparison	Mean Difference	T-Value	P - Unadjusted	P - Bonferroni	Eta Squared
T ₁ SE	T ₁ SE and T ₂ SE	5.281	4.700	.000	.000	.350
	T ₁ SE and T ₃ SE	3.325	3.458	.001	.004	.226
T ₂ SE	T ₂ SE and T ₃ SE	1.955	2.469	.018	.054	.129

Level 3 Outsourced, Online Facilitation and On-site, In-Library Programming

Table 29

General Self-efficacy Level 3

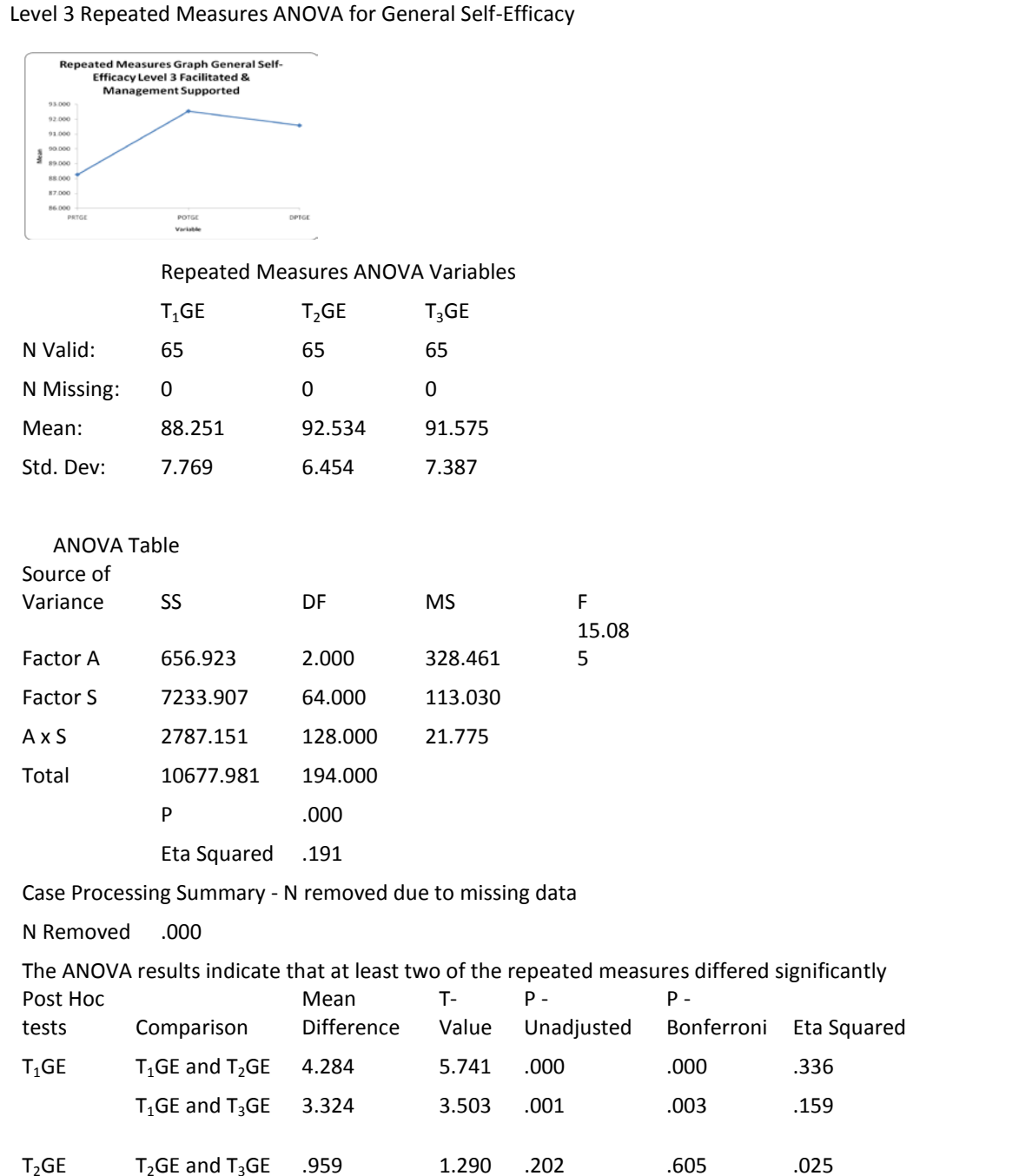
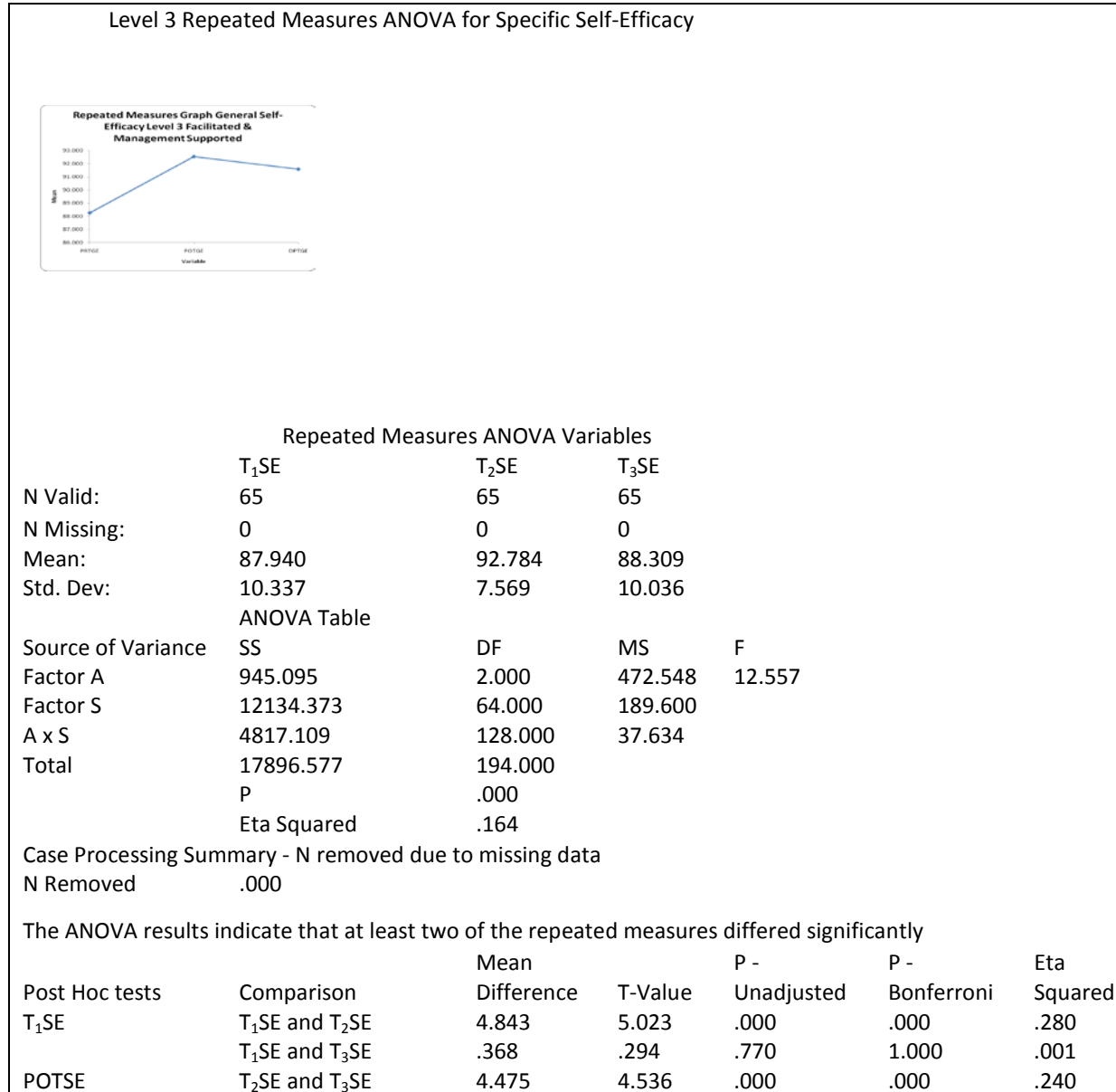


Table 30 provides data on specific, task level self-efficacy:

Table 30

Repeated Measure ANOVA for Specific Self-efficacy



Results for Practices On-The-Job

Results for Research Questions 3(RQ3) answered the question: *Do all levels of instructional intervention of e-Training impact participant's work practices equally long term?*

The null hypotheses for RQ3 were:

1. Management programming of e-Training does not impact participant work practices significantly more than other instructional interventions.
2. Online outsourced course facilitation does not impact participant work practices significantly more than other instructional interventions.

The study investigated whether all levels of instructional intervention of e-Training produced similar results in participant's work practices long term. Steps taken to investigate training content related practices following e-Training participation:

1. Analyzing participant answers for self-professed use of course content on the job attributed by respondents to participation in e-Training course.
2. Participant Work Practices: Qualitative analysis of the delayed post-test questionnaire correlated with instructional intervention levels.
3. Qualitative data and descriptive statistics from the post-course survey and questionnaire are presented.

The use of training content in the workplace was analyzed using participant answers for self-professed frequency of use of course content attributed to their participation in the e-Training course and using qualitative data and descriptive statistics from the post-course survey and questionnaire to investigate how the course content was perceived as being used on the job. Because the data involved two categorical variables a Chi Square test was used to determine if one level of intervention (L1, L2A, L2B, L3) had significantly more use as indicated by the frequency category of training use on the job (Categorical variable in 5 levels from 0-

"Not at all" to 5- "Daily") in answer to the question, "Have you encountered an opportunity to use what you learned from the training in your day-to-day work duties?"

The result of the chi square test (Table 31) indicated that there was no significant difference by level of instructional intervention for use of the training content on the job.

Table 31

Use of Training On-the-Job

Incremental Chi Square Use of Training on the Job						
	L1	L2A	L2B	L3		Row Total
0	0	2	1	2	5	1.344
expected	.933	1.321	1.062	1.684		
1	4	10	7	16	37	2.324
expected	6.902	9.777	7.860	12.461		
2	7	2	4	4	17	6.568
expected	3.171	4.492	3.611	5.725		
3	9	13	14	16	52	1.011
expected	9.699	13.741	11.047	17.513		
4	9	20	14	18	61	1.830
expected	11.378	16.119	12.959	20.544		
5	7	4	1	9	21	6.069
expected	3.917	5.549	4.461	7.073		
Columns						
Total	36	51	41	65	193	19.147
						Grand Total
				DF	15	
				P	.207	

Qualitative Data on Use of Course Content On the Job

Overwhelming majority of the responses indicated that the material was helpful to their jobs. The positive comments are too numerous to include, but praised the course highly, as indicated below:

The training reinforced the wisdom of creating a safe and friendly environment for patrons as a deterrent to potentially difficult situations. This course was very beneficial to my overall performance and my attitude in dealing with "ALL" patrons....thanks!

It has helped me in staying detached from the emotions and being able to identify more clearly the problems.

I am able to handle difficult patrons more efficiently.

The training has taught me to stop and take a breath before proceeding. I have also learned to stop taking remarks personally.

Some comments highlighted specific areas of the training that were helpful, specifically coping techniques and addressing issues with specific categories of difficult patron, including, disgruntled patrons, mentally ill patrons, homeless, and inebriated patrons. Some respondents mentioned how helpful the course materials were in sharing with coworkers and opening discussion in the workplace on these issues. One respondent commented, "I have been sharing your class techniques with others at (the library) and we find it to be very positive." These comments were made from all levels of instructional intervention. Many felt the material was true to its name as building confidence for difficult situations.

I have definitely gained more confidence as I feel better prepared for how to approach these types of situations.

I have had more confidence dealing with severe problem patrons and been able to step back from each situation and assess the best course of action before proceeding.

It's given both my staff and I more confidence in confronting issues as they arise, rather than waiting until they are a problem.

On a rotating basis I serve in the capacity of 'Person in Charge' (PIC) of the Main Library. In this capacity I respond to numerous situations to assist in "Managing Difficult Patrons". The online training information and experience has been the best support for building confidence in handling disruptive and inappropriate conduct in a public space which is "Open to All". I recommended this training for all PICs system-wide.

Several administrators, directors, and supervisors from levels 2B and 3 commented positively on the team training experience, e.g. "This experience has been very helpful to our staff and stimulated thought and conversation among staff regarding this topic." Another supervisor made the following observation,

As a manager who deals with difficult staff and patron issues, I greatly value this type of training and learning how to deal with all situations with confidence and tact. I find that these training experiences are not only good opportunities for learning how to hone such skills but also excellent for reviewing past situations and seeing how I can continue to improve. It also provides an opportunity for my staff to let me know about experiences they have had which they may not have thought to bring to my attention at the time. It also gives me insight into how they think situations should be handled which allows all of us to improve our customer service skills and accountability.

Some participants (especially those that encounter difficult patrons on a daily basis) observed that while the material was helpful, it was not new, but just a "refresher" of common knowledge and practice.

It was helpful to review (and to have validated) many techniques I had figured out on my own out of desperation.

Course work reinforced the value of standing policies. Class made the point that all staff are responsible for the maintenance of the library environment when dealing with customers and poor behavior.

There were five respondents that responded that they never had opportunity to use the training on the job. There were three small libraries represented and two large libraries (between 55,000 and 90,000 Population base) of these five responses. The qualitative data from these five respondents revealed that the lack of use had little to do with the levels of intervention being an indicator for lack of use on the job. The question allowed open-ended comment on response. One of the respondents that had not had occasion to use the materials from the course in the past three months commented, "Even though I have not had occasion to

use it, I feel more confident having been equipped with the information I gleaned from the course." A few participants commented that they did not have many opportunities to use the materials because (a) they did not interact with the public in their job (e.g. " I am a 'behind the scenes' employee so I rarely deal directly with patrons. However, I do receive phone calls from patrons who need technical assistance with their PCs. This course has helped me set limits on the amount of help they are offered, without offending them") or (b) being from a small library they encounter the same patrons without incident (e.g. "I work part time and my duty hours bring me into contact with more or less the same patrons, who are generally non-problematic.").

Another area of the survey that related to applying the learning objectives on the job, researched reviewing, revising, and creating policies in the library. The course was two weeks long, which for most participants was not enough time to complete the online portion of the training and complete the recommended updates to library policy manuals. The three month follow up survey investigated this learning objective and the long term impact on policy development activities. Since both variables are categorical (Levels) and the other is dichotomous categorical variable (did or did not review, revise or create policies), a Chi Square test was used to determine if a relationship existed between this learning objective and the level of instructional intervention (Berman, 2002, p. 52). Table 32 revealed that using a one-tailed test the chi square test result of the observed frequencies of the policy variables was not significantly more frequent among the intervention levels.

Table 32

Reviewed, Revised, or Created Policy Manual

Chi Square Reviewed, Revised, or Created Policies Since Training						
Yes/ No	L1	L2A	L2B	L3	Row Total	Incremental Chi Square
No	22	37	26	46	131	.607
expected	24.435	34.617	27.829	44.119		
Yes	14	14	15	19	62	1.283
expected	11.565	16.383	13.171	20.881		
Columns						
Total	36	51	41	65	193	1.890
					Grand Total	Chi Square Total
					DF	3
					P	.596

Note. The chi square test result of the observed frequencies of the variables was not significant using a one-tailed test

Based on the quantitative data the study did not disprove the null hypotheses:

1. Management programming of e-Training does not impact participant work practices significantly more than other instructional interventions
2. Online outsourced course facilitation does not impact participant work practices significantly more than other instructional interventions

The qualitative data does indicate that participation in the e-Training did have many positive impacts on the individuals and communication within the organizations for groups that including management/supervisor programming of the training. The disparity between the results from the qualitative investigation and the quantitative findings indicates a need for further investigation into appropriate indicators for *Policy and Procedures* competency among staff and within organizations.

Results for Learning Involvement and Attrition Rates

Results for Research Questions 4(RQ4) answered the question: *Can the levels of instructional intervention impact amount of learning involvement as measured by the participation statistics generated by courseware management system and the attrition rates for each level?* The null hypotheses for RQ4 were:

1. There will be no significant difference in amount of learning involvement from participant as measured by courseware management system statistics for participants at each of the four levels of implementation (L1, L2A, L2B, and L3).
2. There will be no significant difference in attrition rates among all levels of implementation (L1, L2A, L2B, L3) as measured by number of participants that complete all three phases of the study.

ANOVA were conducted for each levels of instructional intervention (all 4 levels).

Table 33

Time in Course

Time in Course Results Report – Descriptive Statistics Disaggregated by Section				
Section	Dependent Variable	N	Mean/ Adj Mean	Std. Dev/ Adjusted Std. Dev
L1	Total Time	35	0.107238757/0.107238757	.050/ .050Adj
L2A	Total Time	51	0.150556463/0.152110185	.084/ .084Adj
L2B	Total Time	41	0.092679539/0.093603009	.101/ .102Adj
L3	Total Time	65	0.116051460/0.119090012	.075/ .076Adj
Time in Course Results Report - Descriptive Statistics for All				
	Total Time		Unadjusted n=193	Adjusted n=186
Mean:	.119			.120
Std. Dev:	.082			.083

Note. The adjusted values address the technology glitch that erased 7 values for time in course. The means are based on the percentage for total part of a day. For example on the times for all sections, since there are 1,440 min in a day, a .119 is equal to 171 minutes or 2.856 hours (adjusted for missing value is 172.8 minutes). The standard deviation is 14.05 (adjusted remains 14.05) minutes. The average total time in course for all sections was just under 3 hours, which aligns with the 3 hour continuing education credit.

The data was reviewed for significant outliers and those values of zero were deleted for a total of seven missing time in course values. The results show that the participants that had an

online, outsourced facilitator (Levels 2A and 3) spent more time within the course than those sections that were self-paced or had only in-house management programming. This would make sense since the online facilitation had discussion postings. But if the additional in-house programming took the minimum fifteen minutes per week, the total average time including in-house programming dedicated to training is represented in the Table 34. Note that the fifteen minute per week time addition for 2B and 3 are based upon the recommendation in the On-site training checklist statement, "Training Coordinator... Designates time for discussion about the training and the library's patron policies and procedures manuals (minimum of fifteen minutes)" (Appendix I: On-site Programming Packet - Training Checklist).

Table 34

Mean Time Allocated to Training by Level

Level of Instructional Intervention	Mean Time Allocated to Training
L1 [0.107238757]	2 hours 34 minutes
L2A [0.150556463] adjusted for missing values [0.152110185]	3 hours 37 minutes / 3 hours 39 minutes
L2B [0.092679539] + 30 minute programming adjusted for missing values [0.093603009]	2 hours 43 minutes / 2 hours 45 minutes
L3 [0.116051460] + 30 minute programming adjusted for missing values [0.119090012]	3 hours 17 minutes/ 3 hours 21 minutes

It is important to note observational data about Level 2A and Level 3, the facilitated sections. Almost every cohort at Level 2A had highly interactive discussion postings, with input from participants and the facilitator. It was noted that Level 3 did not generate online discussion postings from the participant, although the facilitator added similar content and solicited discussion. The additional time in course for Level 2A may be attributed to discussion input by the participants. The follow up survey included investigation on whether the topic managing difficult patrons was appropriate for discussion and the overwhelming response was

"yes" and the comments revealed that the course related topics were discussed with colleagues.

Table 35

Content Viewed by Level

Section		N	Mean
L1	Content Files Viewed	35	45.6
L2A	Content Files Viewed	50	51.1
L2B	Content Files Viewed	39	47.0
L3	Content Files Viewed	63	49.7

Table 35 lists the statistics for average number of content pages viewed. The content files are the files that were created by LE@D's instructional design process that cover each of the five learning objectives²⁶. These numbers are fixed and so it is not surprising that the variation between files viewed and levels is small. By the results L2A, followed by L3 average higher number of content pages viewed than other sections.

Results for Size of the Library

Results for Research Questions 5(RQ5) answered the question: *Does size of the library system impact prior assessment scores or outcomes?* The null hypotheses for RQ5 were:

1. The size of the library system does not impact knowledge acquisition.
2. The size of the library system does not impact self-efficacy.
3. The size of the library system does not impact participant work practices .

Steps to review the impact of large and small libraries:

²⁶ Content pages did not include online discussion postings. L1 and L2B did not have online discussion postings (since online communication tools were turned off); so those sections could not be included in an analysis. Discussion postings for L2A and L3 show that L2A had robust levels of online discussion (Appendix O) and qualitative analysis revealed that L3 chose face-to-face discussion over online discussion.

1. Comparison of pre-test (T1) means of small libraries against those of large libraries and measure for significant differences in scores knowledge acquisition.
2. Comparison of responses of small libraries against those of large libraries and measure for significant differences in self-professed changes in work practices attributed to training participation.
3. Measuring for significant difference in each instrument as measured t-test of dichotomous categorical variables of small library data against large library data and for pre, post, and delayed post-test scores.

Large and Small Libraries t-Test Results

Statistical *t*-tests are used for determining the similarity or difference between two sampled populations. The value obtained is called a *t*-statistic, and should be used in its absolute value form. The smaller the value, the more similar are the two samples. Other important values include *t*-critical value (two-tail) which is calculated with an alpha level of 0.05 (5% on either side of 2 standard deviations from the mean). If the *t*-statistic is greater than the *t*-critical value, one rejects the null hypothesis (that the two samples are the same), and indicates that there is a statistically significant difference between the two samples.

[Effect Size $d = 0.07157489$ No Control Group]

The initial data²⁷ from independent *t*-test had the following results:

1. Because the *p* (significance level of 0.59) of this two-tailed *t*-test is greater than .05, the study reports there was no preliminary significant difference in the means between large and small libraries on the knowledge acquisition.
2. Because the *p* (significance level of 0.072) of this two-tailed *t*-test is greater than .05, the study reports there was no significant difference in the general self-efficacy of

²⁷ It is important to clarify that the initial "cut-off" for size of library was libraries with service area populations of less than 10,000. The preliminary results used online data to determine the size of the library. For the final delayed post-test analysis, the cut-off size of the library used Library Journal's population values of populations of 25,000 or less to be associated with small libraries.

means between participants from large and small libraries. Thus, for the pre-test score the study failed to reject the null hypothesis.

3. Because the p (significance level of 0.045) of this two-tailed t-test is less than .05, the study reports there was significance difference in the means between large and small libraries. Generally, participants from large libraries have more specific self-efficacy for dealing with difficult patrons than those from small libraries.

Large and Small Library Data Following Delayed Post-Test

Because of the preliminary results from the t-test for library size and the need to understand the potential differences in impact between large and small libraries a stratified sample of large and small library was analyzed. The size of the population of the patron base for small libraries was adjusted to 25,000 to address the general categorization of large and small libraries that is used in the field to define small libraries²⁸. Initially a correlation matrix was run to determine any areas of potential significant correlation.

Table 36

Library Size Correlation

Significant Correlations for Small and Large Libraries	
Delayed Post-test Knowledge Assessment	- .140
	N 192
	P .05
Policies in place prior to training ?	- .154
	N 192
	P .03
Reviewed, revised, or created policies since training?	.210
	N 192
	P .00
Course content was applicable to job duties.	- .142
	N 192
	P .05

²⁸ Definition of small libraries used ALA definition of small libraries and population base used Bachus (1978) definition of service area “defined as the zone of influence of the branch, or, that portion of the overall land of the city from which the branch draws most of its users” (Bachus, 1978).

Note that small libraries were less likely to have policies in place prior to the training and were more likely to review, revise, or create policies as a result of training. Also, large libraries were at the .05 significance indicator in that they found the material on managing difficult patrons slightly more applicable their job duties than small libraries and large libraries knew slightly more in the three month delayed post-test. Also, participants from large libraries had slightly more years of experience in libraries. The use of training on the job was also significantly different based on size of the library.

Table 37

Use of Training On-the-job by Library Size

Independent t-test use of training on the job		
Library Size	Large	Small
Mean:	3.248	2.690
Std. Dev:	1.399	1.242
N:	105	87
Mean Difference:	.558	
T-Score:	2.893	
Eta Squared:	.042	
P:	.004	

Table 38

Mean Years of Experience by Library Size

Independent T-Test of Large and Small Libraries and Mean Years of Experience		
Library	Large	Small
Mean:	11.976	9.261
Std. Dev:	9.103	7.321
N:	105	87
Mean Difference:	2.715	
T-Score:	2.253	
Eta Squared:	.026	
P:	.025	

Possible Confounding Variables

Additional demographic characteristics for each participant were collected: years of employment in the library field, possession of a library science master's degree, and prior experience with online training. Comparisons of the performance of participants investigating each of these characteristics further informed this study. Note that both the experience level of the continuing education (CE) participant and the discipline/profession has been shown to impact distinct patterns on degree and ease of learning in professional development (Daley, 1999). This study gathered data from the training participants on their years of experience in libraries and prior professional degrees in library science to see whether these factors had a significant correlation to pre-test knowledge assessment or self-efficacy measures.

The results indicated that the sections were equally divided by those with and without library degrees (Table 39).

Table 39

Training Levels and Degree Status

Chi Square Table Degree				
Section	degree		Row Total	Incremental Chi Square
	No	Yes		
L1	21	15	36	.026
expected	20.518	15.482		
L2A	31	20	51	.299
expected	29.067	21.933		
L2B	24	17	41	.040
expected	23.368	17.632		
L3	34	31	65	.583
expected	37.047	27.953		
Columns Total	110	83	193	.947
				Chi Square Total
				Grand Total
				DF 3
				P .814

The chi square test (Table 39) result of the observed frequencies of the variables was not significant using a one-tailed test. Note that 290 non-degreed initially applied for scholarships; 30% never used their password to enter the class, were not eligible to participate, or opted out of the non-disclosure agreement, and 44% of the non-degreed participants that completed the pre-test and post-test were not available or did not respond for the delayed post-test. 36% of the initial non-degreed applicants completed all three phases. For the degreed applicants 169 applied for a scholarship and 16% never used their password to enter the class, were not eligible to participate, or opted out of the non-disclosure agreement, 35% of the degreed participants that completed the pre-test and post-test were not available or did not respond for the delayed post-test. 51% of the initial degreed applicants completed all three phases. 4 of the non-degreed participants that completed all three test phases self-reported not completing the course materials; 1 of the degreed participants that completed all three test phases self-reported not completing the course materials.

Results for Non-Degree/Degreed t-Test for Pre-Test Knowledge Assessment

Table 40

Degree/Non-degreed Pre-test Knowledge Assessment

Independent t-test			p of F-Max-->	0.00038783
			Use Unequal Variance	
	Degree	Non	Mean diff.	2.23097273
Mean	88.8518519	86.6208791	SE	0.76426042
SD	5.95194502	7.65154109	t-value	2.91912637
n	135	182	df	134
			two-tailed p	0.00376362

Because the p (significance level) of this two-tailed t -test is not greater than .05, the

study reports there was a difference in the means between knowledge assessment on pre-test between those holding a master's and those that do not. Those with a degree generally scored higher than those without a degree.

Results for Degree/Non-Degreed t-Test for Pre-Test General Self-Efficacy

Table 41

Degree/Non-degreed Pre-test General Self-efficacy

			p of F-Max-->	0.09340696
Independent t-test			Use Equal Variance	
	Degree	Non-degreed	Mean diff.	-0.0100687
Mean	0.8810881	0.89115679	SE	0.00992843
SD	0.08095523	0.09189447	t-value	-1.014128
n	135	182	df	315
			two-tailed p	0.31130001

Because the p (significance level) of this two-tailed t -test is greater than .05, the study reports there was no significant difference in the means between general self-efficacy on pre-test between those holding a master's and those that do not, with effect size $d = 0.116502307$ and no control group.

Degreed/ Non-Degree t-Test for Pre-Test Specific Self-Efficacy

Table 42

Degreed / Non-degreed Pre-test Specific Self-efficacy

			p of F-Max-->	0.52286768
Independent t-test			Use Equal Variance	
	Masters	No MLIS	Mean diff.	-0.0002716
Mean	0.87919709	0.8794687	SE	0.01097508
SD	0.09710299	0.09626609	t-value	-0.024748
n	135	182	df	315
			two-tailed p	0.98027165

Because the p (significance level) of this two-tailed t -test is greater than .05, the study reports there was no significant difference in the means between specific self-efficacy on pre-test between those holding a master's and those that do not. In the delayed post-test analysis the only significant difference that was noted was that those with degrees consistently scored higher on Knowledge Assessment at all three phases (Pre-test, Post-test, and Delayed Post-test). [Effect Size $d = 0.00280924949453319$ No Control Group]

Table 43

Significant Correlation for Degree Status and Knowledge Assessment

MLS Degree		MLS Degree		MLS Degree	
T ₁ KA	.188	T ₁ GE	-.031	T ₁ SE	.010
P	.01	P	.67	P	.89
T ₂ KA	.198	T ₂ GE	.050	T ₂ SE	.064
N	193	N	193	N	193
P	.01	P	.49	P	.37
T ₃ KA	.183	T ₃ GE	-.041	T ₃ SE	.010
N	193	N	193	N	193
P	.01	P	.57	P	.89

Chi Square Table of Treatment Groups and Frequency Count for MLS Degrees

Table 44

Degree Status Frequency for All Levels

Section	No Degree	MLS	Row Total	Incremental Chi Square
L1	21	15	36	.026
expected	20.518	15.482		
L2A	31	20	51	.299
expected	29.067	21.933		
L2B	24	17	41	.040
expected	23.368	17.632		
L3	34	31	65	.583
expected	37.047	27.953		
Columns Total	110	83	193	.947
			Grand Total	
			DF	3
			P	.814

The chi square test result of the observed frequencies of the variables was not significant using a one-tailed test

Results for Years Experience t-test for Pre-test Knowledge Assessment

The subsequent tables present the results for t-test on knowledge assessment scores and the years of experience working in libraries to investigate whether experience levels had an effect on knowledge assessment scores.

Table 45

Results for < 10 Years Experience Knowledge Assessment

Independent t-test			p of F-Max-->	0.8926845
			Use Equal Variance	
	<10 years	>= 10 years	Mean diff.	-0.4894117
Mean	87.327044	87.8164557	SE	0.79331308
SD	7.19924122	6.92161629	t-value	-0.6169212
n	159	158	df	315
			two-tailed p	0.53773233

Because the p (significance level) of this two-tailed t -test is greater than .05, the study reports there was no significant difference in the means between Knowledge Assessment on pre-test between those with over 10 years experience and those with less than ten years experience. [Effect Size $d=0.06931756$ No Control Group]

Table 46

Results for < 5 Years Experience Knowledge Assessment

Independent t-test			p of F-Max-->	0.08760537
			Use Unequal Variance	
	<5 years	>= 5 years	Mean diff.	-1.2794769
Mean	86.626506	87.9059829	SE	0.93747703
SD	7.49424306	6.87844541	t-value	-1.3648088
n	83	234	df	82
			two-tailed p	0.17459859

Because the p (significance level) of this two-tailed t -test is greater than .05, the study reports there was no significant difference in the means between Knowledge Assessment on pre-test

between those with over five years experience and those with less than five years experience.

[Effect Size $d=0.1780428$ No Control Group]

Table 47

Results for < 3 Years Experience Knowledge Assessment

			p of F-Max-->	0.02131261
Independent t-test			Use Unequal Variance	
	<3 years	>= 3 years	Mean diff.	-1.7464419
Mean	86.1	87.8464419	SE	1.24320548
SD	8.28633003	6.78252512	t-value	-1.4047895
n	50	267	df	49
			two-tailed p	0.16508344

Because the p (significance level) of this two-tailed t -test is greater than .05, the study reports there was no significant difference in the means between Knowledge Assessment on pre-test between those with over three years experience and those with less than three years experience. [Effect Size $d=0.23179491$ No Control Group]

Table 48

Results for < = 1 Years Experience Knowledge Assessment

			p of F-Max-->	0.36714934
Independent t-test			Use Unequal Variance	
	Group 1	Group 2	Mean diff.	-1.4883562
Mean	86.2	87.6883562	SE	1.66516545
SD	8.07258736	6.9644755	t-value	-0.8938188
n	25	292	df	24
			two-tailed p	0.37927486

Because the p (significance level) of this two-tailed t -test is greater than .05, the study reports there was no significant difference in the means between Knowledge Assessment on pre-test between those with less than one year experience. [Effect Size $d=0.19795836$ No Control Group]

Delimitations of the Study

In the IMPACT study, the courseware management system required authenticated login through the Web and data was correlated to the participant, but self-report and e-mail address confirmation was the only means of establishing that the participant was who they claimed to be. In this study, course availability was restricted to approximately fourteen days for each session, with exclusion of national holidays, specifically the Thursday and Friday for the Thanksgiving holiday weekend. The Web-based course materials were developed within the courseware management system platform by LE@D instructional designers for public library staff training on customer service practices for difficult patrons. The selection of the course was based on its popularity, longevity, and prior amenability to research. The course was the single most requested topic in a survey conducted by LE@D, the course was the first developed by LE@D, and the course was used in prior research studies. The study did not use "real-time" synchronous e-Training. The study focused on evaluating variations in impact at four levels of asynchronous e-Training implementation. The delivery system was limited to the LE@D courseware management system online training platform, with variations in the course communication tools within an asynchronous learning environment; synchronous communication tools like Chat and Live Blackboard were not utilized.

The study encountered some problems with e-mail message delivery. There was a problem with participant Internet Service Provider (ISP) blocking LE@D e-mail messages. According to a study by Jupiter Research, costs of automated blocking of legitimate e-mail were predicted to be \$419 million in 2008 up from \$230 million in 2003. The filtering of e-mail messages to Project IMPACT participants required making 180 phone calls and sending out 609

additional e-mails to recipients for the delayed post-test alone. Similar problems were encountered when the authentication information was sent to participants for course registration. It was reported that e-mails with active html links within the body of the message were filtered by e-mail programs at certain library systems or by certain ISP's. It was also determined that some e-mail filters blocked (a) messages addressed to multiple recipients, (b) message that included recipients who were blind copied, (c) messages with attachments, and (d) multiple messages sent from a single IP address if the sender submits multiple e-mails to the same e-mail server in an allotted period of time.

During the study it was not possible to determine whether messages were getting through until after there was a problem (e.g. student contacted study personnel or LE@D office that participants did not receive codes, a library system participant informed us that all e-mail messages were found in their spam folder, or through phone call follow-up when delayed post-test were not completed for entire library systems). With the increase in e-mail spam, filters are more stringent and block even legitimate e-mailer services whose messages are mistaken for spam by ISPs. A 2003 study by Denver e-marketing firm *Return Path* (2003) claims that one in five "permissioned" messages (that is, those requested by the recipients like our scholarship applicants and training participants) is blocked before it reaches an in-box. The problem was addressed by sending unformatted text with inactive links or requesting a secondary email address through a commercial e-mail provider.

The study initially proposed a face-to-face focus group at the major conferences, but this was not possible for a couple of very practical reasons. First, the timing for the delayed post-test was after PLA so only three people that completed the delayed post-test indicated

that they might be at PLA and only two people said they may be available at TLA. Also, the data for the delayed post-test had not been analyzed and in-depth questions were difficult to formulate. Also it turned out that schedules were so busy that there was not a specific time that these few individuals could meet at the same time during these conferences. Although few people elected to volunteer for face-to-face focus groups 150 participants indicated on the post-test that they would be available to participate in a follow up e-mail interviews to discuss details of their e-Training experience and/or e-Training preferences [L1-43, L2A-41, L2B-32, L3-34].

Summary of Hypothesis Testing Results

The table summarizes the results of the hypothesis testing and results are presented in terms of each of the research questions and associated hypothesis. The table uses the following conventions: RQ= *Research Question* and H= *Hypothesis*. Thus the first hypothesis for the first research question presented on impact of online training on knowledge assessment is labeled RQ1-H1 to streamline tabular organization of the study's results.

Table 49

IMPACT Hypothesis Testing Results Summary

Short- and Long-Term Knowledge Assessment
<p>RQ1 Do all levels of instructional intervention of e-Training impact knowledge acquisition of learning objectives equally and is Web-based training equally effective for both short- and long-term knowledge acquisition at all level of instructional intervention for e-Training?</p> <ul style="list-style-type: none"> ✓ RQ1-H1 On-site, face-to-face management programming of e-Training does not impact knowledge acquisition. Rejected the Null Hypothesis ✓ RQ1-H2 Online, outsourced course facilitation with use of in-course communication tools do not impact knowledge acquisition. Rejected the Null Hypothesis <i>See each additional hypothesis below for unique characteristics of each short- and long-term</i> ✓ RQ1-H3 There will be no significant short-term gain as measured by the scores of post-test data over the pre-test data (T2-T1) at all levels of implementation (L1, L2A, L2B, L3). Rejected the Null Hypothesis. All levels L1, L2A, L2B, L3 experienced short term gain in knowledge acquisition. ✓ RQ1-H4 There will be no significant long-term gain as measured by the scores of delayed post-test data over the pre-test data (T3-T1) for library participants at all levels of implementation (L1, L2A, L2B, L3). Rejected the Null Hypothesis for L2A, L2B, L3. All courses with some form of instructional intervention did have long-term gain in knowledge acquisition. Failed to reject the null hypothesis for L1. ✓ RQ1-H5 There will be no significant long term loss as measured by the delayed post-test scores over the post-test (T3-T2) at all levels of implementation (L1, L2A, L2B, L3). Rejected the Null Hypothesis for L1, L2B, L3, which had significant difference indicating long term loss. Failed to reject null hypothesis for Level 2A (p= .047) was not conclusive.
Short- and Long-Term Self-Efficacy Scales
<p>RQ2 Do all levels of instructional intervention of e-Training impact general and specific self-efficacy equally both short- and long-term?</p> <ul style="list-style-type: none"> ✓ RQ2-H1 On-site, face-to-face management programming of e-Training does not impact general or specific self-efficacy. (L2B, L3) Rejected the Null Hypothesis Participants had significant difference in specific Self-efficacy scores at all stages. ✓ RQ2-H2 Online course facilitation with use of in-course communication tools did not impact general or specific self-efficacy. (L2A, L3). Rejected the Null Hypothesis. L2A and L3 participants had significant difference in specific self-efficacy scores at all stages. ✓ RQ2-H3 There will be no significant short-term gain as measured by the scores of post-test data over the pre-test data (T2-T1) at all levels of implementation (L1, L2A, L2B, L3). Rejected the Null Hypothesis. All levels had short term gain ✓ RQ2-H4 There will be no significant long-term gain as measured by the scores of delayed post-test data over the pre-test data (T3-T1) for library participants at all levels of implementation (L1, L2A, L2B, L3). Rejected the Null Hypothesis. All levels except L1 experienced significant long term gain. ✓ RQ2-H5 There will be no significant long term loss as measured by the delayed post-test scores over the post-test (T3-T2) at all levels of implementation (L1, L2A, L2B, L3). Rejected the Null Hypothesis for L2A, L2B, L3. All courses with some form of instructional intervention did have long-term loss in specific self-efficacy. Failed to reject the null hypothesis for L1. All levels except L1 experienced significant long-term loss in specific self-efficacy. <p style="text-align: right;"><i>(table continues)</i></p>

Table 49 (continued).

Learning Involvement and Attrition Rates

RQ3 Can the levels of instructional intervention impact amount of learning involvement as measured by the participation statistics generated by courseware management system and the attrition rates for each level?

- ✓ RQ3-H1 There will be no significant difference in amount of learning involvement as measured by courseware management system statistics for participants at each of the three levels of instructional intervention (L2A, L2B, and L3) where L1 is the Comparison Group. Rejected the Null Hypothesis The actual time devoted to training is not known because the face-to-face component was not known because face-to-face contact was not known conclusively. If @B and # had be minimum ½ hour of contact time per week, the highest level of learning involvement still appears to be at Level 2A course statistics, followed by L3, L2B, and L1.
- ✓ RQ3-H2 There will be no significant difference in mean attrition rates among all levels of implementation (L1, L2A, L2B, L3) as measured by number of participants that complete all three phases of the study. Rejected the Null Hypothesis

Note. The highest attrition rate was at Level 1 and the highest completion rate was at Level 3

Training Transfer and Work Practices

RQ4 Do all levels of instructional intervention of e-Training impact participant's work practices equally long term?

- ✓ RQ4-H1 Management programming of e-Training does not impact participant work practices significantly more than other instructional interventions. Failed to Reject the Null Hypothesis
- ✓ RQ4-H2 Online outsourced course facilitation does not impact participant work practices significantly more than other instructional interventions. Failed to Reject the Null Hypothesis

Size of the Library

RQ5 Does size of the library system impact knowledge acquisition, self-efficacy, participant work practices, or attrition rates

The size of the library system does not impact knowledge acquisition, self-efficacy, participant work practices, or attrition rates?

- ✓ RQ5-H1 Knowledge acquisition Rejected the Null Hypothesis; large libraries remembered more course content long-term
- ✓ RQ5-H2 Self-efficacy Rejected the Null Hypothesis; large libraries had more specific task level efficacy.
- ✓ RQ5-H3 Participant work practices Rejected the Null Hypothesis; small libraries were more likely to review, revise or create policies than large and large library participants were more likely to use what was learned on a daily basis.

CHAPTER 5

CONCLUSION

If we want research to transform our understanding of librarianship, if we want to discover how to provide more sophisticated library services, if something more than the minor incremental advances of normal research is wanted, then we need a different, bolder strategy. Areas within our interests that are important, but inadequately understood, need to be identified and researchers should be challenged to provide new insights using whatever techniques they can.

Buckland

Introduction

The primary goals of the IMPACT evaluative research study were to inform e-Training stakeholders of the impact of implementing online training using different levels of instructional intervention and to investigate a framework for conducting comparative e-Training impact evaluations. Chapter 1 presented the problem statement, research questions, and hypotheses and provided background information that included the study's rationale, purpose, conceptual framework, and key terminology. Chapter 2 presented a review of literature related to public library core competency e-Training evaluation. Chapter 3 described the methods employed in the study, the rationale for the design, and the research strategy. Chapter 4 outlined the data analysis and presented results in terms of the research questions and hypothesis testing. Chapter 5 includes discussion of the findings and their practical, methodological, and theoretical implications for e-Training evaluative research. Recommendations reflect a theoretically grounded interpretation of the data.

The research attempted a forward looking analysis of innovative online training evaluation along two veins of influence: (a) theoretically grounded pedagogical practices to

support competency-based training assessment and (b) pragmatic standards of accountability for competency-based online training. Establishing an evaluation framework that integrates theoretically grounded learning principles with practical, real world metrics may elucidate the rationale for establishing best practices in e-Training instructional intervention within specific learning context. A competency-based evaluation framework may also provide evidence of impact of e-Learning technologies in the workplace. An online learning environment encompasses more than a static tool to distribute information, but an interactive experience of self-actualization within the individual, a process of knowledge creation within the organization, and the development of a body of knowledge that defines and fortifies the discipline. The results raise questions about developing a more sophisticated approach to reinforcing learning of core competencies. An online competency-based training approach must take into account both the complexity of the topic and a more holistic view of the needs of front-line library staff. More specifically the results suggest the need for continuing education programs that weave administrative support and leadership skills into the daily development and reinforcement of staff member workplace knowledge, skills, self-efficacy, and transfer of training for competencies related to organizational policy and procedures. The results of the evaluation also raised questions as to the need for relative valuation of learning objectives based on library context and the unique training needs of small and large organizations. The study investigated a competency-based framework for (1) evaluating the impact of different levels of instructional interventions and (2) comparatively investigating outcomes to identify appropriate levels of online facilitation and management programming to optimize effectiveness and efficiency of online training.

Project IMPACT's evaluation framework was intended to generate interest in theory, methods, and practices related to conducting comparative, evidence-based evaluations of core competency e-Training for public library staff. The research study drew to a close at a time when consensus on national public library staff core competencies were being finalized, the e-Training environment was gaining momentum, e-Training quality standards were being defined, and Web 2.0 technologies for social networking, portfolio creation, and real-time communication features were being integrated into the learning context. Chapter 5 concludes with recommendations for future evaluative research that integrates these developments within the IMPACT evaluation framework.

Review of Results and Preliminary Recommendations

Knowledge Acquisition

Research question 1 (RQ1) asked, "Do all levels of instructional intervention of e-Training impact knowledge acquisition of learning objectives equally and is Web-based training equally effective for both short- and long-term knowledge acquisition at all level of instructional intervention for e-Training?" The hypothesis (H) for RQ1 included:

RQ1-H1 On-site, face-to-face management programming of e-Training (instructional interventions included for Level 2B and Level 3 participants) does not impact knowledge acquisition. The study rejected the Null Hypothesis, because there was significant increase in knowledge for Level 2B and Level 3 participants both short and long term.

RQ1-H2 Online, outsourced course facilitation with use of in-course communication tools (instructional interventions included for Level 2A and Level 3 participants) does not impact knowledge acquisition. The study rejected the Null Hypothesis, because there was significant increase in knowledge acquisition for Level 2A and Level 3 participants both short and long term. See each additional hypothesis below for unique characteristics of each short- and long-term

RQ1-H3 There will be no significant short-term gain as measured by the scores of post-test data over the pre-test data (T2-T1) at all levels of implementation (L1, 2A, L2B, L3). The study rejected the Null Hypothesis; all levels L1, L2A, L2B, L3 experienced short term gain in knowledge acquisition.

RQ1-H4 There will be no significant long-term gain as measured by the scores of delayed post-test data over the pre-test data (T3-T1) for library participants at all levels of implementation (L1, L2A, L2B, L3). The study rejected the Null Hypothesis for L2A, L2B, L3. All sections that included some form of instructional intervention had significant long-term gain in knowledge acquisition. The study failed to reject the null hypothesis for L1, because the change in long term knowledge (delayed post-test scores to T₁pre-test scores) was not significant.

RQ1-H5 There will be no significant long term loss as measured by the delayed post-test scores over the post-test (T3-T2) at all levels of implementation (L1, L2A, L2B, L3). Rejected the Null Hypothesis for L1, L2B, L3, which had significant difference indicating long term loss. Failed to reject null hypothesis for Level 2A ($p = .047$) was not conclusive.

The findings regarding knowledge test scores indicated that e-Training that include some form of instructional intervention, whether online outsourced facilitation or in-house, on-site local library programming, has more long-term impact on retention of knowledge acquisition than self-paced, canned inoculation-level training. When participants were tested for long term learning, the only group that did not show long term significant improvement was the group that participated in Level 1 inoculation-level training, which did not include instructional intervention by an on-site management programming or an outsource online facilitator. Although Level 1 participants showed improvement in knowledge immediately following participation in the training course, delayed post test knowledge assessment scores dropped to a level that showed no significant gain from their pre-Training knowledge assessment scores (scores were assessed based on a twenty-item, multiple choice test aligned with course learning objectives and core competencies). Groups that received instructional intervention, either through online outsourced facilitation and/or on-site management

programming of training, had significant gains both short- and long-term knowledge retention. The qualitative data from participants' points to the empowering ability of an active training environment to foster communication, self-confidence, and sense of community, which appear to diminish once the e-Training environment is not available to participants. The study's single most conclusive recommendation identifies the need to investigate learning reinforcement tactics and follow-up active learning opportunities that will supplement the initial online training experience and engage staff in a continuous support network of practitioners, especially for complex issues related to core competencies and emotive topics like customer service policy and procedures.

Self-Efficacy

Research question 2 (RQ2) asked, "Do all levels of instructional intervention of e-Training impact self-efficacy equally?"

The hypothesis (H) for RQ2 regarding self-efficacy were:

RQ2-H1 On-site, face-to-face management programming of e-Training (instructional interventions included for Level 2B and Level 3 participants) does not impact general or specific self-efficacy resulted in rejecting the Null Hypothesis; Level 2B and Level 3 participants had significant difference in specific self-efficacy at all stages.

RQ2-H2 Outsourced online course facilitation and use of in-course communication tools do not impact general or specific self-efficacy resulted in rejecting the Null Hypothesis; Level 2A and Level 3 participants had significant difference in specific self-efficacy scores at all stages.

RQ2-H3 There will be no significant short-term gain as measured by the scores of post-test data over the pre-test data (T2-T1) at all levels of implementation (L1, L2A, L2B, L3) resulted in rejecting the Null Hypothesis; all levels except L1 experienced significant long term gain in specific self-efficacy.

RQ2-H4 There will be no significant long-term gain as measured by the scores of delayed post-test data over the pre-test data (T3-T1) for library participants at all levels of implementation (L1, L2A, L2B, L3) resulted in rejecting the Null Hypothesis for Levels 2A, Level 2B, and Level 3; failed to reject the Null Hypothesis for Level 1 because all levels except Level 1 experienced significant long term gain.

RQ2-H5 There will be no significant long term loss as measured by the delayed post-test scores over the post-test (T3-T2) at all levels of implementation (L1, L2A, L2B, L3) resulted with rejecting the Null Hypothesis for L2A, L2B, L3. All courses with some form of instructional intervention did have long-term loss in specific self-efficacy. RQ –H5 resulted in failing to reject the null hypothesis for L1. All levels experienced significant long-term loss in specific self-efficacy, but L1 was not significant and aligns with the result from this study that indicated that Level 1 did not experience long term gain.

The findings on self-efficacy speak to the fact that e-Training is not effective as a “one-shot” inoculation to booster staff confidence, especially as it relates to the complex topic of managing difficult patrons. It appears that there is no one-shot e-Training inoculation or instant quick fix for building long-term confidence for complex tasks on-the-job. All facilitated participants knew more about the topic of managing difficult patrons following the e-Training and their confidence (self-efficacy) in their ability to use their training on the job did increase significantly immediately following training., in fact 90% of participants had higher short term specific self-efficacy (immediately following the course on the post-test score). While they were actively engaged in the learning students felt increased confidence/self-efficacy about their ability to address difficult patron policy and procedures in the workplace. Comments received also indicated that participants felt the materials and support found in the training were helpful in their daily activities. Three months after the training ended, all facilitated training sections still knew significantly more than before they took the training about the complex topic of managing difficult patrons; so one might think that they would maintain or increase their post-training levels of confidence, but this did not prove to be the case. The number of participants

with increased specific self-efficacy dropped from 90% to only 66% feeling more task level confidence than before training. In fact, 25% of Level 2A participants (online, outsourced facilitated learners with no in-library CE coordinator offering training support and programming) felt even less confident about their ability to address difficult patron issues than prior to taking the training; their specific task level self-efficacy (belief in their skills and abilities about managing difficult patron situations) dropped significantly, even though their general self-efficacy about life remained constant and they maintained a significant increase in knowledge related to course content on managing difficult patrons. To investigate these results further, an additional follow-up email interview was conducted on twelve participants whose specific task level self-efficacy scores dropped below their baseline pre-test (T_1) scores. The study used open-ended questions to investigate reasons these participants may have felt less confident in their ability to address difficult patron situations three months following training than they had before training. An analysis of the responses from e-mail interviews indicated a consensus that these participants felt managing difficult patrons and developing policies and procedures was an especially emotive task, requiring complex skill sets and clear library administration support. This qualitative information corroborated the quantitative findings on characteristics of participants who felt the highest specific task level self-efficacy three months later; task level self-efficacy scores positively correlated to two factors: (a) library staff that indicated that they had management support for e-Training had higher significant levels of specific self-efficacy and (b) library staff whose libraries had difficult policies in place had significantly higher levels of specific self-efficacy (Appendix K. Stake holder responsibilities and correlation matrix).

The responses received from those whose self-efficacy dropped also indicated that for complex topics and "big picture" learning, e-Training can be an effective and efficient tool for management to engage staff in communication, but was not a substitute for long-term leadership and support in this tumultuous area of librarianship. In reviewing comments from e-mail interviews and survey questions, it was clear that most participants viewed formal training for managing difficult patron situations as representing only a single facet of an expertise that is developed over time, individually with the support and within the dictums of the library leadership, and with the prudent application of "common sense," etiquette, and knowledge of legal ramifications when interacting with patrons. There was a conscience perception of the balancing act that exists between quality front-line customer service and administrative policy implementation. Further research is required to discover the role e-Training instructional intervention and management support may afford for reinforcement and follow-up on long-term staff member specific self-efficacy and to determine other correlations between participant motivational attitudes and the workplace learning environment, especially as they relate to competency-based training program best practices and complex learning context tactics. The quasi-experimental design, internal cohort-style comparison groups provided opportunity to conduct comparative evaluations, but the decision to participate was not always left to the individual. Some administrators for Level 2B and 3 did not allow staff members to make learning participation decision, but simply assigned the training as an additional duty. The study does not address how imposing group participation in online training might impact the learner or what motivations (individual professional development goals or

management's endorsement of training) are more effective for learning, self-efficacy, and training transfer.

Learning Involvement and Attrition

Research Question 3 (RQ3) asked, "Can the levels of instructional intervention impact amount of learning involvement as measured by the participation statistics generated by courseware management system and the attrition rates for each level?"

The hypothesis (H) for RQ3 regarding learning involvement and attrition rates were:

RQ3-H1 There will be no significant difference in amount of learning involvement from participant as measured by courseware management system statistics for participants at each of the four levels of implementation (L1, L2A, L2B, and L3).

RQ3-H2 There will be no significant difference in attrition rates among all levels of implementation(L1, L2A, L2B, L3) as measured by number of participants that complete all three phases of the study.

The initial conceptualization of results was that if online outsourced facilitation improved learning outcomes and in-library programming of training also improved learning outcomes, then providing both outsourced, online course facilitation and in-library, e-Training programming would likely have a multiplier effect; this did not occur. Instead, the participants that were provided both types of facilitation, chose to interact in the workplace, not online. This was most evident in the fact that the outsourced online facilitator did not generate the number of online discussion postings for the dual treatment group (L3) as compared to the outsourced online facilitated group (L2A). The discussion postings at level 2A were significantly higher and included robust levels of shared information on local practices and policies (see Appendix N Example Discussion Postings). In qualitative data follow-up using open ended

survey questions the overwhelming response from groups at all levels was that the training was a great topic for discussion. While the training was occurring, the training topic was actively discussed by participants in staff meetings or in conversations with peers and supervisors. The knowledge, self-efficacy, and performance scores were not significantly higher with both types of instructional intervention than either single form of intervention; and one of the few advantages appears to be completion rates were highest for duo-instructional intervention; so for library administrators that are concerned with staff training participant attrition rates, the study recommends duo-instructional intervention. The highest attrition rate occurred for participants in the solo, self-paced inoculation-level of e-Training. Though preliminary, these initial results indicate the attrition or "drop-out rate" for "canned," self-paced e-Training was higher than any facilitated group, while the highest completion rate was found for the group that had both online, outsourced facilitation and in-house programming for e-Training implementations. Research is needed to investigate if some core-competency topic areas or some specific workplace factors warrant the added expense of duo-facilitation. Further investigation is also needed on e-Training attrition rates and best practices for supplementing online training to increase online interactivity and training performance.

Job Practices

Research Question 4 (RQ4) asked, "Do all levels of instructional intervention of e-Training impact participant's work practices equally?"

The hypothesis (H) for Research Question 4 (RQ4) regarding on-the-job performance were:

RQ4-H1 stated, "On-site, face-to-face management programming of e-Training (instructional interventions included for Level 2B and Level 3 participants) does not impact participant work practices."

RQ4-H2 stated, "Outsourced online course facilitation and use of in-course communication tools do not impact participant work practices."

The results from self-report of on-the-job performance related to managing difficult patrons are inconclusive. Reviewing, revising, or creating policy manuals²⁹ related to managing difficult patrons was a training performance task recommended within the training materials and a workplace practices task that was used to assess if training impacted on-the-job performance. Only 31% of IMPACT training participants stated that they reviewed, revised, or created policy manuals at their library in the three months since participating in the training; no single instructional intervention treatment group reported significantly higher levels of this indicator (the evidence-based training performance and on-the-job training transfer measure aligned with learning objectives and certification requirements). The surprisingly low incident of workplace performance of training objectives and outcomes aligns with Miller's Simple Model of Competence; where knowing and knowing how to do a task does not automatically transfer to learner and workplace actions. In addition, perception of task value³⁰, may impact engagement in training performance measures. Further investigation is recommended to identify the determining factors within the workplace, the library organization, the learning context, and the individual participant contribute to realizing long-term workplace performance

²⁹ Tannenbaum et al. (1993) suggested two outcomes to assess training effectiveness: training performance and workplace transfer performance. In their model, learning is related to training performance, training performance is related to transfer performance, and transfer performance is related to workplace results. The present study used self-report of reviewing, revising, or creating policy manuals and use of training materials on the job as evidence of training outcomes.

³⁰ Bong (2001, citing Wigfield & Eccles,1992) defined task value as "an incentive for engaging in different tasks " stating that "[i]nterest in and perceived importance and usefulness of the tasks comprise important dimensions of subjective task value" (p. 23-24).

of learning objectives and outcomes. The present study did not collect extensive quantitative information on mitigating factors that impact policy manual development practices, but qualitative data indicate two key factors contributing to lack of policy manual review, revision, and development (a) lack of authority as policy manual development was a task often assigned to library boards, library administration, or state agencies (b) lack of priority to address policy development, review, or revisions due to time constraints during the three month follow up period. The finding on the lack of priority for completing training assignments warrants further study. Management and participant's subjective perceptions of the relevancy of the assigned training performance task and the perceived necessity for participants to complete all training assignments to certify course completion and workplace competence appears to impact the level of completion of training performance tasks. The initial results indicated that librarians in different types of libraries scoped learning within a broad competency area to issues that were most problematic for their institution. Participants and managements' subjective perceptions of relevancy of learning objectives to their workplace context may correlate to the levels of completion and motivation to apply e-Training on-the-job, but sweeping conclusions about cause and effect³¹ of transfer of training cannot be made from the present study. While the level of instructional intervention did not significantly impact the studies measures of training task performance and training transfer, library size (discussed below) did appear to have some impact on training transfer.

³¹ Michael Scriven (1974) wrote that causal inference is not only difficult to measure, but perhaps of less utility than more practical evaluation outcomes. He asserted that "the time has come to change our orientation in the development of social science away from the goal of abstract, quantitative, predictive theories toward specific, qualitative, explanatory checklists and trouble-shooting charts" (p. 74).

Library Size

Research Question 5 (RQ5) asked, "Does size of the library system impact knowledge acquisition, self-efficacy, participant work practices, or attrition rates?"

The hypothesis (H) for RQ5 regarding library size included the following results:

RQ5-H1 stated, "There will be no significant difference in knowledge acquisition between participants from large and small libraries." For RQ5-H1 regarding knowledge acquisition scores, the study rejected the Null Hypothesis; because large libraries remembered more significantly more course content long-term.

RQ5-H2 stated, "There will be no significant difference in self-efficacy between participants from large and small libraries." For RQ5-H2 regarding self-efficacy the study rejected the Null Hypothesis; because participants from large libraries ranked significantly higher on specific task level self-efficacy on the delayed post-test than participants from small libraries.

RQ5-H3 stated, "There will be no significant difference in training related work practices between participants from large and small libraries." For RQ5-H3 regarding participant work practices, the study rejected the Null Hypothesis; because the number of small library participant that reported on the delayed post-test that they reviewed, revised or created policies was significantly greater than large library participants, who were more likely to use what was learned on a daily basis.

RQ5-H4 stated, "There will be no significant difference in attrition rates between participants from large and small libraries." The study did not reject the Null hypothesis because there was not significantly more attrition rates for either large or small library participants.

It is noteworthy that long term results indicate small libraries did evidence more long-term training policy development transferred to the workplace while large libraries indicated more training related procedures/tactics transferred. Small libraries were more likely to review, revise, or create policies than large libraries, but large library participants were more likely to use what was learned on a daily basis. Additional research is needed to investigate whether large and small libraries have significantly different training assignment task completion rates or different training transfer based on their workplace practices for other competency areas. In

the present study small and large libraries emphasized different aspects of the broad core competency area of *Policy and Procedures*. If additional research confirms the preliminary results, future competency development for *Policy and Procedures* may want to develop separate courses along the logical division of two reciprocal core competency areas, e.g. *Library Policy Development* for small libraries and *Patron Customer Service Practices and Procedures* for large libraries. Semi-customized training may also be an option for addressing the unique needs of a library based upon the size of the patron base.

Limitations

Researchers have just begun to identify the factors that impact workplace learning and to create evaluation measures of e-Training that assess levels of staff performance enhancement following training initiatives. This quasi-experimental evaluative research study assessed a single asynchronous online course provided at the four levels of e-Training implementation, as defined by Turner's (2003) Implementation Pyramid. The study's design and findings, at best, inform follow-up investigations due to the limitations of the following factors: (a) limited sample size, (b) limitations of evaluation scope to a single course, (c) limit of the interventions approaches being tested to asynchronous online, outsourced facilitation and on-site library programming, and (d) general restrictions on time and research resources of a single researcher. The study investigated the importance of e-Training implementation practices on outcomes and proposed a preliminary comparative evaluative research design of e-Training implementations practices for a specific target group (public library staff) and within a specific competency area (*Public Library Policies and Procedures*). Although the findings cannot be

generalized to other e-Training scenarios, the study may generate interest in e-Training implementation practices and encourage future e-Training evaluative research studies.

As mentioned earlier, Cronbach stressed the need for establishing "durable relationship" by evaluating the same education material and program under varying implementations (Cronbach, 1964 in Stake, 1967, p. 3). Investigating a single asynchronous e-Training course under different levels of instructional intervention (i.e. online facilitation and on-site programming) does not enable the researcher to firmly establish causality of outcomes, but begins to build the bridge from established learning theory and present day practices toward future research studies and best practices for e-Training. While the data and findings are preliminary and not generalizable to other training scenarios, the study does indicate that further quasi-experimental research could inform future research methods for evaluating competency-based learning environments.

Implications and Future Research

It is important to acknowledge that quality of a learning process is not something that is delivered to a learner by an e-Learning provider but rather constitutes a process of coproduction between the learner and the learning-environment. That means that the product/outcome of an educational process is not exclusively a result of the production process of an educational institution. Quality therefore has to do with empowering and enabling the learner. It has to be defined at the final position of the provision of the learning-services: the learner (Ehlers, 2004).

The review of literature indicated that this empirical study is unique among the very few that explored the topic of comparative evaluation of competency-based public library staff e-Training. The reality is researchers know very little about what constitutes effective and efficient e-Training for public library staff. The literature on library staff training in general fails

to adequately address evaluation issues. Conducting evaluative research on training that utilizes internet learning technologies necessitates questioning the assumptions held about the goals, theories, and methods of online learning. The current evaluation research literature does not provide adequate empirical evidence of results.

This study contributed to the evaluative research in the Learning Sciences to inform theory, method, and practice. In e-Training evaluative research, learning and evaluation theories, assessment tools, research methods, industry competency standards, workforce training objectives, organizational characteristics, staff motivations, and workplace practices are inextricably linked. Future research should follow an iterative agenda to untangle the complex relationships of variables that impact e-Training effectiveness.

Implications for Theory

A pragmatic epistemology provided the valuation system from which to analyze applied theory and comparatively assess variations in practices. As James (1907) explained, "Theories thus become instruments, not answers to enigmas, in which we can rest. We don't lie back upon them, we move forward, and, on occasion, make nature over again by their aid. Pragmatism unstiffens all our theories, limbers them up and sets each one at work" (p. 52). Thus, learning theories are defined by their outcomes and consequences, which are known only through examining practices and experience. Pragmatism supplied several useful principles in which to integrate learning theory, current practices, and evaluation methods and metrics. Pragmatism emphasized that theories must be analyzed and defined by the consequences of their application. By articulating underlying beliefs of learning theories that guide current

practice in the instructional design and implementation of a course, the theoretical constructs supported by a specific intervention can be analyzed for their real world impact in order to assess their value contextually. By analyzing the effects of theories utilized in instructional design, one can discover the true value in informing practice, training implementations, and assessment. Pragmatism emphasized that the value of a theory can only be defined contextually by "tracing a concrete consequence" within the contextualized learning experience (James, 1907, p. 52). Pragmatic evaluation provided the Evidenced-based evaluation framework to investigate the effectiveness of alternative approaches to e-Training. The implementation and assessment employed in the study utilized theoretically-based learning environment constructs from constructivism and social cognitivism. This framework was not employed to discover which e-Training implementation approach was valid, but (a) to investigate if one approach might be more appropriate than another in a specific context and (b) to investigate how assumptions about learning objectives for core competencies are operationalized in an e-training course evaluation.

According to pragmatism, context determines the truth or usefulness of any idea. The key question in e-Training evaluation is "what differences implemented in the instructional interventions make a difference to the learning outcomes?" This study's results validated the pragmatic approach as a useful means to (a) comparatively evaluate varying levels of instructional interventions, (b) correlate contextual differences that impact the respective learning outcomes, specifically type of intervention and size of participating organizations, and (c) expose false assumptions for practice, e.g. that combining interventions would increase impact significantly more than a single intervention. Pragmatism, as represented by Peirce,

James, Dewey and Vygotsky, provided an epistemological lens to evaluate theory in practice and the criteria for testing training assumptions and practices within a theoretically grounded, evidence-based framework. By initiating holistic pragmatic evaluations that include contextual variables the evaluative approach brought together learning theory and training practices. Dewey (1961) observed that experience must be articulated, shared within a community, then revised as new perspectives and ideas illuminate best practices. As a Pragmatist he believed in the transformative potential of dialog, which for e-Training evaluation means (a) articulating the realized impact of the training implementations, (b) opening dialog within the library community on e-Training experiences and outcomes, and (c) reflecting on practical strategies to evolve e-Training implementation practices within the emerging competency-based CE landscape. Future evaluative research incorporating pragmatic principles would inform knowledge of current theories that challenge, confirm, or extend current practices. For example, Knowles (1984) advocated the need to review the characteristics of a topic area and the level of expertise of the learner in order to determine the best learning approach for the desired learning outcomes. The present study provided preliminary evidence that in addition, the training context, specifically organizational characteristics and workplace priorities also impact the learning outcomes of the e-Training experience³². Future research based on pragmatic principles would further explore this type of phenomenon to enable development of practice-base methods that inform (1) the research community's desire for e-Learning theory

³² Knowles explored characteristics of adult learners (self-concept, level of expertise, task-oriented readiness to learn materials applicable to social roles, problem-centered orientation to learning, and internal motivations to learn) that impacted learning experience. This holistic evaluation of the learner was beyond the scope of the present study that explored characteristics of the instructional interventions that evidenced positive learning outcomes, but the results did speak to the need for further research into impact of e-Training participants' internal motivations, external workplace social roles, and organization problems.

development and (2) the practitioners' need for accountability and control. A pragmatic evaluation framework for public library e-Training evaluative research could potentially unite key stakeholders, elicit dialog around evaluation experiences, create test beds to investigate assumptions about e-Training effectiveness, and lead to the development of public library staff e-Training quality standards.

Implications for Methods

A competency-based national certification program for public library staff was eminent and confirmed the desire among key public library stakeholders for a staff CE certification framework and a system of accountability for Librarianship competencies. The findings from this study suggested that evaluative research involving theoretically grounded assessment of competency-based public library staff e-Training programs merits further investigation and may provide a venue to explore best practices in e-Training instructional interventions within core competency areas and complex training scenarios. The present study examined the relative impact of outsourced facilitation and on-site e-Training programming and presented a theoretically based evaluation framework that added to the emerging body of knowledge on e-Training assessment, evaluation, and quality standards. Evaluative research methods have been at a conceptual cross-road between practitioner needs for usability and the demands of researchers for empirical rigor. The present study embraces a holistic, contingency-based approach that unites the practice-based and research-centered approaches within a comparative, Evidence-based evaluation framework. Far from being dichotomous, the empirical evidence of quantitative research and robust description of qualitative research paint a more

complete picture of the clarity and depth of e-Training assessment that is possible within the emerging evaluation landscape.

Implications for Practice

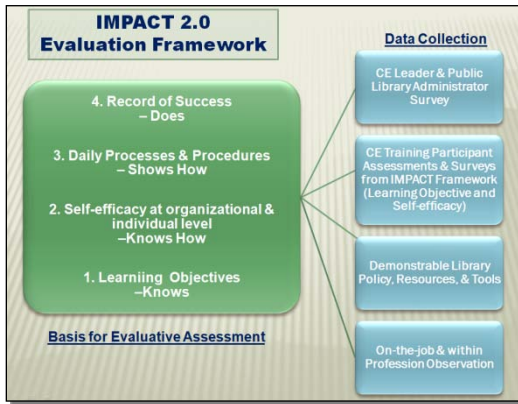


Figure 17. Proposed IMPACT evaluation framework.

The ultimate goal for any public library staff training effort is improved workplace practices. The library administration wants evidence of improvement in the services and workplace practices of library staff. While acquisition and retention of knowledge and concepts is important, the ultimate goal of the training is deep or higher-level learning (Atherton, 2003) and the ability to apply what is learned in a meaningful way to the work environment. The Miller's (1990) *Simple Model of Competence* was incorporated in the IMPACT evaluation framework to provide an assessment hierarchy for competency-based evaluation and proved to be a useful framework for developing e-Training evaluation methods and assessment tools. LE@D course learning objectives were aligned with regional core competency-based certification requirements, which were then aligned with Evidence-based assessments of learning, which aligned with hierarchical competency categories on the Miller model. Knowledge development is at the center of both social cognitive and constructivist views of

learning processes and the resulting evaluation framework follows a classic taxonomy to assess levels of knowledge along a continuum that emphasizes a continual cycle of self-actualization for the individual learner within a social framework.

Within the IMPACT study, these learning objectives were integrated into each assessment instrument to demonstrate levels of learning:

1. Knowledge assessment multiple choice instrument was used to establish if the learner "knows" the material.
2. Specific self-efficacy scale (a social cognitivist construct) was used to establish if the learner "knows how" or perceives that they could successfully use the materials on the job.
3. Self-report of training performance and on-the-job practice addressed the last two levels "shows how" and "does" on the Miller Competency Continuum.

Constructivism learning theory, provided theoretical grounding, and aligned well with educational evaluation and assessment in the online learning environment.

The outsourced, online facilitated sections provided courseware management tools for learners to create and upload files, to engage in dialog about course-related content, and to provide demonstrable evidence of training performance. Sections that had management programming, enabled participants to engage in face-to-face demonstration of training performance. The three month self-report follow-up of long term workplace assessment provided self report tools for data collection on what the learner "does" following the training experience. The results from this evaluative research study produced several potentially significant findings for practice that require further investigation. Preliminary results indicate that utilization of evidence-based evaluation methodologies within online courses may help establish accountability for public library staff e-Training short and long-term outcomes within

these emerging public library staff core-competency areas. The Evidence-based evaluation approach also informs comparative evaluation methods for e-Training programs. Consensus on core competency-based assessment tools may enable comparative evaluation of alternate e-Training practices and programs. This preliminary investigation is not an end in itself, but an important predictor for the need for continuing research in evaluation methodology to investigate the use of online communication technologies and on-site educational programming for integration of public library staff CE programs.

The strategic business visionaries Prahalad and Hamels (1990) said that local management is responsible for assuring the competence of their industry, stating that "[t]op management's real responsibility is a strategic architecture that guides competence building" and that "they will be judged on their ability to identify, cultivate, and exploit the core competencies that make growth possible" (Prahalad & Hamels, 1990). They proposed an architecture for sustained staff competence building of industries through directed leadership that develops a shared vision of the industry strengths and outlines a process of competence-building for the entire discipline that translates to key roles and responsibilities that enable staff to share in that vision. A shared vision of competence propels both the individual staff member and the entire industry by communicating a strategic architecture that fortifies staff and enables the individual to align their skills, abilities, and career goals to the mission and vision of a particular industry or discipline. Fullan (1993), speaking of defining discipline competencies, stated, "It is not enough to be exposed to new ideas. We have to know where new ideas fit, and we have to become skilled in them, not just like them" (p. 67).

Competency-based evaluation of public library staff training is one part of a larger vision for the discipline and requires an ergonomic blue print that incorporates the surrounding landscape. A core competency based strategic architecture can be utilized as a framework or map that administrations can use to leverage organizational and industry resources towards a strategic vision. Competency standards can be a key mechanism to empower the individual staff member to share in that vision and to enable the local manager communicate and think strategically about a focused vision for the organization, librarianship, and the role of CE training. The competence of an industry ultimately translates to the knowledge, skills, abilities, attitudes, and learning experiences of front line employees. Training programs are essential to competence building. Public library e-Training providers should assess their impacts on both short- and long-term staff learning to strive with management to achieve extended support for sustained results. If a training program can offer Evidence-based accountability, it will inform stakeholders at all levels:

1. Evidence-based evaluation informs the individual learner by providing assessment data that translates to evidence of success in the workplace.
2. Evidence-based evaluation informs the local administration of more efficient use of training time and resources.
3. Evidence-based evaluation informs the e-Training provider of best e-Training practices and contextual variables that may impact training.
4. Evidence-based evaluation informs the field of Public Librarianship with a system for accountability and continual improvement in the workforce.

Another area of particular promise is the standard's initiative to define core quality standards for Internet Learning Technologies and courses. The International Standards Organization (ISO) is developing quality control standards for online courses and looking into

measures to insure increased global accountability for all online educational materials (ISO 19796, 2008). Although the ISO quality standards can inform the e-Training industry, it is the responsibility of key stakeholders to incorporate the standards and to initiate test bed evaluation opportunities that define quality benchmarks. One implication for practice is the method employed in this study to recruit participants and test variations in instructional intervention designs, which created the potential for a test best scenario. Typically participants for the LE@D e-Training courses are recruited by word of mouth, from a pool of previous participant libraries, through newsletter announcements to established continuing education contacts in which LE@D has working relationships, through the LE@D Website, and through proactive recruitment through conferences. The present study required leveraging new contacts at state libraries in many states and recruiting libraries that had not previously participated in LE@D training³³. The tactic of simple LE@D e-mail and newsletter solicitation fell short. Ultimately the development of a programming packet that accompanied all email solicitation for group participation and a series of phone calls to continuing education coordinators at state libraries got the numbers of participants up to desired levels. The implications for practice for recruitment for research in CE and educational technologies may point to the need to have the researcher act as a boundary spanner to enlist state level library agencies and personnel to act as lynch pin points of contact to enlist local library participation.

Future Research in e-Training Evaluation Practice

Future E-training evaluation research should continue to utilize a holist approach to (a)

³³ Recruitment was restricted to libraries that had not utilized LE@D online training in order to control bias and any advantage that may occur with familiarity in LE@D training.

investigate quality benchmarks for delivery of e-Training to public library staff, (b) appraise e-Training's impact on staff knowledge, attitudes, and workplace performance, and (c) explore e-Training participation's connection to public library staff retention and career advancement. In addition, research should probe current levels of self-efficacy related to core competencies within the discipline to provide benchmark accountability measures that can demonstrate whether public library staff CE certification programs are enabling front-line staff and administrators to confidently perform on the job and advance within the profession. There is a need to establish assessment measures for the public library staff training environment that can demonstrate workplace competence along the full continuum of knowledge to action, with agreed upon demonstrable outcomes for training performance and workplace practice. Using measures of knowledge, self-efficacy, and performance assessment could help demonstrate the effectiveness and deficiencies of online training programs. Using an Evidence-based comparative evaluation framework requires designing learning environments that scale to variations in instructional interventions/delivery and configuring assessment to reflect specific learning theorist constructs aligned with industry competency standards. To streamline dissemination of evaluation findings learning technology evaluation should utilize assessment features built into the e-Training and courseware management system . These assessment tools allow stakeholders to digitally capture Evidence-based impact indicators in order to provide timely delivery of results for accountability to e-Training stakeholders. Timely delivery of finding can inform instructional designer's course revision efforts and library administrator's need for tangible proof of training program outcomes. Because online assessment tools captures and digitally store evaluation data, a large portion of the reporting in future evaluative research

studies could be automated to streamline the dissemination process.

Linking theory-based e-Training design and implementation practices with Evidence-based training evaluation can propel the vision for quality online training programs and inform stakeholders of potential challenges and opportunities. One practice-based area of particular promise is the online career and training portfolio that records a snapshot of accomplishments for each individual using networked Web 2.0 resources that provides a digital record of CE e-Training achievement. Not only does the digital portfolio provide a snap-shot and tangible proof of individual achievement, the portfolio system enables e-Training stakeholders to trace e-Training benefits and align them with career development. By providing training participants a confirmable digital record of training performance as each competency area is mastered the individual public library staff member documents workplace competence and the industry records workforce capabilities. Portfolios provide a viable record of career achievements and a meaningful self-assessment tool for staff and administrators. LE@D currently promotes a Web-based *Staff Development Toolbox*™ that aligns core competencies with library staff member's training and CE certified course needs across multiple e-Training providers³⁴. The service includes a staff self-assessment tool (which measures staff core-competency needs) and a management staff development plan (which provides library administrators with authenticated access to an automatically generated list of courses based on the needs and preferences of staff). The current LE@D *Staff Development Toolbox*™ allows public library staff to document courses and certification hours online. If public library staff were also able to integrate a more

³⁴ LE@D released the Staff Development Toolbox,™ a Web-based service unveiled at PLA in 2008 that aligns core competencies with both the library staff member's training track and CE certified courses across multiple public library e-Training providers..

robust Web-based record of accomplishment that provides a portfolio of training performance, assessment results and demonstrated value of training experiences, this would inform a holistic evaluation framework for assessing e-Training's impact longitudinally to provide a roadmap that integrates individual lifelong learning journeys with training performance and workplace impact. In the same way that the original Memex "memory extender" (Bush, 1945) was envisioned as a tool to permit an individual to track and update interests, an online lifelong learning portfolio portal could empower the staff member to create a personalized training work space that integrates the learning environment with workplace responsibilities. This portal would replace the fragmented paper-based records of training and certificates of competency with a digital, Evidence-based record of training performance and tangible Web-based artifacts of learning accomplishment. The learning portal could enable reinforcement of learning through periodic review and reflection on learning. As a Web 2.0 integration the learning portal could provide social networking opportunities with other learners within the library and the larger public library community of practice. Future research on an e-Training evaluation framework should integrate Web 2.0 technologies to build a personalized e-Learning portal that enables a sustainable, cost effective approach to an environment of continual, authentic learning guided by periodic expert instructional interventions for core competency areas in which long-term knowledge mastery is critical. The proposed future research evaluation agenda would incorporate diverse Web 2.0 technologies³⁵ (e.g. blogs, rss feeds, second life personas,

³⁵ Web 2.0 technologies incorporate second generation Web communication tools. *Blogs* are Web-based journals, *RSS* (stands for Really Simple Syndication, formerly Rich Site Summary and RDF Site Summary) is a newsfeed technology in XML format used for distributing news headlines on the Web, *Second life* is an online 3D program based on client-server technology and massive multiplayer online game (MMOG) scripting languages that enable supports hundreds or thousands of players simultaneously. Individuals and institutions create an online presence to allow them to interact (socialize, participate in individual and group activities, create and share objects) in a

tagging, video hosting, wikis) with competency-based training to link the online learning environment with social network tools and a social networking of learners. Current courseware management systems integrated with Web 2.0 technologies would enable stakeholders to capture learner assessments, automate training evaluation statistics, foster community dialog and ranking of courses, and provide opportunity for periodic follow up instructional intervention. The Librarianship social networking and learning portal would capture long-term input for all public library e-Training stakeholders and provide individual course scorecards that integrate the IMPACT evidence-based evaluation framework and social networking tools (including user reviews and polls) to gather qualitative information on the utility of a particular core-competency course (see Appendix M for a preliminary scorecard mockup).

Summary

The study found all levels of e-training implementation resulted in short-term knowledge gains; participants knew more about managing difficult patrons at the end of the lesson. The study also found that the instructional intervention approaches (Level 2A, 2B, and 3) resulted in long-term knowledge gains; participants who received instructional intervention knew more about managing difficult patrons three months after the lesson, while the inoculation approach (Level 1 independent study with no intervention) resulted in no long-term gain in knowledge acquisition and the highest attrition rates. The results for long-term workplace practices attributable to training were inconclusive; among the four levels no

virtual world called "The Grid", *Tagging* also known as folksonomy, social classification, social indexing, and Web graffiti) is an online method for shared annotation and classification of Web content by individuals, *Video hosting* allows individuals to upload video clips to the Web, *Wiki* is website that allows users to add and edit content collectively via a browser interface.

significant difference was found in self report of workplace practices based on involvement in creating or revising problem patron policy or using course related materials to address difficult patron situations in the workplace. Qualitative data indicated that the training was an impetus for opening dialog among library staff, but several reasons were given for lack of demonstrable training related performance following the training participation, including no sustained staff involvement in policy development and general lack of support for development of policy and procedures for addressing difficult patron cases due to other workplace priorities that prohibited follow through on the training topic.

The results on library size showed a positive correlation between small libraries and development of policy documents following training, while large libraries consistently reported using and sharing the techniques and procedures for managing difficult patrons far more frequently than small libraries. The unique outcome of small and large libraries' performance indicators elicited discussion on potential for further research and need to explore semi-customized follow up tracks based upon organizational characteristics. The motivator of contextual workplace needs appears to be the key factor for how the materials were incorporated on the job, so future assessment measures may need to reflect more than generic training-related on-the-job performance, but address how the training met a specific need of the staff member based on a characteristic of the library organization. Customized follow up to training by CE facilitators or management training coordinators may need to focus on specific areas in a broader core competency area. Additionally, individual learner characteristics, such as degreed and non-degreed, indicated different results on assessment of knowledge based on previous knowledge. Social networking technology may provide the venue for training

programs to be incrementally augmented to meet increasing levels of competency, modularized to address specific areas of interest in a broader core competency topic area, and integrated in the workplace for active follow up reinforcement of core competencies to foster long-term learning and accountability measures.

The pivotal role of management support of training was identified as an important piece of the training puzzle that is often not fully realized. The study indicated that staff perception of management support was positively correlated to training outcomes. While management support was not correlated to staff member general self-efficacy about life, it did positively correlate to not only participants who reported being allocated staff time to complete training away from other duties, but also their scores on pretest, posttest and delayed posttest knowledge assessment, the number of policies that were in place, and the amount of specific self-efficacy both short- and long-term that participants gained from the training. The study proposed that further research on management support for training was warranted.

A key recommendation from this study was that attention should be given to the complexity of the training content when deciding on instructional intervention; the study suggested that for training in which short-term knowledge mastery is sufficient, non-facilitated online lesson may be the most cost-effective, but for training in which long-term knowledge mastery is critical, the findings indicated that instructional intervention should be instituted; either through online outsourced facilitation or on-site library CE programming. For long-term impact on knowledge, self-efficacy, and workplace practice, especially with challenging competency-based areas, periodic facilitated intervention may be indicated. To foster a theoretically grounded understanding of staff training processes and to establish best practices

in the public library e-training landscape, the study recommended integrating Evidence-based evaluation practices for comparative assessment of e-Training approaches, while being ever mindful of the role of competency standards within an emerging strategic vision for public librarianship. Through a pragmatic competency-based evaluation framework that includes an integration of theory-based education research and a balanced, holistic combination of quantitative metrics and qualitative clarification of data using latest Web tools, the evaluation of continuing education programs may be expected to go beyond current limitations and lead to improvements in our understanding of the role of instructional technology and an increase in evidence of positive impacts associated with online learning environments.

APPENDIX A
LIBRARY E-TRAINING PROVIDERS

Initially, in the largest public library staff e-Training projects, the development and delivery of online courseware was supported chiefly through grant-based funding. Most notable among these projects were WebJunction (2007), funded by the Gates Foundation, and Lifelong Education at Desktop, funded by the Institute of Museum and Library Services and the University of North Texas. Many other agencies are now providing Web-based training to public library staff. A recent WebJunction survey of public library purchasers surveyed names of current e-Learning content providers. The *Public Library e-Training Providers* chart below divides the list of e-Learning public library training providers into categories and provides examples identified in the survey to illustrate the diversity of e-Training providers. The list is not comprehensive, but provides representative examples.

Chart: *Public Library e-Training Providers*

CATEGORIES OF PUBLIC LIBRARY E-LEARNING PROVIDERS	EXAMPLES
Academic continuing education certification programs available through ALA accredited library schools	Simmons University, University of North Texas, University of Drexel, University of Wisconsin–Madison
National & international library associations	American Library Association, Ontario Library Association
Local, state, regional, national, or international library consortia/networks or other 501(c)3 nonprofit library-related membership based organizations	SOLINET , INCOLSA, Amigos, OCLC, BCR
Library database & automations vendors & their training arms	Proquest/eLibrary, library database vendors, Dynix
Continuing education clearinghouses & resellers	Computer Insight Learning
Academic affiliated, continuing- education, online-Learning content developers/providers	University of Missouri – MoreNet, University of North Texas - LE@D, Washington State University-Center for Workforce Development
Partnerships between academic institutions & public library	University of Wisconsin & Madison Public Library
International non-profit educational foundations	International Baccalaureate Organization
Commercial training & certification programs	MindLeaders
Freelance library trainers & private sector training developers	Master Teacher, Lynda.com
Corporations, especially technology industry sponsored training	Software & operating system developers like Microsoft & computer hardware developers/sellers like Gateway
Corporate-based, curriculum training coordinators	Element K
State library administration or regional/ local library systems	Washington State, N.E. Colorado, Dupage
Library Services & Technology Act (LSTA) IMLS/government funded state-based agencies	InfoPeople
Advocacy groups	Information literacy-Literacycampus.org
Private donor-funded online training organizations	LibraryU, WebJunction
Independent training companies for life skills	New Horizons, online language immersion programs like Rosetta Stone, & developers of testing aids like LearningExpress

Chesemore S., Van Noord R., Salm J., & Saletrik, C. (2006). Trends in e-Learning for library staff: a summary of research findings. Retrieved January 3, year, from <http://Webjunction.org/do/DisplayContent?id=140>

WebJunction. (2007). Trends in E-Learning for Library Staff: A Summary of Research Findings. Retrieved April 23, 2009, from <http://Webjunction.org/learningcenter>.

APPENDIX B
TRANSPARENCY IN EVALUATION

ANSWERING STAKE'S FIVE QUESTIONS TO ADDRESS TRANSPARENCY IN EVALUATION

The countenance of evaluation should be one of decision-making, not one of trouble-making (Stake, 1965, p. 15).

In order to better understand the scope and limitations of the study, it is important to have full disclosure of the purpose of the evaluation. Stake (1965) stated that evaluators of educational programs (in order to provide full transparency of the evaluation process and avoid "restrictive effects of incomplete guidelines and inappropriate countenances") should answer questions on the purpose of the evaluation and the investigative emphasis, including how the data will be used (p. 15). By defining the scope and intended purpose of the evaluation, the limitations and delimitations of a study are addressed. Stake (1967) stressed the importance of evaluation planning and the need to answer a few key questions in an effort to make "evaluations more deliberate, more formal" and clarify "responsibilities" (p. 521). Although identified almost a half century ago, the five key questions delineated by Stake (1967) (in italics below) can be used to succinctly define the scope, intended purposes, and subsequently the limitations and delimitations of an evaluative research study:

1. Descriptive observation vs. value judgment in evaluation:

Is this evaluation to be primarily descriptive, primarily judgmental, or both descriptive and judgmental?

2. Mapping the IMPACT public library e-Training summative evaluation context:

Is this evaluation to emphasize the antecedent conditions, the transactions, or the outcomes alone, or a combination of these, or their functional contingencies?

3. Measuring intended and unintended outcomes:

Is this evaluation to indicate the congruence between what is intended and what occurs?

4. Scriven's apples and oranges or Cronbach Granny Smith and Red Delicious:

Is this evaluation to be undertaken within a single program or as a comparison between two or more curricular programs?

5. Informing pedagogical instructional design or implementation best practices:

Is this evaluation intended more to further the development of curricula or to help choose among available curricula? (Stake, 1965, p. 16).

Descriptive Observation vs. Value Judgment in Evaluation

Is this evaluation to be primarily descriptive, primarily judgmental, or both descriptive and judgmental? (Stake, 1965, p. 16).

Conole and Oliver (2007) in *Contemporary Perspectives in E-Learning Research* traced the historic perspectives on the definition of educational evaluation to discuss the disagreement among experts as to the emphasis of the evaluator's role, either as strictly an observer or as the judge of merit and worth. Their discussion addressed the fundamental differences in the nature of *evaluative research* and *educational evaluation* as indicated by the differences in the scope of the use of the findings. They postulated that definitions of evaluation in the literature align within two dichotomous approaches based on the perceived purpose of measures and outcomes, categorizing these as either theoretically research-based or political. Similarly, the evaluation theory tree, which is a well-circulated graphic representation of evaluation theory, depicted key evaluation researchers along the branches of

a tree whose roots include two dichotomous stems: social inquiry on one side and (social) accountability and (fiscal) control on the other (Alkin, 2004 p. 13 & p. 389). In evaluative research the evaluative researcher is perceived as predominately a scientific and philosophical observer viewing data from theoretical and methodological lenses; and in educational evaluation the evaluator is viewed as an auditor tasked with measuring achievement of arbitrary stakeholder values and assessing achievement of organizational outcome measures and return on investment. In actuality, the continuum is much more blurred even among evaluation theorists. The present study was predominantly descriptive social inquiry, exploring what occurred under prescribed implementations using adult learning theory and evaluation theory to substantiate evaluation approaches and measures. There is also an element of fiscal accountability in reporting relative cost effectiveness among the choices of implementations and an element of social accountability in relaying course-related knowledge, attitude, and performance (KAP) results which are aligned with competency-based requirements, which are stakeholder measures of workplace competency. Perhaps more importantly, can the study demonstrate whether this evaluation is research-oriented or audit-based? The current study can be viewed as transparently research focused since: (a) the findings are intended to be used to inform future e-Training decisions, but not to discontinue, prescribe, or restrict implementations practices; (b) the methodology utilizes adult learning theory principles; (c) the study addresses a need in the evaluation literature to propose and implement novel evaluation approaches; and (d) the study's evaluator gains no political or financial advantage by proving or disproving the proposed hypotheses.

Evaluands, Objectives and Outcomes

Is this evaluation to emphasize the *antecedent conditions*, the *transactions*, or the *outcomes* alone, or a *combination* of these, or their *functional contingencies*? (Stake, 1965, p. 16; Table 6 defines each of the italicized terms)

As an evaluative research study, the researcher's primary goals were to inform e-Training stakeholders of the implications for implementation decisions and to present a preliminary framework for comparative e-Training evaluations for LE@D e-Training stakeholders. Stake's second question illuminates the multi-faceted nature of evaluation in educational context and the necessity of scoping and stating the focus of the evaluation. To answer Stake's question, the present study hoped to explore functional contingencies at four levels of implementation; each level of implementation consist of unique a combination of measured and/or controlled antecedent conditions, transactions, and outcomes. Stake (1967) stated that, in evaluating a particular educational program, "attention to individual differences among students should give way to attention to the contingencies among background conditions, classroom activities, and scholastic outcomes" (p. 525). The present study uses purposive sampling to control some individual differences among participant (large or small organizations) and investigates potential correlates for participant's individual characteristics in competency-based e-Training for customer service issues (specifically investigating individual years of service and academic degree). The study also explores the antecedent conditions (level of perceived learning support and perceptions of management endorsement); but the primary focus of the evaluation, the evaluand, *the object that is evaluated* (de Laat, 2007, p. 4), were each of the learning implementation levels and the outcomes (changes in knowledge, attitudes, and workplace performance attributed to the training).

Graphic and chart (below) illustrate the constructs Stake identifies as being important to consider in the learning environment mapped to the IMPACT public library e-Training summative evaluation context. Although causation is difficult to specify, the relationship of outcomes to a continuing education course in managing difficult patron situations can be explored. Outcomes were defined as changes in CE course participants attributed to course participation, these include (1) changes in knowledge, (2) attitudes (e.g. self-efficacy or motivations), and (3) changes in workplace performance (e.g. development of policy and procedures for addressing difficult patron situations) (4) changes in how a participant handles/solves a workplace problem (e.g. participants are better able to apply knowledge, skills, and abilities to overcome challenge faced by an encounter with difficult patron).

Mediating variables: participants organizational environment (small and large libraries), power to initiate change, priority for organization, etc.) and impact over time on library organization, library staff, library staff, etc.

The model is a simplistic representation of a much more complicated scenario (and a real working model would need to be far more detailed); never the less its utilization clarifies

Graphic: IMPACT e-Training Summative Evaluation Context



the need for a holistic view of the educational context in CE e-Training evaluation. Although the graphic is an oversimplification of the training process, it may help place the learner experience within the context of the library profession and organization, which informed the study's training evaluation strategy.

Chart:

Stake's Criteria Mapped to IMPACT Evaluation Context

Stake's Term	Description	IMPACT Evaluation Context
Antecedent Conditions	Those elements within the individuals (within all key stakeholders) and the environment (within participant, training environment, workplace environment, and culture) that exist prior to the training including an assumption in value system	Public library staff competency standards and certification requirements based upon socially established industry and organizational mission statements are representative of the current public library value system. Other antecedent conditions include: <ul style="list-style-type: none"> • Training policy and procedures • Large and Small Organizations • Degree/Non-degree • Course Content and Summative Framework
Transactions	Experiences as defined by the negotiations and assimilations of the learner within the learning environment, including the patterns of personal and social identification of the learner with the learning objectives as measured in this study by changes in knowledge, impact on self-efficacy, and transfer of training to workplace performance	IMPACT Implementation Levels Limit to asynchronous training and two treatments at three levels of intervention with a comparison group that receives no treatment.
Outcomes	Learning outcomes, those operational defined learning goals that are often difficult to measure and correlate to discreet learning objectives and competency requirements. Outcomes from learning can be defined along an Aristolean taxonomic level of learning i.e., what a learner is expected to know, understand and be able to do after successful completion of a process of learning.	Outcomes (Intended & Unintended) relative to Training Objectives & Requirements K – as measured by gains in knowledge assessment scores A – gains in SSE attitude in contrast to GSE rating P – Transfer of learning to workplace
Functional Contingencies	The interaction of influences of internal training constraints, including background conditions, learning experiences, and training outcomes, that are the object of the evaluation, and environmental factors.	The interaction of the antecedent conditions and transactions to produce the outcomes as measured by the evaluands (defined as <i>the object that is evaluated</i>) Comparative Variables

Measuring Intended and Unintended Outcomes

Is this evaluation to indicate the congruence between what is intended and what occurs? (Stake, 1965, p. 16).

Measuring outcomes is problematic because ascription of causation and generalizability is difficult to attribute, but by conducting a comparative experimental evaluation with controls for content, transactions, and objectives among test groups, incongruence between results can be established and relative cost effectiveness among e-Training implementation scenarios based on measured outcomes can begin to be investigated. To answer Stake's question, this comparative evaluative research study investigates the congruence between what the learning objectives (and associated materials developed using constructivist learning principles) were intended to achieve and what actually happened, and the comparative analysis presents the incongruence among test groups or alternate implementation scenarios. The study uses both evidence-based impact evaluation methods, which measured identified outcomes, and comparative evaluative research methods, which involves comparing two or more groups in order to explain differences between implementation on some variable or variables of interest.

Through a realistic conception of what evaluation may reasonably be expected to accomplish, a reliance on an appropriate theory-based research orientation in online training, and a balanced, holistic combination of quantitative metrics and qualitative clarification of data, the evaluation of e-Training-based continuing education programs may be expected to go beyond current limitations of an isolated, self-paced delivery imposed by the majority of online training implementation scenarios and lead to improvements in our understanding of the role of instructional intervention in e-Training. The current research methodology and design was presented more fully in Chapter 3.

Scriven's Apples and Oranges or Cronbach Granny Smith and Red Delicious

Is this evaluation to be undertaken within a single program or as a comparison between two or more curricular programs? (Stake, 1965, p. 16).

Scriven and Cronbach have conflicting views on the utility of comparative evaluation on dissimilar programs and content (Stake, 1965). Project IMPACT examined one asynchronous e-Training lesson aligned with public library staff workplace competency and certification requirements related to customer service policies and procedures addressing difficult patron situations. The study investigated participants within one training course (*Managing Difficult Patrons with Confidence*) that was developed by one particular public library e-Learning provider (LE@D) on one particular learning management system delivered asynchronously; thus, the ability to generalize to an entire population of adult learners involved in all types of e-Training is limited. The research did not examine alternate learning management systems, courses, or populations. It did not propose that one Learning Management System (LMS) is better than another LMS or that asynchronous is a better mode of delivery than synchronous or face-to-face. This research did not provide a comprehensive view of e-Training evaluation, but did delineate an evaluation framework, research questions, and initial findings to inform stakeholders of how variations in implementation practices can impact e-Training outcomes. The metrics included knowledge acquisition scores, self-efficacy ratings, and on-the-job performance measures for assessing competency-based learning objectives for the LE@D *Managing Difficult Patrons with Confidence* course. This comparative evaluation framework aligned with Cronbach's criterion to establish durable relationships by evaluating alternate

versions of the same course. The framework also aligns with a pragmatic philosophy that addresses real world evaluation needs of practitioners and decision makers.

Informing Pedagogical Instructional Design or Implementation Best Practices

Is this evaluation intended more to further the development of curricula or to help choose among available curricula? (Stake, 1965, p. 16).

The final question helps sum up the purpose of the evaluation. Stake made the following analogy to differentiate between formative and summative evaluation, "When the cook tastes the soup, that's formative; when the guests taste the soup, that's summative" (Frechtling, Stevens, Lawrenz, & Sharp, 1993). The IMPACT evaluation is not formative because the evaluation was not implemented during development of the course to identify instructional design changes. The evaluation is summative, in that the evaluation was conducted for the purpose of assessing the outcomes after the training was developed; and it is also comparative, in that the evaluation compares two or more groups in order to explain differences between them on some variable(s) of interest, which in this case are implementation practices. The evaluation is intended to inform stakeholders for selecting among available asynchronous implementation scenarios.

APPENDIX C

PILOT TEST INVITATION

The following e-mail message was sent to the pilot group participants:

Dear (Librarian's name)

My name is Teri Dalston, and I am a Ph.D. student at the University of North Texas. I am working as an investigator on an IMLS funded research project titled Project IMPACT (full description and link below) as part of my dissertation studies.

I am contacting you regarding the LE@D course, "Managing Difficult Patrons with Confidence."

It has been extremely well-received by your library system and that is the primary reason that we are contacting you. We have recently revised and developed test questions to measure knowledge acquisition and learning in regard to the course content, and I am hoping that you will be able to share your thoughts on whether these questions accurately reflect the course content or if you would change them in anyway, e.g. wording, scope, errors, etc. We hope to accurately measure "Managing Difficult Patrons with Confidence" training participants' knowledge acquisition based on the course objectives and content. If you would have the time to review these questions and discuss their appropriateness it would be extremely helpful in our research efforts.

I am attaching the test questions as well as a quality assurance checklist for your review in PDF format. Any feedback regarding the test questions and your thoughts on their appropriateness would be appreciated. I can be reached by e-mail at teri@unt.edu or by phone at 972-292-0503. We are also presenting these questions to a focus groups of between two and five professionals for their input. If you have time and would like to meet with me and another librarian to discuss the question please let me know as I will be in your area next week. We then will conduct a pilot test next month after any recommended changes have been addressed. Thank you so much for your time and support of LE@D.

Kind regards,

Teri Dalston, LE@D Instructional Designer and SLIS PhD Student
teri@unt.edu

Project Title: "Project IMPACT in Public Libraries"

The University of North Texas will study the impact of implementing Web-based training in public libraries. The study will model practical, yet theoretically based, implementation practices and assessment measures of online training; inform library administrators of both implementation practices and measures of staff and organizational impacts of investment in staff e-Training courses; and contribute to the library literature on establishing best practices in delivery of computer-mediated courses for continuing education and training in public libraries. It will also provide practical tools to calculate return on investment and outcomes for administrative support of e-Training initiatives.

APPENDIX D

RECRUITMENT OF PARTICIPANTS

News Release: http://www.imls.gov/news/2007/061907_list.shtm#TX

Scholarships provide free LE@D course on managing difficult patrons

Project IMPACT in Public Libraries

The University of North Texas has been awarded a research grant from the Institute of Museum and Library Sciences to study the impact of implementing Web-based training in public libraries.

The Project IMPACT grant provides funding for 400 scholarships for course participants. Up to 5 individuals from each branch or library facility will be accepted for each session.

Apply for the scholarship

"Managing Difficult Patrons with Confidence"

Dealing with difficult patrons is a never-ending topic among library staff, especially those working in public libraries.

This course is intended to provide each participant with a basic tool-kit that can be applied to manage a variety of difficult patron situations.

If you have never taken the LE@D tutorial "Managing Difficult Patrons with Confidence" and you would be willing to take the class for free and participate in the study's surveys, apply now for a scholarship.

The courses will be offered in two week sessions during the fall. You will have the option of selecting the month in which you would like to start the course. A reminder e-mail will be sent to you 10 days prior to your start date.



The following e-mail message was forwarded from LE@D through the State Library Continuing Education Coordinators (CEC):

Dear Public Library Staff Member,

The University of North Texas has been awarded a research grant from the Institute of Museum and Library Sciences to study the impact of implementing Web-based training in public libraries. As part of the study 400 scholarships are available to take an online class titled "Managing Difficult Patrons with Confidence." Click on the following link for all the details.

http://www.leadonline.info/Newsletter/Sept_LEAD_Bulletin.html

Lifelong Education @ Desktop (LE@D) course are eligible for continuing education credits

APPENDIX E

SCHOLARSHIP REQUEST AND IRB FORM

Thank you for your interest in **Project IMPACT in Public Libraries** and LE@D courses. To request your LE@D **Managing Difficult Patrons with Confidence** course scholarship, you may submit the **Web form below**. Once submitted, your application will be checked to confirm eligibility. (Eligibility restricted to participants who have not taken the **Managing Difficult Patrons with Confidence** previously.) After submitting the form you will receive a confirmation e-mail that indicates your application has been submitted and a follow up e-mail that provides password and access information for the training.

Please review the consent form for participation information for the IMLS and LE@D joint-funded research project **IMPACT in Public Libraries** before submitting your scholarship application. Note that lack of consent to participate in the study does not make you ineligible to receive a scholarship. Please do not complete the form if you have already taken LE@D's **Managing Difficult Patrons with Confidence** course.

Consent Form

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose and benefits of the study and how it will be conducted.

Title of Study: Project IMPACT in Public Libraries

Principal Investigator: Philip Turner, University of North Texas (UNT) Center for Teaching, Learning, and Assessment (CTLA)

Purpose of the Study: As a LE@D course participant, you are being asked to participate in a research study to assess the impact of Web base training implementations on participants. Project IMPACT in Public Libraries, in partnership with the University of North Texas Center for Testing, Learning and Assessment and the U.S. Institute of Museum and Library Services, is conducting a study of the experiences of participants in the Library @the Desktop training materials. Our goal is to find ways to improve the training and learning experiences of participants by asking you questions in this Web survey. Roughly 400 participants across the United States will be asked to take part in this study.

Study Procedures: This survey will take about 10 minutes to complete. It includes questions about the learning objectives, your work experiences as they relate to the course learning objectives, your satisfaction with the course, and your thoughts on the applicability of the training to your everyday work environment . Answering any or all of these questions is voluntary. Your employer will not receive the results of this survey and you will in no way be affected by your choice to participate or not to participate in this survey. You may refuse to answer any of the questions if you like, and you may stop the survey at any time.

Foreseeable Risks: There are no known risks to participating in this study; however, please note that Internet communications are not secure.

Benefits to the Subjects or Others:

You will get no direct benefit from being a part of this study; however, your participation will help us better understand ways to improve the training experience.

Procedures for Maintaining Confidentiality of Research Records:

To protect your privacy, survey data will be stored under a code number, and your e-mail address will be kept separate from your survey responses. Your confidentiality of your individual information (e-mail address and other facts that might identify you or your library) will not appear when we present this study or publish its results.

Questions about the Study: If you have any questions about how the study works, you can contact Dr. Philip Turner, the Project IMPACT in Public Libraries Principal Investigator for the study, or Teresa Dalston, co-investigator, at (940) 565-4462.

Review for the Protection of Participants: This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at (940) 565-3940 with any questions regarding the rights of research subjects.

Research Participants' Rights:

Your signature below indicates that you have read or have had read to you all of the above and that you confirm all of the following:

You have been told the possible benefits and the potential risks and/or discomforts of the study. You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your participation at any time. You understand why the study is being conducted and how it will be performed. You understand your rights as a research participant and you voluntarily consent to participate in this study. You may print a copy of this form for your records. Please indicate whether or not you consent to participate below. If you indicate that you consent, a survey will be sent to your e-mail address after participation in the training.

If you have read the consent form, please select if you would like to participate or not participate in the IMLS and LE@D joint-funded research Project IMPACT in Public Libraries.

First Name	
Last Name	
Telephone Number	
Full Street Address	
City	
State	
Zip code	
Library name	
E-mail Address [confirmation sent to this e-mail]	

<input type="button" value="Submit"/>	<input type="button" value="Reset"/>
---------------------------------------	--------------------------------------

Thank you for your interest in the LE@D courses and this research project. **IMPACT in Public Libraries**, a joint-funded LE@D IMLS research project, will offer 400 scholarships for the **Managing Difficult Patrons with Confidence** course. For additional information on courses and programs offered by LE@D please visit the [LE@D Web site](#). If you have any questions or concerns about the **IMPACT in Public Libraries** research project, please feel free to contact me.

Sincerely,

Teri Dalston

Project IMPACT in Public Libraries

Phone: W(940) 565-4462 H (972) 292-0503

E-mail: teri@unt.edu

Materials in this section include the text of the informed consent form that received University of North Texas Internal Review Board approval

Note. After completing the WEBCT Vista Training participants were asked to complete a Web-based survey. In the Web survey, participants were asked to check a box indicating their consent to participate after reading full informed consent text. The following is the informed consent text:

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose and benefits of the study and how it will be conducted.

Title of Study: Project IMPACT in Public Libraries

Principal Investigator: Philip Turner, University of North Texas (UNT) Center for Teaching, Learning, and Assessment (CTLA)

Purpose of the Study: As a LE@D course participant, you are being asked to participate in a research study to assess the impact of Web base training implementations on participants. Project IMPACT in Public Libraries, in partnership with the University of North Texas Center for Testing, Learning and Assessment and the U.S. Institute of Museum and Library Services, is conducting a study of the experiences of participants in the Library @the Desktop training materials. Our goal is to find ways to improve the training and learning experiences of participants by asking you questions in this Web survey. Roughly 400 participants across the United States will be asked to take part in this study.

Study Procedures: This survey will take about 10 minutes to complete. It includes questions about the learning objectives, your work experiences as they relate to the course learning objectives, your satisfaction with the course, and your thoughts on the applicability of the training to your everyday work environment. Answering any or all of these questions is voluntary. Your employer will not receive the results of this survey and you will in no way be affected by your choice to participate or not to participate in this survey. You may refuse to answer any of the questions if you like, and you may stop the survey at any time.

Foreseeable Risks: There are no known risks to participating in this study; however, please note that Internet communications are not secure.

Benefits to the Subjects or Others: You will get no direct benefit from being a part of this study; however, your participation will help us better understand ways to improve the training experience.

Procedures for Maintaining Confidentiality of Research Records: To protect your privacy, survey data will be stored under a code number, and your e-mail address will be kept separate from your survey responses. Your confidentiality of your individual information (e-mail address and other facts that might identify you or your library) will not appear when we present this study or publish its results.

Questions about the Study: If you have any questions about how the study works, you can contact Dr. Philip Turner, the Project IMPACT in Public Libraries Principal Investigator for the survey, at (940) 565-4462.

Review for the Protection of Participants: This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at (940) 565-3940 with any questions regarding the rights of research subjects.

Research Participants' Rights: Your signature below indicates that you have read or have had read to you all of the above and that you confirm all of the following:

You have been told the possible benefits and the potential risks and/or discomforts of the study. You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your participation at any time. You understand why the study is being conducted and how it will be performed. You understand your rights as a research participant and you voluntarily consent to participate in this study. You may print a copy of this form for your records.

Please indicate whether or not you consent to participate below. If you indicate that you consent, the survey will be launched.

I consent to participate

I do not consent to participate

APPENDIX F

ASSESSMENT DEVELOPMENT CHECKLIST

Knowledge Assessment Quality Assurance Checklist

Pre, Post, and Delayed Post-test Development Tools

Created by LE@D Staff under the direction of Arlita Harris, Ph.D., LE@D Coordinator, and Ron Carriveau, Ph.D. Assessment & Measurement Specialist from the Center for Teaching, Learning, and Assessment at the University of North Texas based upon learning objects identified in online training module.

- 1. Item addresses the content and task specified in the outcome statement
- 2. Item was written at the stated cognitive level.
- 3. Question is not unnecessarily wordy.
- 4. There is one and only one clearly correct answer.
- 5. The correct answer is not clued by the question.
- 6. Negatives were avoided except where absolutely necessary.
- 7. Question does not contain misleading, ambiguous, or tricky language.
- 8. Question contains all the information necessary for a response.
- 9. Options are independent of each other (no cluing).
- 10. Options do not contain misleading, ambiguous, or tricky language.
- 11. Options are parallel in structure.
- 12. Options are of similar length.
- 13. Options avoid repetitious wording.
- 14. Distracter options are plausible and reasonable.
- 15. Options are in logical order.
- 16. There are no specific determiners, such as *always* and *all* in only one option.
- 17. There is no option that has the same meaning as another option.
- 18. There are no all-inclusive options (*all of the above; none of the above*).
- 19. There are no unnecessarily wordy options.
- 20. Item is free of grammatical errors.

APPENDIX G

DELAYED POST-TEST INVITATION

From: Teri Dalston <teri@unt.edu>

Sent: Wednesday, April 9, 2008 7:50:14 AM

Subject: *Managing Difficult Patrons with Confidence* IMLS Scholarship, Final Survey, & Gift

Dear LE@D Scholarship Recipient:

Project IMPACT in Public Libraries' delayed post-test and survey is now available for your input. As you may remember, Library Education @Desktop (LE@D), through a joint grant from the Institute of Museum and Library Services (IMLS) and the University of North Texas Center for Teaching, Learning, and Assessment (UNT-CTLA), is conducting a research study on online training.

Please help us by completing this survey and the delayed post test for the "Managing Difficult Patrons with Confidence" LE@D training course. Your responses are vital to our research, and your comments will enable us to improve the quality of online library training. If you have any questions or additional feedback, you may also e-mail Project IMPACT in Public Libraries directly at teri@unt.edu.

As a token of our appreciation for your time and valuable input, we would like to offer you a choice among the following rewards:

- \$5 cash
- \$5 gift certificate (choice of Amazon or Starbucks)
- \$5 donation to Reading Excellence and Discovery (READ) Foundation*, or
- a chance to win a \$100 gift card for merchant of choice (A randomly selected winner will receive \$100 gift card with odds of winning 1/20)

You may designate your choice within the survey. Please allow 2-3 weeks for delivery of your selection. [If follow up email include due to email being block add: The survey and delayed post-test was slated to close April 10th, but I will keep your survey open until April 15, 2008.] It can be accessed at this address (please remove the extra period at the end of this URL to activate link and open the survey):] The survey can be access at <https://www.surveymonkey.com/s.aspx?> To find out more about LE@D training and research participation opportunities, please bookmark our Web site at: www.leadonline.info.

Thank you,

Teri Dalston

Project IMPACT in Public Libraries funded through the Institute of Museum and Library Services and

University of North Texas LE@D

Denton, TX 76203

Phone: 214-717-4342

teri@unt.edu

*READ was established in 1999 to address the high proportion of low-income students demonstrating below grade level reading skills. READ's founders sought a research-based educational approach, which would yield measurable results for students and address reading

difficulties before they became barriers to learning. READ employs one-on-one research-based reading instruction to prepare at-risk children to become proficient readers. READ recruits, trains and employs teens to teach reading skills to their younger peers who are struggling with learning to read. READ targets economically disadvantaged students and teens.

Project IMPACT in Public Libraries-funded by the INSTITUTE OF MUSEUM & LIBRARY SERVICES and the UNIVERSITY OF NORTH TEXAS

APPENDIX H

PRESS RELEASE AND LEAD QUICK FACTS AND MARKETING HIGHLIGHTS

Project IMPACT in Public Libraries: An Initiative to Measure Personnel Assimilation of Computer-based Training

The Center for Teaching, Learning, and Assessment (CTLA) at the University of North Texas, Denton announces Project IMPACT in Public Libraries, a project to develop a model and methods for e-Training evaluation in public libraries and dissemination of findings on implementation and integration issues for increasing public library e-Training effectiveness. The project has been funded by the Institute of Museum and Library Services and the University of North Texas for a one year time frame. The project, includes a seven-month research phase for training and data collection followed by a five-month dissemination and awareness phase. The research element will include a literature review of current practices in evaluation of e-Training and will test varying levels of integration and interactivity in implementation of public library e-Training with proposed method of assessing effectiveness of e-Training. The project will produce the following key deliverables:

- Scholarships to the LE@D e-Training course *Managing Difficult Patrons with Confidence*, which will be provide training free of charge to four hundred public library personnel.
- Dissemination of key project resources, publications, and evaluation tools through the LE@D Web site, including a transferable model for evaluation of public library e-Training initiatives
- A final project report outlining the model of evaluation and other aspects of good practice in e-Training implementation and evaluation

Further information about *Project IMPACT in Public Libraries* can be found on the LE@D Website, <http://www/leadonline.info/IMPACT> and we invite you to join our Web cast Presentation in August, 2008, which has been schedule to help disseminate the research findings and enable discussion of issues concerning the evaluation of public library e-Training initiatives in the United States and abroad.

For more information: See Project IMPACT on the LE@D Website - < > and Join LE@D Mailing List - < >.

LE@D Quick Facts and Marketing Highlights

Why use LE@D courses?

Quality: LE@D courses are written by people with recognized expertise in their field. They are practical, not just theoretical, because the authors have been there, and they know.

Flexibility: Take the classes as an individual, or as a group. Use them as a stand-alone training session, or as part of a larger training program. Use them completely on-line, or with a face-to-face program.

Availability: Take the classes when they fit into your schedule. The classes can be completed at your convenience.

Affordability: LE@D classes begin as low as \$15 for a three-hour course for individuals, and even lower for group rates.

The University of North Texas and Lifelong Education @ Desktop offer, as a community service, a series of online continuing education tutorials. These courses meet an urgent need in the professional community affordable, high-quality, Internet-delivered continuing education. Most LE@D courses are designed to be completed in 2 to 3 hours of class time. Many state library associations recognize LE@D tutorials for continuing education credits. Each course is typically credited at 3 CEU credits or 3 contact hours. LE@D library courses have been approved for credit toward the Western Council of State Libraries Library Practitioner Certification Program. LE@D Courses mapped to WCSL certification requirements.

The Western Council of State Libraries offers a Library Practitioner Certification Program for library directors or managers without a master's of library and information science (MLS). LE@D courses have been approved for credit toward the certification program. Listed below are the LE@D courses and their relation to certification requirements. Also listed are the contact hours awarded for the completion of each LE@D course.

APPENDIX I
ON-SITE PROGRAMMING PACKET

Subject: Free Online Training through IMLS-UNT Joint Scholarship

I would like to offer you and your library staff an opportunity for free online training and continuing education credit through LE@D (Lifelong Education @ Desktop). We have been awarded a grant from the Institute for Museum and Library Services to provide full scholarships to the online course "Managing Difficult Patrons with Confidence" in order to measure the impact of self-paced, facilitated, blended, and face-to-face learning in a public library environment. If you already participated in the initial alpha test of the course, you are even better prepared to lead the training.

This phase of the research project needs 2-7 participants from any public library or branch location who will take the free online course (approximately 1.5 - 3 hours, anytime day or night with unlimited access) beginning (Two week time period). A designated training leader from each library (perhaps you) will then lead a couple of short face-to-face training sessions to discuss your library's problem patron policies and what you have learned together in the training about how to manage your library's difficult patrons. You will then report back via e-mail verifying that the training took place. After three months, we will conduct a delayed post test to survey how your staff felt the training impacted them.

If you would like for your library to participate, please "reply to all" above, letting us know the number of staff that would like to take the free course during this time. They can each register online before November 28 at <http://www.leadonline.info/ScholarshipForm.cfm> so we will have their complete information.

I think you'll enjoy this course and the opportunity to discuss "Managing Difficult Patrons" with your staff.

Thank you.

Teri Dalston, Senior Researcher Project IMPACT in Public Libraries
LE@D - University of North Texas
P. O. Box 310889
Denton, TX 76203-0889
940-565-2942
Direct: 972-292-0503
teri@unt.edu
www.leadonline.info

Sample Response Email Message
Teri,

We might be interested in doing this. Please send me additional information! The group leader would probably be our circulation supervisor.

Thanks,
Library Administrator's Name

Sample invitation and forms
Library Director's Name,

Thank you so much for your interest in Project IMPACT and LE@D. The Managing Difficult Patrons with Confidence" course is LE@D's most requested course. If you can get the word out to your staff to register at <http://www.leadonline.info/ScholarshipForm.cfm> I will save some seats and place all participants of (Library name) in the same section with (department supervisor's name) as the discussion leader.

Also, to give you and the discussion leader's an idea of what your staff can expect and to help get the word out, I have attached a 5-page overview. It includes a flyer, online training recommendations and reporting requirements, and the course outline. We have found posting the flyer in the breakroom is a great way to generate interest. Let me know if you have any questions, and I hope your library will be able to participate in the IMLS research and Project IMPACT training experience.

Thank you,
Teri Dalston

Managing
Difficult Patrons
with Confidence!
By Laura Isenstein



For Training Supervisors:

Please use the following list as a guideline to ensure that your staff members receive the full benefit of their online training.

Please submit weekly e-mails to Teri Dalston at teri@unt.edu and LE@D at Lead@cc.admin.unt.edu

COURSE REGISTRATION

(Completed by LE@D Training Participant)

IMLS/UNT LE@D Scholarship Registration Online <http://www.leadonline.info/ScholarshipForm.cfm>

PRIOR TO START DATE

Publicize training. [Recommend flyer (Attachment B) posted in break room or e-mailed]

Training participant receives:

E-mail from training coordinator with announcement about the course

The training coordinator verifies training participants have received their LE@D confirmation e-mail with codes and support contact information.

WEEK ONE

(Completed by On-site Training Coordinator)

Designates time for discussion about the training and the library's patrons policies and procedures manuals during weekly staff meeting (minimum of fifteen minutes per week)

Training participant receives:

E-mail reminder from training coordinator with announcement of the training team meeting

Copy or overview of library's patron policy and procedures manual

Announcement of discussion on training at the next staff meeting

WEEK TWO

(Completed by On-site Training Coordinator)

Training coordinator:

Designates time for discussion of library's difficult patrons policies and procedures manuals and asks participants for feedback about the training

Training participant receives:

Continuing Education Certificate of Completion presented by training coordinator to participant during staff meeting

WEEKLY E-MAIL REPORTS

(Completed by Training Coordinator)

Checklist and confirmation of participation sent to project coordinator, Teri Dalston at [REDACTED]
(Please include any additional comments about the training experience within the body of the e-mail.)

Additional Training Documents

Attachment A Suggestions for Optimum Online Training Experience

Attachment B Flyer

Attachment C Training Timeline

Maximizing the Value of Lifelong Education @ Desktop

Organizations that take advantage of the Lifelong Education @ Desktop courses can dramatically increase the value of their investment by integrating the courses into their overall continuing education and training programs. To assist you, the LE@D staff offers the following implementation and integration guide.



It can be useful to view the possible ways of integrating Lifelong Education @ Desktop courses as falling along a continuum of effort. The organization that advances along the continuum will see a correspondingly greater return on its investment in Lifelong Education @ Desktop training. That return on investment will be in the form of improved patron and employee satisfaction, and a more proactive and confident staff better equipped to deal with the challenges they face every day.

For Organizations

Promote

- ✓ Send out broadcast e-mails, faxes, and flyers to members announcing LE@D classes. Put up signage and signup sheets in staff areas, and remind personnel during staff meetings of upcoming LE@D courses.
- ✓ Provide updates on LE@D availability and registration information at system membership meetings and other face to face events.
- ✓ Set up online registration through your system web site to make enrollment simple and convenient.
- ✓ Establish a continuing education credit opportunity for staff who complete the course.
- ✓ Participate
- ✓ Establish your continuing education coordinator as a course facilitator for your LE@D class, allowing them to build their LE@D expertise
- ✓ Have all of your appropriate staff take LE@D courses – they're not just for your member organizations!

Integrate

- ✓ Include LE@D classes in your organization's continuing education and workshop calendars.
- ✓ Recognize and reward members that maximize their integration and use of LE@D classes.
- ✓ Establish usage and completion goals for LE@D courses for appropriate members of your staff.

Follow Up

- ✓ Discuss the courses in your staff meetings. Ask staff members who have taken a course to report on what they learned to the rest of the staff.
- ✓ Solicit feedback from member organization's directors – find out who used LE@D effectively.

Share

- ✓ Tell LE@D staff the success stories in your organization. Share with us so we can share with others your own ideas, best practices, and techniques for getting the most from LE@D courses.
- ✓ Collect feedback on the courses and share it with LE@D staff, so we can continually improve the product.

For Library Directors**Promote**

- ✓ Send out broadcast e-mails, put up signage and signup sheets in staff areas, and remind personnel during staff meetings of upcoming LE@D courses.
- ✓ Establish a continuing education credit opportunity for staff who complete the course.

Participate

- ✓ Encourage your staff, while taking the courses, to post messages in the topic discussion areas, to engage their peers, spur new ideas, and improve the overall learning experience.
- ✓ Take the course yourself and let your staff know you are participating.

Integrate

- ✓ Do you have a new employee training / orientation program? LE@D courses make perfect sense for new staff.
- ✓ Make LE@D courses a part of annual employee goal and objective setting.
- ✓ Do you recognize and / or reward employees who complete training courses? Don't forget to include LE@D courses in your recognition and rewards program.
- ✓ Don't forget your advocates, volunteers, and supporters. Many of them will benefit from LE@D courses and will appreciate the chance to participate.

Follow Up

- ✓ Discuss the courses in your staff meetings.
- ✓ Ask staff members who have taken a course to report on what they learned to the rest of the staff.
- ✓ Roll play situations covered in the LE@D courses at in-service days and training sessions.

Share

- ✓ Tell LE@D staff and your staff your LE@D success stories. Share with us so we can share with others your own ideas, best practices, and techniques for getting the most from LE@D courses.
- ✓ Please share other tactics and techniques you have successfully used to maximize the value of the LE@D courses with us.

Managing

Difficult Patrons

with Confidence!

By Laura Isenstein



COURSE DESCRIPTION

Dealing with difficult patrons is a never-ending topic among library staff, especially those working in public libraries. Every staff member dreads having to deal with a problem patron, but these occurrences in libraries are unavoidable. In reality, the number of problem patron situations is not great, but because they are challenging and often emotionally charged, they loom large in our overall experiences. While never fun, there is a way to prepare staff to handle problem patrons effectively and with confidence. This course is intended to provide each participant with a basic tool-kit that can be applied to manage a variety of difficult patron situations.

CE CREDIT/CERTIFICATION

This is a Web-based course approved for certification under the Western Council of State Libraries. The instructor will not meet with the class in person. This course is worth three contact hours in the Core Competency area of Policies and Procedures.

COURSE OBJECTIVES

Staff completing this course will be able to:

- Apply a variety of communication techniques to positively manage various problem patron situations

APPENDIX J

ON-SITE PROGRAMMING CALENDAR

TRAINING PARTICIPANTS:
 JUST 10-15 MINUTES PER DAY
 TO MANAGING DIFFICULT
 PATRONS WITH CONFIDENCE!



TRAINING SECTIONS	TIME ESTIMATES
Pre-test and Course Overview	5-10 MINUTES PRE-TEST 10 MINUTES WEBCT TUTORIAL
Policies and Procedures and Effectiveness	10-15 MINUTES
Toolkit1	5-10 MINUTES
Toolkit 2	10-15 MINUTES
Toolkit 3	10-15 MINUTES
Beyond the Basics	15 MINUTES
Useful Tips & Resources	10 MINUTES
Conclusion & Post Test	5-10 MINUTE POST-TEST 5 MINUTE EVALUATION
Wrap Up, Evaluation, and Certificates	10-15 MINUTES
Total Training Time	1 ½ TO 3 HOURS

To Do List

- ✓ E-MAIL COMMENTS AND INTRO TO PARTICIPANTS
- ✓ LOCATE YOUR LIBRARY'S POLICIES
- ✓ DISCUSS TRAINING WITH OTHER TRAINING PARTICIPANTS / STAFF MEMBERS AT YOUR LIBRARY
- ✓ DISCUSS & SHARE YOUR LIBRARY'S POLICIES
- ✓ PRINT & PRESENT CERTIFICATES

<p>Monday</p> <p>LOG INTO COURSE</p> <ul style="list-style-type: none"> • COMPLETE PRE-TEST • REVIEW LEARNING OBJECTIVES 	<p>Tuesday</p> <p>REVIEW: BE PREPARED</p> <ul style="list-style-type: none"> • POLICIES & PROCEDURES • HOW TO BE EFFECTIVE & CREATE BETTER ENVIRONMENT 	<p>Wednesday</p> <p>REVIEW: TOOL KIT 1</p> <ul style="list-style-type: none"> • ID A PROBLEM • DETERMINE THE PROBLEM • KEEP YOUR COOL <p>SCENARIO 1: I KNOW I RETURNED THIS BOOK</p>
<p>Thursday</p> <p>REVIEW: TOOL KIT 2</p> <ul style="list-style-type: none"> • RESOLVE THE PROBLEM • SCENARIO 2: PERVERT ATTACK • OFFERING OPTIONS • REACH MUTUAL AGREEMENT 	<p>Friday</p> <p>REVIEW: TOOL KIT 3</p> <ul style="list-style-type: none"> • IMPLEMENTATION • SCENARIO 2: LAST RESORT-LEAVE THIS LIBRARY • LEARN FROM EXPERIENCE • FOLLOWUP 	<p>Week 1 To Do</p> <ul style="list-style-type: none"> ✓ EMAIL STAFF TRAINING ANNOUNCMENT ✓ LOCATE YOUR LIBRARY'S POLICIES ✓ DISCUSS TRAINING WITH OTHER STAFF MEMBERS
<p>Monday</p> <p>REVIEW: BEYOND THE BASICS</p> <ul style="list-style-type: none"> • FOR SUPERVISORS • MENTALLY ILL • ABOUT ANGER • UNSUPERVISED MINORS 	<p>Tuesday</p> <p>REVIEW: USEFUL TIPS & BIBLIOGRAPHY</p> <ul style="list-style-type: none"> • REVIEW TIPS & RESOURCES 	<p>Wednesday</p> <p>REVIEW: CONCLUSION</p> <ul style="list-style-type: none"> • POST-TEST • EVALUATION & COURSE FEEDBACK
<p>Thursday</p> <p>WRAPPING UP</p> <ul style="list-style-type: none"> • COURSE CE CERTIFICATE • PRINT COURSE MATERIALS BEFORE COURSE CLOSES 	<p>Friday</p> <p>YOU MAY SEND FOLLOW UP COMMENTS TO IMPACT SENIOR RESEARCHER AT TERI@UNT.EDU</p>	<p>Week 2 To Do</p> <ul style="list-style-type: none"> ✓ POST COMMENTS & YOUR LIBRARY'S POLICIES TO ONLINE DISUSSION BOARD ✓ DISCUSS TRAINING WITH OTHER STAFF MEMBERS ✓ PRINT CERTIFICATE

APPENDIX K
STAKEHOLDERS' RESPONSIBILITIES

Matrix of Responsibilities

In order to foster a library e-Training community of practice stakeholders at all levels must make competency-based learning a strategic priority for Librarianship. Below is a list of training stakeholders' responsibilities to foster improved online training results listed by key stakeholders.

Content Host's Responsibilities

- Address Work Environment Training Needs that is sensitive to budget constraints and certification and core-competency requirements for career advancement
- Make continual needs assessment of knowledge skills for 21st century economy and Monitor Pulse of Workforce Trends
- Market courses within programs of study for professional development and make promotional materials available to libraries
- Provide professional development to all levels of staff and facilitate professional development for both administrators and individual staff at all levels of the organization
- Enable participant organization's representatives to certify as professional development and continuing education course facilitators for select training classes, allowing them to build their training expertise.
- Allow portfolio development and personalized programs of professional development
- Best Practices and Recognized Programs
- Commitment to online learning industry standards and establishing best practices and quality benchmarks for technology and content
- Enlist the expertise of established professional in the field and qualified online instructional designers in the development of course content
- Maintain persistence and authority
- Integrate training solutions using robust new communication technology for the workplace for a shared training experience
- Develop presence on the Web and continued support of online learning
- Give back to professional community
- Disseminate best practices and facilitate Communities of Practice for Online Training

Facilitator's Responsibilities

- Commitment to the Learner - Orient the learner to online courseware technology
- Adapt training style to demands of e-Learning and maintain flexibility necessary in the online environment
- Establish foundational knowledge of subject of the course and apply adult learning theory to real time online learning issues
- Facilitate Learning Relate the material to practical library experiences
- Engage learners based on participant needs, with an awareness of learning style theory, active learning strategies, learner-centered instruction, and emerging best practices in online training
- Use Virtual Learning Environment tools to create welcome message, facilitate active learning, and monitor progress of the participants
- Complete set up steps for an e-Learning course activation and use a robust set of courseware tools and online training techniques to provide structure to the course and enhance learning experience

- Overcome pitfalls of facilitating e-Learning technology issue and identify avenues of support
- Address sensitive situations and develop both corrective and preventative strategies for group learning and course management
- Promote adult learner interaction and participation using online tools and e-Learning techniques for maintaining a dynamic and quality online professional development and continuing education training experience.
- Use online training tactics and checklists to improve the overall effectiveness of online discussions and ways to provide structure to group discussions for open communication and optimum learning retention
- Implement proven principles for facilitating effective learner-centered professional development training using strategies to empower participants to become active, responsible learners.
- Feedback - Engage in e-mail and discussion-board conversation with fellow training/host institution personnel, exploring and evaluating the effectiveness of professional development training implementation strategies
- Continual interaction with other fellow training/host institution facilitators, instructional designers, and content experts to share personal experiences and outcomes of implementing Professional Development training

Participant's Responsibilities

- Active Learning
- Submit a memo of understanding that confirms their commitment to completing the courses, exchanging messages in the topic discussion areas with other participants, sharing experiences and ideas, and commit to the active learning experience.
- Daily Attendance
- Set aside daily time to participate in online discussion and review materials.
- Assignment Tasking
- Assess course materials for potential to improve current workplace practices and/or personal behaviors
- Commitment to Professional Development and Portfolio Enhancement
- Assess skills and workforce needs
- Track Experience and Professional Development in a Professional Portfolio
- Set Short- and Long-Term Goals for Professional Development and Lifelong Learning
- Provide feedback on how to use professional development opportunities to improve work environment and personal life and ultimately give back to the larger community.

Director's Responsibilities

- Encourage Participation
- Send out broadcast e-mails, put up signage and signup sheets in staff areas, and remind personnel during staff meetings of upcoming LE@D courses.
- Establish a continuing education credit opportunity for staff who complete the course.
- Encourage your staff, while taking the courses, to discuss topics internally, to engage their peers, spur new ideas, and improve the overall learning experience.
- Take the course yourself and let your staff know you are participating.

- Make LE@D courses a part of annual employee goal and objective setting and include LE@D courses in your recognition and rewards program
- Don't forget your advocates, volunteers, and supporters. Many of them will benefit from LE@D courses and will appreciate the chance to participate.
- Follow Up by discussing the courses in your staff meetings.
- Ask staff members who have taken a course to report on what they learned to the rest of the staff.
- Role play situations covered in the LE@D courses at in-service days and training sessions.
- Tell LE@D staff and your staff your LE@D success stories. Share with us so we can share with others your own ideas, best practices, and techniques for getting the most from LE@D courses.

Participant Organization's Responsibilities

- Promote Professional Development by integrating core competencies into job descriptions
- Send out broadcast e-mails, faxes, and flyers to members announcing LE@D classes. Put up signage and signup sheets in staff areas, and remind personnel during staff meetings of upcoming LE@D courses.
- Provide updates on LE@D availability and registration information at system membership meetings and other face to face events.
- Set up link to online registration through library staff Web site to make enrollment simple and convenient.
- Establish a continuing education credit opportunity for staff that completes the course.
- Establish your continuing education coordinator as a course facilitator for your class, allowing them to build their LE@D expertise.
- Enable all of your appropriate staff to take LE@D courses and allocate time away from other duties
- Include LE@D classes in your organization's continuing education and workshop calendars.
- Recognize and reward members that maximize their integration and use of LE@D classes.
- Establish usage and completion goals for LE@D courses for appropriate members of your staff.
- Follow Up by discussing the courses in your staff meetings. Ask staff members who have taken a course to report on what they learned to the rest of the staff.
- Solicit feedback from member organization's directors – find out who used LE@D effectively.
- Tell LE@D staff the success stories in your organization. Share with us so we can share with others your own ideas, best practices, and techniques for getting the most from LE@D courses
- Collect feedback on the courses and share it with LE@D staff, so we can continually improve the product.

APPENDIX L

HISTORY OF PUBLIC LIBRARY STAFF CORE COMPETENCIES INITIATIVE

The initiative to establish a national public library support staff certification program has traveled a long road. In the 1970s, the American Library Association (ALA) did not have competency requirements for library support staff positions (ALA, 1991), but maintained the ALA Library Education and Personnel Utilization Policy (a list of recommended educational foundations for entry-level support staff) and approved the Criteria for Programs to Prepare Library/Media Technical Assistants (1971, 1979, last revised 1998). There has been an undercurrent of interest within the library community for certification of library support staff during the intervening years and various groups within ALA, including the Council on Library/Media Technicians (COLT) and later the ALA-Allied Professional Association (ALA-APA), investigated the potential for support staff competencies, but it was the united efforts of the Western Council of State Libraries that brought the need for library staff core competencies to fruition. As early as 1996, the Western Council of State Libraries convened a Library Development meeting in Salt Lake City, Utah of forty library development staff members from eighteen state libraries to discuss "challenges faced by all states, including training needs of library staff and trustees" (Nebraska State Library Report, 1996). The continued interest by the public library community and the *Current Trends in Library Support Staff CE Programs* (2001) report for the Western Council of State Librarians Education Task Force compiled by Karl Madden and Bob Grover that was circulated by W. Duane Johnson, the former Kansas State Librarian, prompted the development of the Continuum of Library Education grant submission and renewed support for pursuing core competency standards and national CE certification for library support staff.

By 2003, the Continuum of Library Education project had produced a preliminary list of Public Library Staff Core Competencies that was reviewed by the twenty-two state council. The 2003 Western Council Continuum of Library Education Project was at the forefront of the Public Library Core Competency initiative:

In this three-year project, 21 state library agencies, regional library cooperatives, community colleges and universities including library and information science schools throughout the Western United States will collaborate to develop a model library education continuum to provide education and training opportunities to improve job skills, enhance employment opportunities, and establish credentialing recognized across state lines (IMLS Website, 2003).

In a recent WebJunction Learning Webinar: *Core Competencies for Library Staff* (delivered July 25, 2007), Sarah Houghton-Jan and Karen Strege discussed how "defining core competencies builds a foundation for identifying skills and knowledge gaps and leads to targeted training that will help keep libraries viable in the 21st century." Public library staff competencies and certification requirements have traditionally been specified within a local geographic region (district, state, or collaborative regions that include multiple states). However, work was currently in progress for a voluntary national certification program for library support staff. This initiative to develop and establish a national certification model to define public library staff competencies and approved certification requirements was well underway under the direction of the Western Council of State Libraries (WCSL) and the American Library Association Allied Professional Association (ALA-APA), with support and funding from these institutions and the Institute of Museum and Library Services (IMLS). Defining core competencies was intended to address the need for library workforce skills

accountability and standardization of public library staff training requirements. Karen Strege, former Montana state librarian and project director for Western Council's Continuum of Library Education grant from the Institute of Museum and Library Services, was one of the driving forces behind defining national public library staff competencies. Nancy Bolt, a Western Council member, initially developed the Continuum of Library Education grant proposal that was funded by the Institute of Museum and Library Services, and spearheaded the American Library Association work on a national voluntary certification program (2003).

Distribution of the 2003 competencies encouraged state libraries and training institutions to adopt more rigorous and structured training programs and comparable efforts in publicly funded non-degree library education training programs, including Library Education @ Desktop (LE@D), funded by IMLS, and WebJunction non-degree training, funded jointly by the Gates Foundation and Online Computer Library Center (OCLC). Definitions of national U.S. public library staff competencies are being finalized and circulated. Similar initiatives for defining and certifying core competencies for library staff (distinct from academic programs) were in progress in regions around the world (Cuthbert, 1997).

APPENDIX M
CORRELATION MATRIX

DPTGE		-0.09	-.169	.032	.623	.617	1												
N		193	193	193	193	193	-												
P		.90	.02	.66	.00	.00	-												
PRTSE		-0.22	-.094	-.086	.701	.566	.421	1											
N		193	193	193	193	193	193	-											
P		.77	.20	.24	.00	.00	.00	-											
POTSE		-.012	.011	-.027	.554	.774	.541	.586	1										
N		193	193	193	193	193	193	193	-										
P		.87	.88	.71	.00	.00	.00	.00	-										
DPTSE		.023	-.093	.098	.469	.528	.736	.504	.618	1									
N		193	193	193	193	193	193	193	193	-									
P		.76	.20	.17	.00	.00	.00	.00	.00	-									
Policies in place		-.036	.080	.119	-.092	-.009	.080	.079	.161	.259	1								
N		193	193	193	193	193	193	193	193	193	-								
P		.62	.27	.10	.20	.90	.27	.28	.02	.00	-								
Reviewed, revise		.100	.018	.192	.028	-.005	.053	-.019	-.121	.018	-.082	1							
N		193	193	193	193	193	193	193	193	193	193	-							
P		.17	.80	.01	.69	.94	.46	.79	.09	.80	.26	-							
Use of training or		.075	.167	.128	.120	.125	.067	.170	.118	.121	.023	.057	1						
N		193	193	193	193	193	193	193	193	193	193	193	-						
P		.30	.02	.08	.10	.08	.35	.02	.10	.09	.75	.43	-						
Is staff time alloc		.091	.097	.049	.035	.123	.059	.173	.171	.096	.096	-.065	.009	1					
N		193	193	193	193	193	193	193	193	193	193	193	193	-					
P		.21	.18	.50	.63	.09	.42	.02	.02	.19	.18	.37	.90	-					
Library Manager		.232	.177	.229	-.018	.093	.035	.091	.188	.199	.178	-.011	.057	.212	1				
N		193	193	193	193	193	193	193	193	193	193	193	193	193	-				
P		.00	.01	.00	.80	.20	.63	.21	.01	.01	.01	.88	.43	.00	-				
Supervisor/contr		-.023	-.062	-.040	.047	-.018	.038	.011	-.074	.027	.109	-.005	.152	.219	.250	1			
N		193	193	193	193	193	193	193	193	193	193	193	193	193	193	-			
P		.75	.39	.58	.51	.81	.60	.88	.31	.71	.13	.94	.03	.00	.00	-			
TIMEVALUATIO		.004	.117	.134	-.052	-.008	-.054	-.094	-.016	.001	-.028	.045	.150	-.213	-.049	-.072	1		
N		192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	-		
P		.96	.10	.06	.48	.92	.46	.19	.83	.99	.70	.53	.04	.00	.50	.32	-		
Discussions Rea		.026	.003	.162	-.069	.016	.030	-.034	.075	.061	.047	.007	.123	-.054	.080	-.119	.486	1	
N		192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	-	
P		.72	.97	.03	.34	.82	.68	.64	.30	.40	.51	.92	.09	.46	.27	.10	.00	-	
Organizer Pages		.020	.073	.134	-.159	-.129	-.117	-.087	-.081	-.054	.034	.040	.115	-.132	-.006	-.065	.611	.487	1
N		187	187	187	187	187	187	187	187	187	187	187	187	187	187	187	187	187	-
P		.78	.32	.07	.03	.08	.11	.24	.27	.46	.64	.59	.12	.07	.94	.38	.00	.00	-
Content Files Vie		.037	.149	.144	-.132	-.074	-.080	-.068	-.116	-.046	.003	.074	.045	-.088	-.076	-.075	.575	.256	.772
N		187	187	187	187	187	187	187	187	187	187	187	187	187	187	187	187	187	187
P		.61	.04	.05	.07	.31	.28	.35	.11	.53	.97	.31	.54	.23	.30	.31	.00	.00	.00

Significant correlation coefficients are bolded

APPENDIX N

EVALUATION SCORECARD PLANNING FORM

Summative Evidenced-based IMPACT Evaluation Planning Form

Use the form (reverse) as an example for database fields and report card format.

1. State the core competency that the training addresses.
2. List the instructional objectives (LO) from the course. For LE@D, LO's align with core competency areas and certification requirements.
3. Write the evaluand under review, i.e. the instructional elements you are investigating or comparatively evaluating (IMPACT examples includes independent study, facilitator with in-course communication, continuing education (CE) coordinator with local programming).
4. Knowledge Indicators: List the overall scores on the exam.
If you are studying specific groups (e.g. participants from large and small libraries or individuals by degree and non-degree) stratify data and also include the entire cohort. Include version of assessment tool if revised.
5. Attitude Indicators: List rank scores on the General Self-Efficacy & Specific Self-efficacy scales. Include version of scale if revised.
6. Performance Indicators: Write facts and figures about self-report (& supervisor report) of changes or improvements in workplace practices attributed to attending training (include links to career portfolios where applicable). List statistics on specified indicators, e.g. IMPACT study used activity on policy development and rates of use on the job.
7. Link to comparison cohorts distinguished by their evaluands & comparative statistics on KAP. This can be a simple up or down arrow for significant difference or a flat line to indicate no difference with link to full statistics or link to training artifacts and deliverables.
8. To illustrate the Qualitative results write a short case study or participant comments. Also, time permitting code the narrative files: course discussion and chat log files; student comments; and any other captured narrative data. Also, give a brief summary of how you collected the information for your evaluation and methods and personnel were involved.
9. Categorical data by characteristic of participant, e.g. Library system, age, years of service, job position, motivations, level of satisfaction, career aspirations, etc. Can include the current attrition rates and historic attrition rates; average time in course, etc.
10. Notes on the evaluation & related information, e.g. Dates of training / Dates of assessments; List Data Analysis by Date Each evaluation entry, revision, and review should include a date and initial stamp for data accountability.

e-Training Course:		
<i>LE@D Managing Difficult Patrons with Confidence</i>		
SME: Isenstein		
LE@D Instructional Designer: Developer: Vika; Reviser: Tammy; Media: CDL		
Initial Rollout/Last Revised Dates: Fall, 2003/Summer 2007		
Participant numbers since course creation & since last revision		
(Production cost & legacy data from formative evaluation when available)		
Core Competency: ¹		
WCPL Core Competency Area: Library Policies and Procedures Continuing Education: 3 hours		
Course Instructional Objectives: ²		
Apply a variety of communication techniques to positively manage various problem patron situations.		
Apply a number of coping techniques to be able to maintain composure in stressful problem patron situations.		
Discern how to determine when the problem patron cannot be satisfied and to whom and how to communicate such problems.		
Decide when to call for security or the police.		
Assist with reviewing, revising and/or creating library policies that address a variety of problem patron situations.		
Instructional Mode and Elements: ³		
LE@D Outsourced Facilitation: Teri Dalston		
Online asynchronous CMS communication tools: facilitator announcements, CMS email, discussion postings, facilitator discussion thread, time in course, observations		
Knowledge Report Card ⁴ : [Test Instrument]		
Pre-test (T ₁)	Post-test (T ₂)	Delayed Post-test (T ₃)
Attitude Report Card ⁵ : [Scales]		
GSE & SSE Pre-test	GSE & SSE Post-test	GSE & SSE Delayed Post-test
Performance Report Card ⁶ : [Performance Indicators]		
Delayed Post-test – OTJ Frequency, Learning Tasks, and Learning Deliverables		
How did this course do over time ⁷ ?		
Knowledge (T ₁) -Post; Post-DP; Pr-DP	Attitude (T ₁) -Post; Post-DP; Pr-DP	Performance (T ₁) -Post; Post-DP; Pr-DP
Qualitative Data notes, quotes, and observations ⁸ ?		
Automated: course log files; attrition rates; time in course; time in assessment Coded data: student comments; discussion postings; other narrative data		
Participant individual item statistics and identified correlations: ⁹		
Link to charts		
Comparison to same course other Instructional Modes and Elements: ¹⁰		
Link to charts and competency criteria		
Evaluator, Evaluation Tools, and Evaluation Reviewers:		
Dates of training / Dates of assessments		
List Data Analysis by Date		
Date and initial all data entry, revision, and review		

APPENDIX O

EXAMPLE DISCUSSION POSTINGS

Compiled Messages

Topic : Main

Date : Wed

Subject : Introductions

Author : Dalston, Teri

Welcome to the first section of the LE@D/IMLS course, "Managing Difficult Patrons with Confidence."

We have a wonderful class with individuals from GA, MI, MO, MT, NJ, OH, UT, WV, and WY.

For a map of everyone's library locations see the following URL at Google Maps:

<http://maps.google.com/maps/...>

Within this group we have over 210 combined years of experience! I want to take a moment to introduce myself and to encourage everyone to submit an introduction about themselves.

Contact information:

I can always be contacted within the course, but should anyone have access issues or an urgent communication need:

Email: teri@unt.edu

Phone:

Experience:

I've been working at University of North Texas School of Library and Information Sciences since 2004 as a teaching fellow teaching undergraduate to Ph.D. students both online and in face-to-face sessions. I also have worked as an instructional designer on a number of LE@D courses. I have co-authored a Neal Schumann book on managing budgets and am currently working on a Linworth Publishing book of case studies on economical implementations of virtual reference services in public school settings. I have worked in industry as a technical researcher and applications engineer, maintained the Z39.50 Standard Resources Web site for NISO, and worked as a contract reference librarian and writer/indexer. So, my interests and experiences in the profession are quite varied. I currently serve as senior researcher for Project IMPACT in Public Libraries, this IMLS funded research project.

I've instructed over 300 students in semester-long online classes and will see over 400 students through this course this year. You are the first group so there may be a slight learning curve for me, but I want to support your online learning and help everyone have a positive experience. In the class, I'll help facilitate online discussions, answer your questions (on assignments, technology, best practices, -- whatever you throw my way!), and support you in your learning process.

Philosophy:

I believe that everyone has something of value to contribute that will enhance our online learning experience. I commend each of you for your commitment to lifelong learning and professional development as shown by your enrolling in this course. I believe that professional development and contributions to the field of library science are not about a degree or title, but about shared life and work experiences that enhance our level of service to our patrons. I enjoy online learning in spite of the occasional technology glitches. I hope to help make this a great learning experience for everyone.

Personal:

Hobbies include reading, traveling, collecting cookbooks and cooking, and enjoying my three (almost adult) children! I have fraternal twin girls who are 17, a 19-year-old son attending UNT, and a seven-year-old golden-retriever. In my spare time, I am also working on a dissertation in Interdisciplinary Studies at the University of North Texas.

Your Turn:

Now I'd like to encourage everyone to post their own introduction and any questions you might have. This will be a fast two weeks, but I hope that each of you will enjoy this opportunity to share and learn from each other. Thank you for your participation in this course and I am looking forward to learning with all of you.

Best regards,
Teri Dalston

Topic : Main Date : Wed

Subject : Re: Introductions Author : Participant 1

I am also a full time librarian, and mother I have 16 year old twin girls, which are the youngest of my 6 kids. I have been director at the library for almost 14 years and part time for 7 before that. I am taking the class as a good way to pick up new ideas.

Topic : Main Date : Wed

Subject : Re: Introductions Author : Participant 2

My name is Participant 2 and I work full time in the Adult Services area of the main branch of the Local Library System in Northeast state. I have worked in the library for 5 years and I am currently enrolled in the MLIS online program at the University. If things go as planned I will graduate in May. My plan is to continue working in public libraries as I really enjoy my job. Life is an adventure. Besides my job and grad school, I am married with 3 children ages 15, 13 and 9. Hobbies include reading (can't wait to read fiction over the upcoming holidays), puzzles, baking and I am the cookie manager for my daughter's Girl Scout troop. I am looking forward to participating in this class and discussion group

Participant 2

Topic : Main Date : Thu

Subject : Re: Introductions Author : Participant 3

This past year has included significant firsts: graduating from library school, beginning my career as an adult ref librarian at a small suburban library, and becoming a first time grandma to a wonderful little boy! I have 4 sons, ages 17 - 27. My interests include reading (of course!) distance walking (lots of audiobooks) music (hammered dulcimer, violin, and piano) and local theatre. As a mom of a new driver, I frequently remind my son to anticipate and prepare for

potential driving situations. I hope this course will help me do the same in regards to library patrons.

Topic : Main Date : Thu

Subject : Re: Introductions Author : Participant 4

Hi, My name is Participant 4 and I am a part-time Circulation Staff member at the Local Library in City, State. I have 3 children (1-8), a wonderful husband and multiple pets. I am an elementary school teacher by training and have enjoyed using those skills as a member of our library. I love reading and spending time with my growing family. I am also the achievement chair and a Cub Scout leader for my son's scout den.

Topic : Main Date : Thu

Subject : Re: Introductions Author : Participant 5

Hello everyone!

My name is Participant 5, but everyone calls me knickname. I'm currently an Adult Services Librarian with the District Library, but I'm really a children's librarian at heart! I've worked in various departments of the library for the past six years and became a librarian after I graduated from UNT in August of 2006. Just when I thought I'd never have to see WebCT Vista again I get sucked back in! :)

I don't have much free time anymore since I have an eight month old daughter at home, but when I find a spare moment I do enjoy reading, shopping, or trying to catch up on some sleep! :) (does sleeping count as a hobby?)

Topic : Main Date : Fri

Subject : Re: Introductions Author : Participant 6

Hello everyone, my name is Participant 6 I work at the Local Library in State. I have worked there for 4 years as head of Tech Services, before I worked at the other Local Library for 7 years. I am on the cataloging, rapid update, continuing education, and circulation committee for our network. I am also on the staff training day committee for our local library. I'm the mother of 2 children 1 son-5 years old and a daughter 3 1/2. I love to read, cross-stitch, work crossword puzzles. I hope to chat with a lot of you, during our 2-week course.

Topic : Main Date : Tue

Subject : Re: Introductions Author : Participant 7

Hello!

I'm getting a late start, but I would like to introduce myself. My name is Participant 7 and I work at the Local Library in City, State. I've been a full time Library Assistant here for 2 years and about 2 months. My job duties include staffing the Info Desk, handling ILL requests, coordinating volunteers, ordering a/v materials and many other things too numerous to list :). I also worked at my college library (University) all 4 years while I was attending and was a page at my local library during high school.

Other interests include organic farming (I am co-owner/manager of an organic vegetable farm here in Town), hiking, river rafting, bluegrass/folk music and of course reading, reading and more reading (favorite author - Barbara Kingsolver).

Nice to "meet" you all and I look forward to read your posts.

--Participant 7

Topic : Main Date : Thu

Subject : Re: Introductions Author : Participant 8

So slow of me! I have been working on this course for a little bit now, but I somehow missed this page. My name is Participant 8 and I am an Adult Reference Librarian at the Local Library in City, State. I just hit my one-year mark last month of working in a public library and I have loved every second. I worked for a year in a High School library before this. I have been married for two years and have no children yet. I keep very busy with the many hobbies I collect (yes, I collect hobbies). My most recent are oil painting, reading about polar explorers, cooking Indian food, and blogging.

Topic : Main Date : Sat

Subject : Re: Introductions Author : Participant 9

Hi Everyone-

I am Branch Manager at the Local Library in Town. We're located in the Region. Summers are extremely busy and in winters we keep busy with programming for local residents.

I have also been Library Media Specialist at Local Public School (10 years) and Public Librarian on Local Town where I lived for 24 years. No cars- just bicycles. Supplies are delivered by horse drawn carts. I began my business, Home Company, Local Area; delivering wedding cakes by bicycle. We moved the business to a former bed and breakfast 3 years ago

My only son, "son's name," is 13, funny, brilliant, and wise. My husband commutes to Local City to work for one of the boat companies there. Life is far too busy, but we're happy here in the "region".

Topic : Main Date : Wed

Subject : Hello Author : Participant 10

My name is Participant 10 and I am a Manager of a small Library in Local Town. I am not a Librarian because I do not have a degree. I have worked at the Local Town for the past 19 yrs in

various positions. I have found that the last couple of years have been challenging with the patrons. We have a small hometown library where everyone mostly knows everyone or is related to someone who knows you. My staff & I have found it harder to work with the younger parents and children. I am really looking forward to this class. This is my first class online and I hope not my last.

Topic : Problem Patrons
Subject : Cell Phones

Date : Wed
Author : Participant 10

One of our main problems is cell phone use. We have a Board approved policy that there will be no cell use in the library. If a person receives a call they can answer and take the call in the entryway of the library. We have signs posted about the cell phone use but that doesn't help. Most people, when approached, do turn off their cell phones or go outside. We have had patrons who continue talking on the cell phone after you have asked them to please stop. We have also had patrons actually tell you off when you ask them to please not use their cell phone in the library. Does anyone else have this problem or do most of you let patrons use their cell phone in the library? Our library is small so the use of a cell phone causes problems with program and patrons trying to study.

Topic : Problem Patrons
Subject : Re:Cell Phones

Date :
Author : Dalston, Teri

Participant 10,

You have hit upon a big issue that many people, not just library staff, find troubling. In fact, a 2006 ABC News poll found 87% of respondents said the bad behavior they observed the most was people making annoying cell phone calls. The study found that annoying cell phone calls were one of the top three bothersome social conducts, outranked only by "overall rude behavior" and "use of bad language" (Kim, 2006). A recent joint Pew Research Center's Pew Internet & American Life Project, the Associated Press and AOL research study found, "82% of all Americans and 86% of cell users report being irritated at least occasionally by loud and annoying cell users who conduct their calls in public places." [For more details on the study of Cell Phone use see http://www.pewinternet.org/pdfs/PIP_Cell_phone_study.pdf]

In libraries where I have worked there were often flyers posted at the entrance and throughout the library. I have attached a couple of files (one MS Word document and an Adobe PDF file as examples). If others have policy statements or flyers on Cell Phone Use Restrictions, please share them and your experiences.

I have also attached a case study and invite comments on the article for a cell phone policy that had mixed success: "Developing a Library Policy for Cell Phone Use" from Library Administration and Management (distributed within Fair Use Guidelines for educational purposes)

Thanks for this thoughtful question.

Teri

Kim, R. (February 27, 2006). The world's a cell-phone stage: The device is upending social rules and creating a new culture. "San Francisco Chronicle," (pp C-1).

Available online: <http://sfgate.com/cgi-bin/article.cgi?f=/c/a/2006/02/27/BUG2IHECTO1.DTL>

<http://sfgate.com/cgi-bin/article.cgi?f=/c/a/2006/02/27/BUG2IHECTO1.DTL>

Attachments : CellPhonePolicy.doc CellPhoneFlyer.pdf LibrAdmManage18_4-Snowman.pdf

Topic : Problem Patrons Date : Fri
Subject : Re:Cell Phones Author : Participant 6

I really liked the attachments that you sent. We have our policy posted at the front door about no cell phones. I really liked the graphics that you sent. Thank you so much.

Topic : Problem Patrons Date : Sun
Subject : Re:Cell Phones Author : Dalston, Teri

Participant 6,
I'm pleased you found the templates helpful, but I can't claim the creativity. Everyone can download the templates from Microsoft and then add their own policy. See:
<http://office.microsoft.com/en-us/templates/results.aspx?qu=cell+phone&av=TPL000>

I really am finding the postings on this common problem with disruptive cell phone users interesting. I don't believe a decade or so ago anyone would have thought that there would be routine issues with Beethoven Fifth Symphony and other music blaring at ten decibels from the pockets of patrons within the library reading area! :) Technology brings convenience and new challenges. For those interested in educating patrons about cell phone use, July is National Cell Phone Courtesy Month. I haven't seen any library web sites or bulletin boards in local libraries promoting this fact, but would love to hear if anyone else has... See Sprint's news announcement: http://www2.sprint.com/mr/news_dtl.do?id=1700

Best regards,

Teri
Topic : Problem Patrons Date : Thu
Subject : Re:Cell Phones Author : Participant 8

It might feel a little ooky at first, but when I ask someone to please turn off their cell phone I almost always stand next to them until they do so. Most people will nod, or say "ok" and then

continue talking when you leave, but if you stand there (smiling pleasantly of course) they really have very few options.

Topic : Problem Patrons Date : Fri
Subject : Re:Cell Phones Author : Participant 4

We just recently developed a cell phone policy and seem to be having success with a large sign at the front door and signs by our public computers. This is aided by a great information department who are able to politely and firmly ask cell-users to go out into our lobby to use their phones. I'd be curious as to how others enforce their policy.
Thanks!

Topic : Problem Patrons Date : Fri
Subject : Re:Cell Phones Author : Participant 6

At our library our policy states that cell phones are to be turned off when entering the library. We have a notice at the front door. Are policy has been in affect problem 6 months, and its working fine with us.

Topic : Problem Patrons Date : Wed
Subject : Re:Cell Phones Author : Participant 10

We have tried the approach of asking patron to please take their cell phones out into the entryway. Some of them just ignore us and than get mad when we ask again. Some just take the cell phones to the bathroom and use them. Some have told us off because they couldn't use the cell phone. We do have signs at every computer (where we have the most problem) at the front door and on the front desk.

Topic : Problem Patrons Date : Sat
Subject : Re:Cell Phones Author : Participant 3

We've experienced similar problems at both of the public libraries where I've worked. In spite of signs at the door, on the door, and throughout the library, people still don't notice the signs or don't think it applies to them.

However, I do think part of the problem for patrons is the different policies between libraries. Many patrons in our area use several libraries and some of them permit "quiet" cell phone usage.

The other problem for them is understanding where usage is acceptable. One library permits phones in the outer lobby, which patrons interpret as being the lobby by the circ desk where there are comfy charis, not the outer lobby with no chairs.

Topic : Problem Patrons Date : Sun
Subject : Re:Cell Phones Author : Dalston, Teri

Denise,

You bring up a couple great points... there is not consistency among libraries on cell phone use and when boundaries for area libraries are blurred (as is also the case with DFW Metroplex) enforcing policy is especially challenging. Thanks for sharing your experiences.

Teri

Topic : Problem Patrons

Date : Tue

Subject : Re:Cell Phones

Author : Participant 7

After conducting a patron survey at our library, we made a sign related to cell phones which I am going to try to attach to this message. The text of the sign reads "#1 Library User Complaint - Cell Phones... Please turn off ringer and take calls outside". I like this sign because it explains why we don't want folks talking on cell phones in the library. I've also found that this a very effective way to approach people who despite the many signs we have posted, still don't turn off their ringers. When I start out by telling them that we made the policy in response to patron complaints, I rarely get anyone questioning the policy.

Has anyone had to deal with their patrons using the program Skype or similar technology to talk to someone else over the internet? I recently had a gentleman on our wireless internet chatting away to someone - he was using a headset with a microphone. I had to approach him and explain that although our policy refers to cell phones, patrons were finding his one sided conversation, conducted over the internet, to be equally disruptive.

--Participant 7

Attachments :

sign-5x7-#1 Complaint.pub

Topic : Problem Patrons

Date : Wed

Subject : Re:Cell Phones

Author : Dalston, Teri

Participant 7,

Thank you for sharing your great ideas! What great use of your patron survey information, and the sign is perfect for getting the message to patrons. I have attached the sign in PDF format for those that do not have Microsoft Publisher installed on their computers.

I have never heard of a patron using SKYPE [<http://www.skype.com/>] at the library. Thanks again for sharing your library's experiences.

Teri

Attachments :

signCellNo1Complaint.pdf

Topic : Problem Patrons

Date : Wed

Subject : Re:Cell Phones

Author : Participant 10

Participant 7,
I really like your approach and am planning on bringing it up at our staff meeting. Thanks

Topic : Problem Patrons Date : Fri
Subject : Re:Cell Phones Author : Participant 11

We have not had a lot of problems with cell phones. Due to the size of our library, we can usually see most people from the front desk. However, the few people who do not go outside usually make the conversations very short with everyone watching them. I really like the sign and the thought behind it, Participant 7, so I printed it for future use. Thank you. Participant 11

Topic : Problem Patrons Date : Wed
Subject : Re:Cell Phones Author : Participant 5

It's funny that this topic came up, because we just recently found out that our library district does not have a policy that prohibits cell phones and we have been telling patrons for years that they are not allowed. As a result, we just stopped telling patrons that they cannot use their phones in the library. So far it has not been much of an issue, probably because I work in a very busy branch so it's noisy in the building most of the time anyway.

At first I was upset about this development, as many people (myself included) find people on their cell phones very irritating. Then I discovered that our district has created a printable guideline that refer to the library rules of conduct as a reason for taking disruptive cell phone calls outside of the library. I think this is a little more fair and easier to enforce, as many people are capable of having quiet conversations that don't bother anyone else around them and we don't have to act as "cell phone police". I have also found from personal experience that if you approach a person to inform them of a policy, if you hand them a copy of it they are less likely to argue with you about it. (I have attached a copy of the handout)

I think part of this policy comes from the idea that libraries shouldn't have long lists of "don'ts" and it still allows us to tell people that are disruptive that they have to take their call outside. As I stated before, so far it hasn't been a problem, but that could very well change! :)

Attachments :
cell_phone_guidelines.pdf

Topic : Main Date : Thu
Subject : how to get to pre test Author : Participant 1

I am not able to get to the pre test. HELP

Topic : Main Date : Fri
Subject : Re:how to get to pre test Author : Dalston, Teri

Participant 1,

I found sometimes a functionality in an online class will be inaccessible for short periods of time and I think this is what happened to your access to the pre-test. The stats show that you completed the consent form and were able to access the pre-test at one time. So it was yesterday when you were now not able to access the pre-test? I am not sure what has happened yesterday, but two other students were having similar issues with the questions being delayed so long that it timed out before they were loaded. At least one of those students issues was resolved by logging off and logging back on a short time later. The issue might be a server issue, but can also be caused by firewall restrictions set by your network administrator. Perhaps if you could try again and let me know if this is still an issue? If others are having problems with the pre-test loading properly please let me know. I'd like to give UNT Support a time and number of issues if this is a widespread problem so they can decipher what is happening. I am sorry for those of you that had this problem.

The school sometimes has some issues with the technology, but usually it runs very smoothly. There are literally tens of thousands of students using UNT's web courseware and millions of pages of content (including assessments) that are viewed around the globe, bringing together people throughout the world without conflicting with schedules or requiring travel time and traffic, which is really incredible... but when my students have trouble accessing the materials I feel their frustration and wish I could physically be there to fix the problem. If you are not able to access the pre-test still I can try re-setting your exam and we can try again. I will be here all day except for when I pick up my daughters from school and work. Please call me if you still cannot access the pre-test and I will troubleshoot it with you.

972-292-0503

Kind regards,

Teri

Topic : Main

Date : Fri

Subject : Re:how to get to pre test

Author : Dalston, Teri

Participant 1,

I wrote the previous e-mail and then thought perhaps some students may just be having navigation issues so I attached a couple screen shots in PDF format to explain how to locate the pre-test/assessments from the start page and also from any page in the course. I hope these help some.

Best regards,

Teri

Attachments :

explanation of navigation to assessment.pdf

Topic : Main

Date : Mon

Subject : Re:how to get to pre test

Author : Participant 1

Kody was on line and reset the consent form I redid that and everything seems to be moving along. Thanks

Topic : Main Date : Fri
Subject : Hello! Author : Participant 11

Hi, I'm Participant 11 from a small library in northeast State. We are a rural farming community where everyone knows everyone. I'm a circulation clerk and have worked here 5 years part-time and now 5 years full time. I do all the children's programs, which I dearly love, as well as regular library duties. We farm, so I love working outdoors, gardening and raising sheep. I also like to do handwork and of course read.

Topic : Main Date : Sat
Subject : Unruly children Author : Participant 4

How do you all deal with unruly children (with or without their parents standing by)? We are seeing an increase of disruptive (and destructive) behavior and any new suggestions would be great!

Thanks!

Participant 4

Topic : Main Date : Sat
Subject : Re:Unruly children Author : Participant 3

I'd also be interested in suggestions regarding these situations, as I've heard of other patrons stepping in to deal with the situation when parents don't or won't. This was not a good solution!

Topic : Main Date :
Subject : Re:Unruly children Author : Participant 1

At our library we do provide alot of games in the library. Our kids even ask if they don't see the puzzle or game they want.

Topic : Main Date : Sun
Subject : Re:Unruly children Author : Dalston, Teri

Participant 4,

The issue of unruly and often unattended children in the library is a tremendous burden on staff that should be addressed not only on a daily, case-by-case basis, but also within the larger community. Unsupervised children have a lot of legal issues associated with the situation, both from the parents and the library's standpoint and appropriate policy should be in place. There was a great blog entry earlier this year by Mary Minow, a library legal specialist out of California, that gathered library administrative policies from different areas in the United States

that spoke to these issues. See:

http://blog.librarylaw.com/librarylaw/2007/01/unattended_chil.html

I have been approached by a young parent that asked if it would be okay to leave her sons, seven and four, in the library while she went to the grocery store several miles away. By having a policy that addressed unsupervised and unattended children I felt the library was not only drawing prudent boundaries for staff responsibilities, but also protecting the children from potential predators and from injury on the grounds of the library or if they chose to venture further. Fortunately, I was able to direct her to the community service center and some local "Mother's Day Out" programs, as well as a local grocery store that offered in-house child care. Some communities are not quite so affluent or networked that this is possible.

Thank you for sharing this issue. The courseware recommends factoring in the noise levels for groups of teens and setting aside an area/corner of the library to allow them to meet without disrupting other patrons, but this does not address younger children. Participant mentioned that some other parents often help to quiet roudy children. I have seen this work as well, and have also seen retired teachers in libraries volunteer as unofficial "library monitors." I find monitors work best in smaller, close-knit communities and when the library has a policy in place and actually gives the volunteer teachers/parents support of the library board. "Shhhhhing" other parents' children is delicate business and can have some legal repercussions. One inner-city library where I was contracted had a librarian that was married to a police officer and he often "visited" in uniform to chat with the staff... his impromptu visits could take any harried afternoon and bring a calm:)

Please share solutions that your libraries have found and do take a look at Mary Minow's blog... it is a wonderful resource to bookmark on legal issues with disruptive patrons.

All the best,

Teri

Topic : Main Date : Mon

Subject : Re:Unruly children Author : Participant 4

Teri,

I have to chuckle at the uniformed police officer comment. My husband is a Police Sergeant and will stop by occasionally. The staff has been appreciative about this and we do see the peace settle for a time after his visits. I wonder if more PD's would be willing to drop in occasionally or would this be some violation of privacy? How many libraries have security officers in house? Do you see this helping with disruptive patrons?

Topic : Main Date : Mon

Subject : Re:Unruly children Author : Participant 1

I think it would have to be a very large library that can afford a security guard. We do have our local police stop in every once in a while. Some are library patrons.

Topic : Main Date : Tue

Subject : Re:Unruly children

Author : Dalston, Teri

Participant 1,

It is great that your library has a good relationship with the local police department. They can be great allies in problem situations. As you mention, security guards are expensive, but for some library communities they are a very necessary investment. At a university library that I worked we had a security guard escort to our car each evening because of the amount of crime and sexual assaults that had occurred on or near the satellite campus. I am aware of some public libraries that have similar measures in place. In a university setting, the library did not incur any costs for this service, and the security personnel were professionally trained guards. Most public libraries that I have contracted do not have security guards, but do have security cameras and alarm systems and will use the digital photographs/video of patrons to work with local police to address patrons that steal, vandalize, or go to restricted areas without permission.

There are straightforward measures that can have impact on security that do not require the investment of a guard or security system. By having library personnel trained and aware of security issues and what one director has described as "an alert presence within the library," both volunteer and staff can often deter problem situations. For example, that director required personnel to go on library "rounds." In fact, staff often fielded reference and directional questions from "lost" patrons on these patrolling missions.

If situations escalate at a library, educated local authorities can be valuable allies to problem situations and may "find" funding or measures to address problem situations. If a library has properly documented recurrent security issues on the library grounds, the documentation is often all that is needed to convince community leaders to fund police escorts or security patrols. Each library should gauge its own need. As the courseware describes, when a staff member feels threatened or patron security is at risk, security or police intervention is absolutely necessary.

In one of the inner-city libraries where I contracted there was a real problem with strange men lurking in the women's bathrooms and at least one convicted pedophile staying for hours on end and watching very young girls in the children's section of the library. Needless to say these situations are so unsettling/demoralizing for staff. The library administration worked with the local police and the FBI to address these situations, and continues to have a good relationship with these authorities.

Each member of the library staff needs to realize that they are not alone when confronted with difficult circumstances. When employee and public safety are seen as the first priority of the library policy and procedures manual and by the entire community, then staff are empowered and are able to focus on public service and patron satisfaction.

Quite a soapbox, but security is so important and security measures that are simply an afterthought take more time and energy than putting into place sound policy and procedures and documentation measures.

Thanks for posting and allowing me to post these thoughts and experiences.

All the best regards,

Teri

Topic : Main

Date : Tue

Subject : Re:Unruly children

Author : Dalston, Teri

Participant 4,

I believe having a good working relationship with community police is essential and have known many uniformed police officers routinely visit the library. Lucky for you that you have such a great connection:) The question you pose about the violation of privacy is interesting. Have not seen that to be an issue, and in fact ,there was a recent incident in State where county security personnel were viewed as infringing on a patron's rights to view questionable material on the Internet and a local police officer was called to protect patron's "First Amendment rights" and "library intellectual freedom issues." [For more on this story see <http://www.ala.org/ala/online/currentnews/newsarchive/2006abc/february2006a/betheda.cfm>]

There are many instances where the presence of poorly trained security guards actually hurt the good-will of the library within the community. In fact, one of my former students was from the infamous library where the security guard fired on a patron that absconded with a library book! A pistol in the wrong hands is a dangerous weapon indeed!

The value of a security guard on the premises would largely depend on the prior training and experience of the guard, the community and staff assessment of need, and the funds available. Whether or not the library has funds for a guard, most would agree empowering staff with clear, consistent procedures for addressing and documenting difficult patron situations, and having board approved policies that are widely publicized within the community and the local school districts are essential. Even a posted "Code of Conduct" (similar to those displayed in other public places like parks, theatres, sports arenas, and swimming pools) are great tools to empower staff and to deter problem situations. Training the staff and enabling them to address various difficult situations and providing real consequences for a patron's bad behavior are great deterrents for future problems. For example, I have witnessed and heard of some creative solutions for rowdy teens that actually have some teeth and consequence ... some libraries give the teens a warning and then collect their library cards for a week to ten days after the first warning. This disciplinary action eliminates their computer access and checkout privileges during that time. Second offenses incur a longer punishment. It was a very good deterrent to bad behavior among most teens in that community. Other libraries call the parent for the first offense and the police for the second offense. There were very, very few second offenses.

On your other question, I do not have statistics on the number of public libraries that employ security officers in house, but I know of a 1999 survey by Association of Research Libraries that actually showed the numbers on campuses are incredibly low - less than a quarter have designated security personnel. If you include the staff members that have additional duties of security, then the number of library with security formally addressed is still just two-thirds. In fact the study found that only 40% of survey respondents had any security plans in place. The numbers are quite surprising, and I have attached the article for those that may be interested. Security methods that worked for surveyed libraries are pulled out in a bulleted list and are worth reviewing. Also, note the checklist of questions (reproduced below) of some inexpensive strategies to improve security.

"Does your library have:

- an overall statement of your security program purpose?
- a security program plan, with an analysis of current systems and action plans for improving them?
- a schedule for reviewing your security program?
- programs for training library staff and informing staff and users about security issues?
- written security procedures accessible to all staff, including an emergency manual?
- an effective system for reporting security-related incidents and keeping records of such incidents?
- at least a partial inventory system for high-value items?
- good working relations with security personnel in your parent institution?"

I hope this addresses most of your questions. It might be interesting to poll this group and see how many actually employ security guards and if they are seen as helpful... there was a humorous article several years back by the former president of the Washington Library Association (Cameron Johnson) that addressed the turnover his library experienced in security guards. I am attaching what I have on file. Of course, all additional reading materials are included for educational purposes, but the article adds some comic relief to the difficulties libraries have finding well-trained security officers.

Thanks for your questions.

All the best,

Teri

Attachments :

Johnson1997HumorousSecurityGuardArticle.doc

ARL Security Stats.doc

Topic : Main Date : Tue

Subject : Security Guard poll Author : Participant 4

I'll begin the poll by stating we do not have a "security guard" for our library. We do however have an information staff who frequently (at least once an hour) do rounds around the library. We also have a male custodian who makes sure we are all in our cars safely before he leaves at the end of the night.

We also have a uniformed officer who stops by occasionally (my husband) when I am working and have never had problems with officers coming if we call them for assistance.

Topic : Main Date : Wed

Subject : Re:Security Guard poll Author : Participant 5

We have at least one security guard at each of the urban libraries in our district. At some of the larger branches, there are two or more guards on duty during library hours, and at some branches there is even a guard that watches the building overnight to try to prevent vandalism.

Unfortunately, as the article that Teri shared with us, it can be hard to get a good security guard for the pay that most guards make. And I have seen many good guards get burnt out very quickly having to deal with the public on a daily basis. I have been witness to many situations in which the guard was no help whatsoever or even a hindrance. Our security guards are more of a deterrent than actual "security". They don't really have the authority/capability to do anything in a situation, they act more as an extra set of eyes and as witnesses in conflict situations. I would imagine that having police officers making regular casual visits would do more to give a sense of security than our security officers do.

Topic : Main Date : Wed
Subject : Re:Security Guard poll Author : Participant 4

What about hiring extra staff to have a "roving" job of wandering the library, picking up books, straightening shelves and being that "extra presence" in the library? Would that make a difference in disruptions/vandalism?

Topic : Main Date : Thu
Subject : Re:Security Guard poll Author : Participant 5

It would be awesome to be able to hire extra staff, it's badly needed, but I don't think that's going to happen anytime soon. We do have number of pages that are always out working in the stacks, but nobody really pays much attention to them. The reference staff is also out there regularly, it seems like every couple of minutes one of us is walking a patron to the shelf to find a book. We are fortunate that there are not a large number of disruptive patrons at this branch. The previous branch that I worked at had a LOT of problem patrons. I was in the children's library and there were about 20 or so different kids that came in daily that caused trouble almost every day. If you went to talk to them about their behavior, by the time you got back to the desk they had started up again. We tried a number of different tactics to get them to behave, including suspending their access to the computers for one week periods, but nothing was ever really successful. I would imagine that calling their parents on their first offense and the police on the second might have worked, but I don't think our board of directors or the police department would have liked that plan. :)

Topic : Main Date : Thu
Subject : Re:Security Guard poll Author : Dalston, Teri

Participant 5,
Thanks for sharing your experiences. It is really difficult when large groups of teens become unruly on a daily basis. The courseware recommends providing a "space" for teens to socialize and letting the teens know they are welcome, but that they should still behave appropriately. The staff should never feel they have no options or means to address a continual problem. If the option of losing computer privileges is ineffective and if the option of collaborating with local authorities is too severe, then other options might be found. I have seen some incredible

youth librarians with the ability to re-direct teen energy through special programming. Sometimes volunteer coordinators will recruit the very teens that are in the rowdy group and create allies. Sometimes asking well-respected and loved teachers or community members to conduct a teen program within the library and re-enforce the expected behavior. Some libraries actually have parks and recreational units within the library with community coordinators of these programs working side by side with librarians. Other partnerships with organizations within the community and local school district are ways to redirect teens with a bit too much time and energy on their hands. A few years back I heard of a grant that wanted to place a library branch for teens in the local shopping mall... I do not think that it was funded, but creative solutions abound in librarianship. How have others addressed rowdy teens? Please do share.

There is a great resource for rural libraries that I meant to share earlier that has sample unattended children policies from around the country and also descriptions of model programs in rural setting. The site requires registration, but many of you may find it useful

<http://www.resourceroundup.net/>

Please do jump in with your ideas and questions.

All the best,

Teri

Topic : Main

Date : Tue

Subject : Resource for Working with Police to Address Community Problems

Author : Dalston, Teri

For those interested in methods for working with police to address community problems, www.popcenter.org is a great resource. The Center for Problem-Oriented Policing is a non-profit agency that is part of the the U.S. Department of Justice. They have Problem-Solving toolkits for addressing community problems. A recent document, Implementing Responses to Problems, is a good resource for assessing a community problem and finding strategies to address them. [See http://www.popcenter.org/tools/PDFs/implementing_responses.pdf]

If your library has graffiti problems, disruptive patrons with mental illness, gang problems, etc. their website also offers problem specific guides [See guides.

<http://www.popcenter.org/Problems/default.cfm>]

Topic : Notes

Date : Wed

Subject : certificate for class

Author : Participant

Teri,

I have done the class I believe but can't find how to print for CEU's. Would you check and let me know how to do that. Thanks, Participant

Topic : Notes

Date : Thu

Subject : Re:certificate for class

Author : Teri

Participant and everyone,

Please let me know if you have difficulties accessing the CE certificate. It has been loading a little slowly for some students and that is due to the graphics. Also, have been told that the certificate prints best on a color printer if you plan to display it, but it can also be printed in gray scale. I hope that everyone will continue to share their experiences in the discussion even after completing the course materials.

Also, several library staff members taking this course are reviewing and/or updating sections of their policy and procedures manuals. For those that would like to share their policies and codes of conduct you can post them in this area anonymously, or in any of the other discussion areas. Thanks for your participation.

All the best regards,

Teri

Topic : Notes Date : Tue
Subject : Re:certificate for class Author : -

I just printed off my certificate. It did not take but just a couple of seconds.

Topic : Main Date : Thu
Subject : Article: How to Have a Good Relationship with your Police Department
Author : Dalston, Teri

There is a great article that was published earlier this year that explains ways to have a good relationship with your local police departments. Sort of a mini "how-to" guide for libraries. Might be one to bookmark. It is available online at <http://www.ila.org/pub/reporter/vol25no1.pdf>

Thanks,

Teri

Stuepegia, C., Odum, S., & Odum, D. (2007, February). How to Have a Good Relationship with your Police Department. *ILA Reporter*, 25(1), 18-20. Retrieved ..., from Library, Information Science & Technology Abstracts database. Available <http://www.ila.org/pub/reporter/vol25no1.pdf>

Topic : Main Date : Thu
Subject : Sample Patron Policies Author : Dalston, Teri

The course offers some examples of sample patron policies, but I wanted to highlight a great resource maintained by the Rural Library Clearinghouse. I mentioned this resource earlier, but thought I could provide a bit more detail on its usefulness. This online resource (full description below) has example policies from around the country, and they invite other libraries to contribute their examples. They have some great patron behavior and unattended children's policy, and also wording for some delicate subjects like "odor nuisance" and "intoxication." These policies are all maintained on a searchable database. The resource does require registration. If you are looking for policies or are able to share your library's policy visit: <http://www.resourceroundup.net/>

Thanks,
Teri

From their site, "The mission of the Rural Initiative Resources Clearinghouse is to create and maintain an online archive of resources to support California's rural public library directors and staff in serving their public mission more efficiently. By seeking out and sharing examples of commonly needed documents, materials, and programs in all aspects of library operations and services, the Clearinghouse benefits rural libraries by eliminating the need to 'reinvent the wheel' for every new policy, practice, procedure or project needed at the local level.... The Rural Initiative and the Rural Library Resources Clearinghouse are supported by the U.S. Institute of Museum of Library Services under the provisions of the Library Services and Technology Act, administered in California by the State Librarian."

Topic : Main Date : Thu
Subject : Print Out in PDF format Author : Dalston, Teri

Just in case anyone has not generated a printable view of the different sections of this course, I have created an Adobe Acrobat file for your convenience.

All the best,
Teri

Attachments :
ManagingDifficultPatronsCourseContent.pdf

Topic : Main Date : Tue
Subject : course evaluation Author : Participant 6

While I thought of some more ideas about further classes. I was trying to go back and add them after I completed the test. Do you have to completely take the whole test over again, or can you just go to that question?

Topic : Main Date : Tue
Subject : Re:course evaluation Author :

Participant 6,
The course evaluation was created by the CTLA and is set so that you can retake the assessment multiple times. If you click the finish button then you will not be able to enter that assessment, but can restart a new assessment. If you do not want to answer all the questions you can go to the question you are interested in expanding your answer (in this case, question four) and just submit that question. After you press the finish button, you will be prompted for the questions you did not submit, just press "ok" and your comments will be submitted.
Also, if anyone would like to recommend a training session to Dr. Harris at any time, she is always open to suggestions. She also accepts proposals from experts from a multitude of fields that want to collaborate with LE@D to create new courses. So if you have a specialty or know

someone who does I encourage you to contact her. Thanks for taking the time to submit ideas and improve LE@D and the course.

Best regards,
Teri

Topic : Main Date : Tue
Subject : Re:course evaluation Author : Dalston, Teri

Participant 6,

The course response comments section was created by the CTLA and is set so that you can enter multiple comments. If you click the finish button then you will not be able to enter that assessment, but can restart a new comment. If you do not want to answer all the questions you can go to the question you are interested in expanding your answer (in this case, question four) and just submit that question. After you press the finish button, you will be prompted for the questions you did not submit, just press "ok" and your comments will be submitted.

Also, if anyone would like to recommend a training session to Dr. Harris at any time, she is always open to suggestions. She also accepts proposals from experts from a multitude of fields that want to collaborate with LE@D to create new courses. So if you have a specialty or know someone who does I encourage you to contact her. Thanks for taking the time to submit ideas and improve LE@D and the course.

Best regards,
Teri

Topic : Problem Patrons Date : Tue
Subject : cell phones Author : Participant 12

Thank you all for the excellent suggestions for controlling cell phone usage in a library. I find lots of signs and a consistent policy and response most useful. Use at the internet computers is our greatest problem. If the patron does not comply, they should leave. If the problem continues, they are not allowed computer use for a given period of time--sort of like consequential discipline of a child.

Topic : Problem Patrons Date : Tue
Subject : Re:cell phones Author : Participant 3

What a great assortment of useful ideas. I'll be trying the standing next to the patron, as I too have noticed that they continue talking as I return to the desk.

The signage and cell phone courtesy month ideas will also be helpful.

Thank you for sharing your creativity.

Topic : Main Date : Wed
Subject : Wrapping Up Author : Dalston, Teri

Everyone

I want to encourage those that have not completed the post test to set aside about fifteen minutes for this wrap up. (The assessments confirm your participation in our records.) I want to let you all know that the statistics for this group are fantastic! Lots of perfect scores! I also appreciate all the postings. I feel I have learned so much from all of your ideas and experiences. Members of the class also have posted and e-mailed how much they have learned from their fellow students. Thank you for your participation!

I found the cell phone discussion especially enlightening. The unattended children and unruly teens have been a concern not just in this class, but in the literature as well. Perhaps some community parenting classes might be a good solution!

The security guard postings and Participant 4's poll got me curious about what had been researched on security guard statistics. This has proved to be a real stumper for me and a couple UNT librarians. There are statistics for university libraries that are surprisingly low, but have not found a recent study polling public libraries for their use of security guards. If the statistics haven't been gathered, it might be a great research opportunity for a state-wide study. Hope that perhaps some of you will continue to share your ideas by contributing to the literature on this and other issues related to managing difficult patrons and keeping our libraries safe. This class is evidence that front line library staff have the most experience and so much to share on these issues.

Please e-mail me if you are having any difficulty submitting your post test or printing your certificate. If I can't trouble shoot the issue, I can contact the LE@D main office. Kevin and Kody have seen just about everything and are great problem solvers. Thanks again for your participation in this training and research project.

Best regards,
Teri

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