Web-based Organizational Capacity Building: Is it as Effective as On-site Training?

TCEC
Tobacco Control Evaluation Center

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Introduction/Background

Organizational capacity building centers are taking advantage of technology to cut down on training cost, but are webinars as effective as in-person training? Zhao et al. (2005) conducted a meta-analysis of the studies available, comparing on-site teaching and distant education courses and concluded that there were no significant differences in learning outcomes between the formats. Similarly, in a meta-analysis of 96 studies examining the effectiveness of web-based instruction over classroom instruction, Sitzmann et al. (2006) found that when the same instructional methods were used, there were virtually no differences in effectiveness, and that "instructional methods rather than delivery media determine learning outcomes" (p. 654). In a meta-analysis conducted by the US Department of Education (2009), it was found that, on average, students receiving online instruction performed better than those in a classroom and on-site environment. Most of the existing studies are based on long college and training courses with many sessions, sometimes over the course of several months and with varying levels of online interaction. However, our current study examines the training effectiveness and relative cost differences between a one-day on-site and a two-hour web-based organizational capacity building training.

The training was conducted in the context of the UC Davis Tobacco Control Evaluation Center's (TCEC) mandate for evaluation capacity building of California's Tobacco Control Programs. With funding from the California Department of Public Health, the center conducts on-site and webinar training events for County Health Departments and community based organizations that carry out local tobacco control work in California communities. In May and June of 2011 TCEC conducted four regional 5.5 hour-long trainings in locales throughout California and a webinar with the same content (survey design) in two hours with Q&A.

Methods

We used Kirkpatrick's (1976) four level model of training evaluation as the conceptual framework to compare our on-site and web-based trainings. Both quantitative and qualitative data were used. We matched Kirkpatrick's four levels of training evaluation with the following methods in our study: "Reaction" was measured through a satisfaction survey and through questions in follow-up interviews. "Learning" was measured through a pre-and post-knowledge test. "Behavior change was assessed through a five week follow-up interviews, and a "cost-benefit analysis" was performed by drawing conclusions from the learning and behavior results as well as a comparison of costs for both training modes.

Key Findings

Webinars are more cost effective, but onsite training offers additional benefits

More knowledgeable trainees preferred the web training, but they were less likely to participate in surveys and tests than onsite participants

Learning outcomes in the two modes are similar, but participants prefer onsite, face-to-face training

Results

There were 57 participants at the on-site trainings and 22 at the webinar. As Table 1 shows, the response rate to surveys was higher among on-site participants than online participants.

Table 1: Training participant sample sizes	Onsite	Webinar	Total
Participants	57	22	79
Participants completing the satisfaction survey	51	12	63
Participants completing knowledge pre-test	50	12	62
Participants completing knowledge post-test	48	8	56
Participants completing interview	15	11	26

Reaction: Almost 100% of both modes agreed that the training was useful on a number of levels. The follow-up interviews generally echoed the results of the satisfaction survey given at the conclusion of the trainings in terms of the perception of what was learned, the overall format, and how materials were presented. Respondents were overwhelmingly positive about the training they attended—whether it was on-site or via webinar.

Learning: The knowledge pre-test average for those attending the on-site training was 57.7%, while those who took the web-based training had an average knowledge pre-test score of 75%. These pre-test scores indicate that webinar participants had considerably more survey design knowledge than those who attended an on-site training. However, those on-site tended to make greater gains (post-test on-site: 72.1% versus webinar: 81.3%). The two-paired sample t-test showed statistical significance for the knowledge gain in on-site participants ($p < .05$) but not for the webinar participants, which can in part be attributed to the small sample size of webinar participants that took the test (n=8). In the follow-up interviews the on-site and webinar participants had very comparable comments regarding their learning and the specific knowledge they obtained due to the training.

Behavior Change: Our results demonstrate that several of the participants used their knowledge gleaned from the training in their own work.

On-site training participant: "I developed a feedback form for board meetings […]. After the training, I'm more sensitive to the type of questions to lead to a conversation and to lead to people wanting to write a response. It was a small scale survey so it was easy to stimulate the conversation and achieve clarity in the questions, […]."

Webinar participant: "And actually, one of my objectives here is to create and conduct a survey on casino nonsmoking policies, so we've been applying some of the knowledge gained from the webcast. So everything, for me, was helpful and increased my knowledge because I'm starting from zero. We just finished piloting the survey and it's about 4-6 minutes. I feel very confident in the tool that has been created."

Cost: The cost per participant of the on-site training was $65. The webinar cost per participant was calculated at $4.73.Thus, our webinar training was much more cost effective. Yet, other factors complicate our analysis.

Unintended Outcomes

In follow-up interviews, both on-site and webinar participants claimed that on-site training was advantageous. On-site participants spoke glowingly of the interactions they had had with the trainers and their fellow trainees. Webinar participants also acknowledged that they would have favored an on-site training and would have gotten more out of it had they been able to attend on-site. All participants--both on-site and remote--felt that on-site learning is better and more valuable than remote learning.

Discussion

As far as satisfaction, knowledge gain, and behavior change are concerned, the outcome is virtually the same with on-site and webinar learning. Our results on learning outcomes confirm the research results of similar studies mentioned earlier (Zhao 2005, Sitzman et al. 2006). Yet we also found that participants frequently mentioned intangible learning that takes place with on-site training. This confirms what Strodel et al. (2006) found in their qualitative study and referred to as "social

presence." But just as in Strodel's study, this perceived shortcoming was not associated with lower learning outcomes. An interesting unintended consequence of the webinar training and one that may point to a distinct difference between the two training modes is that only 8 of the 22 webinar participants (36%) versus 51 (89%) of on-site participants took part in the pre-and post-knowledge test and the exit satisfaction survey, indicating perhaps that social pressure to conform to rules are higher in a face-to-face training than in a webinar when participation in the class and in tests and surveys is voluntary. It could also mean that some webinar participants were multi-tasking and therefore less committed to the learning, as one interviewee indicated ("I am constantly doing many things at once"). Our experience confirms the results of studies pointing to high attrition and non-completion rates in adult e-learners (Tyler Smith, 2006, Abdous and Yashimura, 2009). It should be noted that conclusions of comparative studies must be drawn with caution because many factors besides the training mode can affect learning outcomes. They include course design, the instructor's effectiveness, learners' familiarity with the technology (Welsh et al, 2003) as well as the learning environment (Nord, 2011).

Conclusions

If knowledge gain and training satisfaction are most important, then the webinar seems preferable since the results for the two are similar and the webinar is cheaper. However, capacity building centers may have other considerations. For instance, is the training mandatory or voluntary? We saw that the voluntary training attracts participants to the webinar that may not be fully committed, may be multi-tasking during the training and often do not take any tests or surveys. In a mandatory training, where participants have to take a test or fill out a survey, for instance as a condition of employment, a webinar may therefore work well. If intangible outcomes, such as networking among participants and social presence, are desirable AND if the budget allows, then on-site training is more appropriate. Exchanges among participants that go beyond the training content may be beneficial to the overall goals of the trainees' organization but should not be mistaken to lead to higher learning outcomes.

References

Abdous, M., Yoshimura, M. (2009). Learner Outcomes and Satisfaction: A Comparison of Live Video-streamed Instruction, Satellite Broadcast Instruction, and Face-to-face Instruction. Adult Education Quarterly, Volume 59, Number 3.

Kirkpatrick, D.L. (1976). Evaluation in training. In R.L. Craig (Ed.), *Training and Development Handbook: A Guide to Human Resource Development.* New York: McGraw Hill.

Nord, D. (2011). Online learning programs: Evaluation's challenging future. *New Directions for Evaluation,131:* 129-134.

Sitzmann, T., Kraiger, K., Stewart, D., & Wisher, R. (2006). The comparative effectiveness of web-based and classroom instruction: A meta-analysis. *Personnel Psychology*, 59:623-64.

Stodel, Emma J., Terrie L. Thompson, Colla J. McDonald. (2006) Learners' Perspectives on What is Missing from Online Learning: Interpretations through the Community of Inquiry Framework. International Review of Research in Open and Distance Learning. Volume 7, Number 3.

Tyler-Smith, Keith. (2005). Early Attrition among First Time eLearners: A Review of Factors that Contribute to Drop-out, Withdrawel and Non-completion Rates of Adult Learners undertaking eLearning Programmes. Journal of Online Learning and Teaching. Vol 2, Number 2.

US Department of Education, Office of Planning, Evaluation, and Policy Development. (2010). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies.* Washington, DC.

Welsh, E.T., Wanberg, C.R., Brown, K.G., & Simmering, M.J. (2003). E-learning: Emerging uses, empirical results and future directions. *International Journal of Training Development,* 7:245-58.

Zhao, Y., Lei, J., Lai, B.Y.C., & Tan, H.S. (2005). What makes the difference? A practical analysis of research on the effectiveness of distance education. *Teachers College Record,* 107:1836-84.