

How to Define “Successful” Workplace E-learning? A Literature Review

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Abstract: This literature review looks at the problems researchers have had in establishing a widely-accepted definition of “success” in workplace e-learning, as well as proposed models that could help researchers and organizations assess success for themselves and establish an industry standard when it comes to evaluating online learning programs in the workplace. The review shows that while there are many well-known issues in defining what “successful” e-learning is, there are several useful models that look at various dimensions of the e-learning process and how they impact each other, which can hopefully lead to a general agreement of what “success” looks like.

Introduction

It is easy to find many web articles and even academic research declaring what makes e-learning in the workplace successful. A quick web search will give you articles with titles like “10 Principles for Successful E-learning” and “7 Factors That Make eLearning Successful,” while academic research has looked into topics such as “Successful E-learning in Small and Medium-sized Enterprises” (Paulsen, 2009) and “Successful E-learning in Corporations” (Chen, 2008).

However, most of these articles fail to define what “successful” means. At best, a few pick a specific metric (such as learner satisfaction or completion rates) and declare a particular e-learning strategy “successful.” This is not particularly useful to an organization considering whether to implement an e-learning initiative, as it does not distinguish between different types of e-learning, or how success is measured. Is the e-learning all online or blended, asynchronous or synchronous, individual or collaborative? Does successful simply mean a savings in cost or time for training? That employees prefer it to other types of learning? That they retain the instruction better, or for a longer period of time?

Defining workplace e-learning and current trends

At its simplest, workplace e-learning is generally understood to be “a type of training delivered on a computer that supports an individual learning as well as organizational goals” (Chen, 2008). It differs significantly from e-learning in higher education, which has been studied in much more detail. In the workplace, e-learning is usually more informal, ongoing, and contextualized with daily job activities. Additionally, adult learners have different motivations for learning, such as to master a task or demonstrate a competency, perhaps to advance or achieve recognition. Therefore, what constitutes “successful” e-learning in an academic environment may not be the same as in the workplace, although there will likely be overlaps.

“Workplace e-learning” encompasses many types of learning, from training materials posted on a company intranet to intentionally-designed online courses with multimedia and interactive elements and assessments. Aurion Learning, citing an Ambient Insight report, says that 98% of organizations are predicted to use e-learning as part of their learning strategy in 2015. Despite its almost universal presence in the workplace, are companies able to accurately determine what type of online training will provide them the best return on investment (ROI)? Do organizations understand what “e-learning success” will mean to them, and can the research tell them how best to achieve it?

Defining “success”

The problem of definition has been long noted. Nunes, MacPherson, Annansingh, Bashir, and Patterson (2008) say that “Effectiveness of e-learning is one of the most debated and controversial issues in

workplace learning. There are studies addressing these problems dating back to the mid-1970s and no real consensus seems to have been achieved” (p. 105). DeRouin, Fritzsche, and Salas (2005) report that “employee behaviors and organizational results (other than savings in training costs) following e-learning are rarely the subject of empirical study. This information is crucial in evaluating whether the e-learning is truly worth the financial investment” (p. 936). Wang, Wang, and Shee (2007) say “little research has been conducted to assess the success and/or effectiveness of e-learning systems in an organizational context” (p. 1792) while Chen (2010) says “Research linking employees’ e-learning systems use to their individual job outcomes is still limited both locally and internationally” (p. 1628).

Cheng, Wang, Morch, Kinshuk, and Spector (2014) say that “success factors” in studies have been defined as things such as “learners’ motivation and attitudes; associated costs’ technical and administrative support; and cultural shift strategies. However, there is a need for more systemic research on assessing the outcomes of workplace e-learning” (p. 69).

Lee-Post (2009) refers to “a large volume of anecdotal studies” that assess e-learning success not by outcomes, but by “learning benchmarks, learning styles, learning environment, teaching practices and cost-benefits” and notes that “there is a need to integrate and formulate a holistic and comprehensive model for evaluating e-learning” (p. 62) precisely because there is no consensus. Yet as Servage (2005) says, “as is the case for most educational research, outcomes are difficult to assess and replicate given the unique context of each given learning situation” (p. 310). Despite this seeming agreement that this is an area sorely lacking in research and common definitions of terms, it has not seemed to slow the publication of new web and journal articles providing advice on how to make workplace e-learning successful.

Instead, many articles seem to actively avoid defining “success,” simply stating it as some kind of universally-understood metric. For example, Cheng et al. (2014) state that “many empirical studies have explored the effects of individual differences, technological attributes, instructional design, social influences and organizational contexts in predicting workplace e-learning success” (p. 58) but do not then explain what that success entails. Paulsen (2009) says “To be successful, e-learning must be motivating as well as relevant and useful to the daily work and tasks in the company,” (Small Enterprises: E-learning Features and Success Factors, para. 1) and that “successful e-learning should build on practical, in-depth and up-to-date knowledge of the subject area” (Medium-sized Enterprises: E-learning Features and Success Factors, para. 4) but never defines success. He merely lists completion rates for 18 different e-learning programs participated in by small and medium-sized businesses in eight different countries, through both external training providers and in-house efforts, and including generic, sector-specific and internally-produced courses. That wide variance in and of itself would seemingly make it hard to draw any firm conclusions about successful workplace e-learning in general.

In fact, Paulsen concludes with seven factors he says are central to successful e-learning. Seven seems to be a “magic number” when offering advice on the matter. To provide an idea of how problematic this lack of definition can be, below is a table (Tab. 1) comparing four journal articles and a web article, all of which offer seven factors associated with e-learning success. Some are rearranged from their original order in order to show overlap and related factors.

Paulsen (2009)	Sun, Tsai, Finger, Chen, and Yeh (2008)	Roca and Gagne (2008)	Johnson and Aragon (2003)	Gutierrez (2012)
Completion rates	Learner computer anxiety	Perceived competence	Address individual differences	Ensure there is a way to measure success
Management support	Perceived ease of use	Perceived ease of use	Motivate the student	Create a learning culture
Motivation	Instructor attitude toward eLearning	Perceived support	Avoid information overload	Guidance and coaching
Certification	eLearning course flexibility	Perceived playfulness	Provide hands-on activities	Adaptability (learner choice)
Compulsory courses	eLearning course quality	Perceived relatedness	Encourage social interaction	Offer recognition and opportunities
Content and course design	Perceived usefulness	Perceived usefulness	Create a real-life context	Task analysis (relevance to job)
Blended learning	Diversity in assessments	Perceived autonomy	Encourage student reflection	Plan for success

Table 1. Comparison of various recommendations for e-learning “success”

Although some of these ideas are the same or similar, it is easy to see how an organization would have difficulty deciding which factors were most important when considering how best to implement e-learning. Perhaps this is why so much of the discussion around workplace e-learning simply focuses on the popular perceived benefits, such as: providing “anytime, anywhere” flexibility for employees accessing training; time and cost savings (by not having to provide in-person and/or offsite employee training for a set amount of time); the ability to update training content quickly and deploy it to a large and/or global workforce; and the ability to monitor and measure the training activities. These benefits are so widely accepted that they have seemingly become synonymous with the idea that the e-learning is therefore “successful” if it achieves one or more of these.

In fact, organizations may be so overly focused on the financial aspect that they may fail to consider other, more intangible benefits such as increased innovation or creative thinking. Servage (2005) says “Literature related to workplace learning is bald in its efforts to contain learning and knowledge in market paradigms that concern the capture, buying, selling valuing, transfer and possession of the ‘capital’ inside workers’ heads” (p. 309). Additionally, learners themselves may also be overly focused on the time-saving aspect and overlook deeper learning opportunities. Servage says “learning, like other ‘services’, becomes a question of speed and convenience for the consumer. Learning objects, modules and ‘just-in-time’ initiatives carve knowledge into tasty and attractively packaged ‘bites’ for the harried e-learner” (p. 309). This makes it particularly tricky to define “success” – for example, if both employees and an organization say they prefer online, on-demand training that is job-relevant and accessible from any device, then a program providing that will probably be called a success, because the satisfaction ratings will likely be high. However, without measuring something like information retention or improved performance, it is unclear whether any given learning preference translates into measurably better learning.

This is difficult for researchers to assess, as well. Park and Wentling (2007) lay out the need for this type of research, saying that “organizations have started to ask tough questions about e-learning’s effectiveness in light of its cost. [...] This situation requires proof of e-learning’s effectiveness (e.g. the rate of retention and learning transfer)” (p. 312). Yet within their own study, they caution that “transfer of training was measured only by perceptions of transfer, not by actual transfer behaviors.” (p. 325) This means they were essentially looking at learner satisfaction rather than factors that could be quantifiably measured. Their findings are still useful, like that “learners’ perception of the usability of the learning system directly affects their transfer of training” (p. 324) (or presumably their *perception* of transfer), but do not necessarily help the problem of defining and measuring “success.”

Lim, Lee, and Nam (2007) also present similarly confusing ideas, stating they have identified “five dimensions which affect efficacy of online training: the trainee, training content, level of communication between trainer and trainee, ease of use of online website resources, and the organizational environment” (p. 23). While this sounds reasonable, they do not define what “efficacy” means. Later, they state that self-reported learning and satisfaction levels “are not the appropriate indicators of the final desired outcome of training programs – transference of learning to the job” (p. 26). If this is the case, what are the factors that influence transference, and is transference considered efficacy?

DeRouin et al. (2005) also are equivocal in reviewing research on workplace e-learning, saying that while “studies conducted in organizational settings found more positive results for e-learning than those conducted in educational settings,” that “improvements in learning do not necessarily mean changes in employee behavior” (p. 929). In fact, they observe that “the level of evaluation most frequently overlooked by e-learning researchers and practitioners is e-learning’s impact on organizational results” (p. 931). Noting this is difficult to assess, they suggest that some potential variables to look at would be “production levels, employee turnover, quality measures and absenteeism” (p. 931).

Additionally, the organization and the employee may define “success” quite differently. Are the corporate interests the same as the learner’s needs? Even if there is a clearly identified organizational need (i.e., to train more workers in a particular skill to improve job performance), the e-learning method chosen may not be the best way of achieving that. For example, putting training materials online may be efficient and affordable, but employees may require another form of extrinsic motivation (such as certification or time at work specifically set aside for learning) in order to go through the training. Or, they may prefer online collaborative “social learning” with their colleagues instead of self-paced individual study. As DeRouin et al. (2004) note, “motivation to learn can significantly affect learning outcomes” (p. 154). They argue that “because adult learners need to acquire the skills taught in training in order to remain job-knowledgeable [...] learner-controlled training may need to be designed differently for workplace e-learners” (p. 157). They refer to research that shows that learning outcomes improve with instructional

design features like “adaptive guidance and advisement strategies,” and that this is worth the potentially increased cost of the more complex e-learning development (p. 158).

Between e-learning websites and training organizations that constantly publish tips and advice on what will guarantee “success” and academic research that has no consensus on what “success” actually looks like, how can a workplace reasonably know what e-learning strategy to pursue in order to ensure the best outcomes?

Proposed models to determine e-learning success

It is clear what is needed is a model or an instrument that both researchers and organizations could easily apply when looking at e-learning programs, in order to assess their “success.” Wang et al. (2007) say “An empirically validated instrument that identifies the dimensions of an ELSS [E-learning Systems Success] construct can be of great value to both researchers and practitioners,” who can then “investigate the causality between the success of e-learning systems and its drivers” (p. 1793). In fact, several have been proposed, but it is not clear whether anyone has used them to any effect, or published any evaluations that came as a direct result of implementing them.

One common idea revolves around Information Systems (IS) models, which have been studied in-depth. Wang et al. (2007), noting that “Whether or not traditional IS success models can be extended to assessing e-learning systems success is rarely addressed” (p. 1793), proposed a 34-item “ELSS instrument.” It looks at six factors: system quality, information quality, service quality, systems use, user satisfaction, and net benefits. The last one is particularly important for assessing workplace e-learning, as the items address whether the e-learning system helps the learner improve their job performance and think through problems, and if it helps the organization achieve goals, enhance competitiveness and increase ROI, among others.

Chen (2010) also came up with a six-factor model for associating workplace e-learning with job outcomes, based on the IS success model. (Fig. 1) It is similar to Wang et al.’s (2007) instrument, but does not go into detail about the types of items included in each success factor.

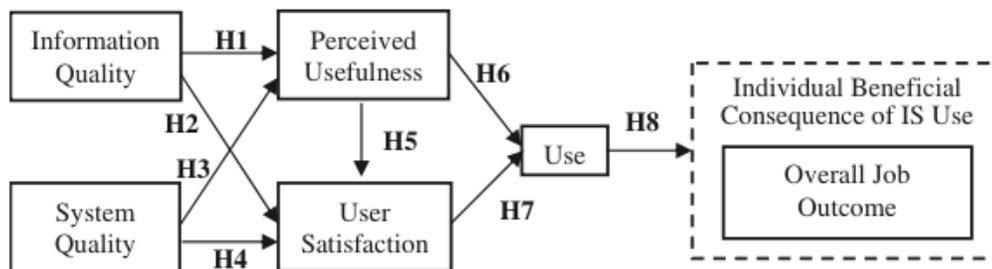


Fig. 1. Chen’s (2010) conceptual research model

Chen (2010) also notes that “Evaluating the results of training transfer through e-learning systems can be difficult, since some of these effects are intangible” and that “the skills, knowledge and attitude acquired through training transfer vary from one job to another” (p. 1631) but that it must be considered since the purpose of workplace e-learning from the organization’s point of view is to result in improved job outcomes. The problem with evaluating training transfer in Chen’s (2010) study is that “it relies on the perception of trainees in its use of the IS success model to examine the link between e-learning system use and overall job outcomes” (p. 1631) rather than a more objective measure (testing task transfer) or external assessments (for example, managers’ perceptions of employee training transfer).

Also based on the IS success model is Samarasinghe and Tretiakov’s (2009) multi-dimensional measure of e-learning systems success (ELSS) (Fig. 2). Although not specific to workplace e-learning, it encompasses most of the success factors an organization would want to assess. They propose that four dimensions should be measured: system use by learners, learner satisfaction, learning effectiveness and continuance intention, as well as “the factors demonstrated to influence such dimensions” (p. 909) – content quality, system quality, service quality and perceived task value.

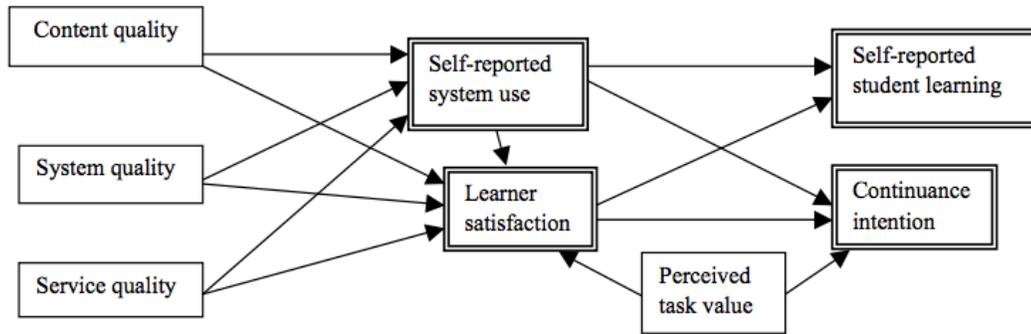


Fig. 2. Samarasinghe and Tretiakov's (2009) multidimensional measure of ELSS

Unlike Chen's (2009) model, this one includes "service quality" (which was included in Wang et al.'s 2007 instrument) and "continuance intention." But like Chen's, the biggest problem with this measure is that it relies on *self-reported* system use and student learning instead of external measures. However, self-reported system use in these models could be replaced in some studies by actual use in systems that can track learner activity (such as a Learning Management System), and student learning could be separated into self-reports and performance on assessments, which can either be measured by quiz functions in the LMS, or an external evaluator looking at a measure such as job task improvement.

Aside from variations on IS success models, there is at least one proposal for a simpler one to assess e-learning effectiveness and impact in the workplace. Saravani and Clayton (2009) note that "At an organisational level it is critical to understand how effectively the learning and training opportunities presented to employees have contributed to improving the organization" (p. 138) and argue that a measurement based on "the widely-applied Kirkpatrick-Philips evaluation model would be more in keeping with existing evaluation practices and would be more readily accepted" (p. 139). The Kirkpatrick-Philips pyramid features five levels: satisfaction, learning, impact, results and return on investment. Saravani and Clayton's modifications to this model present a very simple and clear way for organizations to evaluate their e-learning (Fig. 3).

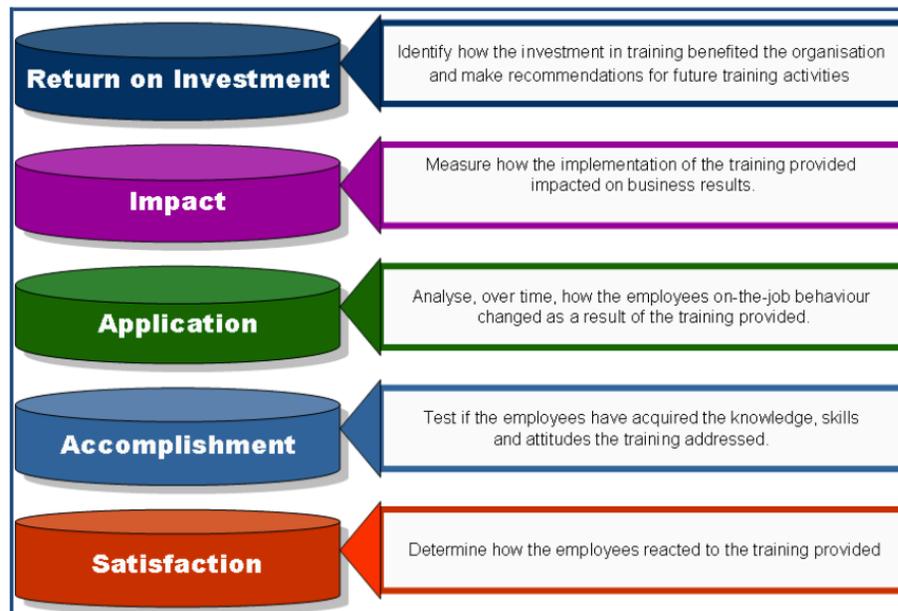


Fig. 3. Saravani and Clayton's (2009) workplace e-learning evaluation framework

By not including IS success factors such as system/service/content quality, system use and self-reports of learning and continuance intention, Saravani and Clayton (2009) focus on what *really* matters to an organization determining what “success” is – did the employees learn (shown by external assessment), did their behavior change (training transfer), and did the e-learning improve business results and ROI? This is not to say they ignore these other factors. In fact, they explain that “the creation of e-learning events should follow a cyclical pattern conceptualised by the research team as the Five D’s of e-learning in industry” because “a lack of quality during any of the identified processes ultimately affects the final e-learning experience of participants” (p. 137) and presumably the effectiveness and impact of the e-learning:

- Define: the e-learning training
- Design: the e-learning experience
- Develop: the e-learning resources
- Deliver: the e-learning event
- Determine: the impact of the e-learning experience

While this evaluation model is a good guide for organizations to follow internally when assessing e-learning impact over the long term, it is probably not as helpful for researchers. It does not specifically define how each level can be reasonably measured and compared between organizations, particularly when external factors entirely unrelated to training may impact business results (such as the economy) or even employee behavior change (such as new processes being implemented, or personal mentoring). However, it could be very useful for an organization in defining their goals and desired outcomes.

Conclusion

On the surface, it is easy to see why workplace e-learning “success” has been such a struggle to define in industry and academia, despite individuals offering up many different, valid and testable ideas. Workplace e-learning itself encompasses a wide variety of technologies and learning methods, and the types of training vary equally widely, from clearly defined task training to “soft” skills. Adult learners in the workplace are different than other learners because of their need to learn specific tasks or competencies “on the job” for performance purposes, and the workplace is different from other educational settings because it needs training that can produce outcomes that benefit the organization’s bottom line. Yet these unique elements and variables are exactly why some kind of general model of “success” is needed, so organizations can invest in the most effective training and best practices can be established and applied to a wide range of situations.

All of the models described obviously share things in common with the various “magic seven” tips for workplace e-learning success mentioned earlier. None of these are clearly bad or “wrong” ideas, but while there is a lot of research looking into these individual factors, there is seemingly very little looking into their influence on each other, or on the various dimensions. These models provide an easy way to evaluate a workplace e-learning program after it has been implemented, and the ones based on the IS success model can also highlight issues when conceptualizing and developing one. By acknowledging that factors such as system quality and perceived task value will impact how the learners feel about the e-learning and whether they want to continue with other similar training, an organization can be more deliberate when choosing things such as LMSs or third-party e-learning courses. After all, a well-designed e-learning course about Microsoft Excel will not be worth the investment if what the employees really need is training on SharePoint for their daily tasks and do not perceive value in what is being offered. Similarly, a poor LMS that is difficult to use can demotivate learners even if the training is relevant to their job.

With the lack of research into what realistically defines workplace e-learning “success,” any of these models provide a great starting point for establishing a standardized method that can be applied to e-learning research in general. When more research is published that measures *all* these factors and dimensions, then “success” can be commonly understood and agreed upon by academics and organizations, and hopefully used to implement truly effective e-learning programs.

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