



6-12-2018

Efficacy of Online Training for Improving Camp Staff Competency

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Garst, Barry. A., Gagnon, Ryan. J., and Brawley, Alice. M. "Efficacy of Online Training for Improving Camp Staff Competency." *Journal of Adventure Education and Outdoor Learning* (2018).

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Abstract

Preparing competent staff is a critical issue within the camp community. This quasi-experimental study examined the effectiveness of an online course for improving staff competency in camp healthcare practices among college-aged camp staff and a comparison group (N = 55). We hypothesized that working in camp would increase competency test scores due to opportunities for staff to experientially apply knowledge learned online. Hierarchical linear modeling was used to analyse the cross-level effects of a between-individuals factor (assignment to experimental or comparison group) and within-individual effects of time (pre-test, post-test #1, and post-test #2) on online course test scores. At post-test #2, the difference in average test scores between groups was ~30 points, with the treatment group scoring lower on average than the comparison group. Factors that may have influenced these findings are explored, including fatigue and the limited durability of online learning. Recommendations for research and practice are discussed.

Keywords

hierarchical linear modeling, camp staff, online training, training

Disciplines

Business | Management Sciences and Quantitative Methods | Training and Development

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Preparing competent staff is a critical issue within the camp community. This quasi-experimental study examined the effectiveness of an online course for improving staff competency in camp healthcare practices among college-aged camp staff and a comparison group (N = 55). We hypothesized that working in camp would increase competency test scores due to opportunities for staff to experientially apply knowledge learned online. Hierarchical linear modeling was used to analyse the cross-level effects of a between-individuals factor (assignment to experimental or comparison group) and within-individual effects of time (pre-test, post-test #1, and post-test #2) on online course test scores. At post-test #2, the difference in average test scores between groups was ~30 points, with the treatment group scoring lower on average than the comparison group. Factors that may have influenced these findings are explored, including fatigue and the limited durability of online learning. Recommendations for research and practice are discussed.

Keywords: online learning, staff training, experiential learning, healthcare practices, hierarchical linear modeling

Introduction

As frontline youth workers, camp staff require multiple competencies to effectively deliver high-quality youth programmes (Bowie & Bronte-Tinkew, 2006; Starr, Yohalem, & Gannett, 2009). Recognizing the importance of competency development, researchers have explored how camp staff are prepared for their roles through reviews of professional development and training practices (Garst, Baughman, & Franz, 2014), examinations of staff training as a context for programme improvement (Browne, Jameson, & Bialeschki, 2015), and studies of competency-based training models (Epley, Ferrari, & Cochran, 2017; Weaver, Beets, Turner-McGrievy, Webster, & Moore, 2014). These efforts have described the ‘knowledge skills, abilities, and other characteristics’ (Epley et al., 2017, p. 57) necessary for successful camp staff performance, which have become the basis for specific training strategies and designs targeting these identified competencies.

Perhaps unsurprisingly, considerable variation exists in the strategies camp directors use to prepare their staff. For instance, a 2012 study of camp staff training approaches suggested that camps were using internal training provided by camp administrators (73% of camps), external training provided by consultants (16% of camps), pre-service online education (7% of camps), and off-site (but not online) training opportunities (5% of camps) to prepare their staff (American Camp Association, 2013a). Beyond these training approaches, many camps also incorporate peer-to-peer teaching as an element of staff training (Kendellen, Camiré, Bean, & Forneris, 2016; Tessman, Duda, & Pracht, 2012). Using some combination of these strategies, camp directors aim to develop staff competencies in many areas including programme management and youth supervision. These staff training programmes are offered to staff to prepare them with the necessary tools to serve youth through the provision of high-quality programmes and

services, while also meeting identified industry standards for staff training (American Camp Association, 2012).

Effective staff training is founded on at least two assumptions. First, learning which takes place in one context (i.e., the training setting) should transfer to the staff member's actual work setting (Burke & Hutchins, 2007). More specifically, staff members should be able to recall their training and apply it to relevant job tasks and duties. For instance, Edinger (2017) evaluated training used to enhance teachers' pedagogical practices and found improvements in content knowledge and teaching practices based on how teachers applied what they learned in the training. Second, high-quality training should result in the sustainment and/or improvement of staff performance and/or programme outcomes (Birdi et al., 2008). For example, Weaver et al. (2014) found that staff training was effective for teaching day camp staff how to positively influence targeted youth outcomes related to youth physical activity. However, in some cases, staff training does not result in improvements in staff performance. For example, Herrington, Herrington, Hoban, and Reid (2009) found that the effectiveness of teacher training was reduced because of problems associated with the training technology as well as lack of time and resources to implement the training. With these assumptions in mind, programme administrators responsible for preparing frontline staff to properly deliver programmes and services remain alert to new and effective staff training strategies.

A trend in camp staff training has been an increasing emphasis on online training as a strategy for preparing staff before they arrive on-site to improve staff access to training and to provide staff with repeated exposure to training content (Heidgerken et al., 2005). While support for the efficacy of online camp staff training has been limited to studies of multi-module online courses, preliminary evidence suggests the value of online learning for camp staff (Heidgerken et

al., 2005; Weaver et al., 2014). Furthermore, the growth of online training opportunities, particularly short online courses, webinars, and videos (American Camp Association, 2013b; CampSpirit, LLC/Target Directories, 2016), has revealed a need to determine how this emerging modality contributes to staff competency. Therefore, the purpose of this study was to examine the efficacy of an online course for enhancing staff competency.

The current study was conducted at a university-affiliated, not-for-profit camp and conference center located in the Southeastern United States which provides traditional residential camp experiences for children, youth, and adults with disabilities (e.g., developmental disabilities; speech or hearing impairment; visual impairments). Camp activities for these populations can include, but are not limited to archery, small craft instruction (i.e., canoeing, kayaking and sailing), nature, crafts, drama, overnight camping and instructional swimming. The camp, accredited by the American Camp Association, employs approximately 55 seasonal staff members each summer to implement these camp experiences. Staff members receive five to seven days of pre-camp training depending on their position, which is provided on-line through a combination of internal and external trainers. The study site was selected because it had a history of using online modules as a component of staff training, thus mitigating potential issues associated with implementation and administration of an online training component and corresponding competency assessment. This investigation of the efficacy of online training for improving camp staff competency at this camp was informed by the broader online staff training literature, the (limited) exploration of camp staff training, and factors that either inhibit or promote staff competency. Below this literature is briefly explored, the study methods are introduced, the results are described, and implications for future work are presented.

Review of Literature

Camp Staff Training

At a broad level staff training includes ‘planned and systematic activities designed to promote the acquisition of knowledge (i.e., need to know), skills (i.e., need to do), and attitudes (i.e., need to feel) (Salas, Tannenbaum, Kraiger, & Smith-Jentsch, 2012, p. 77) that help staff to develop competencies specific to their positions. The provision of camp staff training is grounded in established standards of the camp industry, including standards associated with pre-camp staff training, late-hire training for individuals absent during staff training, and ongoing, in-service training (i.e., access to continuing education; American Camp Association, 2012). Camp staff training standards require camps to ensure ‘training that is specific to his or her individual job requirements and responsibilities, including clear expectations for acceptable job performance...’ (p. 135). This training includes information related to the camp’s mission and goals, age-appropriate developmental needs of youth being served, programme policies and procedures, staff performance expectations, and child abuse prevention.

Investigations of the benefits of training for preparing camp staff to achieve desired outcomes has produced mixed results. Some studies have suggested the effectiveness of camp staff training. For example, Weaver et al. (2014) studied outcomes associated with a 90-minute competency-based training programme focusing on staff promotion of physical activity behaviours to youth during summer day camps. Out of thirteen PA behaviors taught to staff, nine PA behaviors demonstrated a statistically significant increase from pretest to posttest. As another example, Briggs, Staton, and Gilligan (2009) collected data from seven staff who facilitated a one-week leadership training programme [i.e., Girls Leadership Experience Camp (GLEC)] for sixteen rising sixth-grade girls. Each staff member completed an in-person training course before serving as staff for the one-week camp. Pre-camp and post-camp data were

collected from the youth programme participants to measure growth in self-efficacy, behavior, physical well-being, and life satisfaction, and camp staff completed a qualitative measure. The study findings “indicated that the girls felt that camp successfully met its original objectives, and that the camp counselors, who obtained course credit for their summer training and experience, benefited from their training and work with the GLEC participants” (Briggs, et al., 2009, p. 129). In contrast, other studies have failed to find a relationship between camp staff training and desired outcomes. For example, Browne and Sibthorp (2014) evaluated the effectiveness of on-site staff training for teaching staff how to create caring youth communities. Six weeks after the intervention the researchers found no sustained differences between the treatment and non-treatment groups. Together, these studies provide partial support the benefits of in-person camp staff training. However, a trend over the past decade has been a shift toward the incorporation of online training as a strategy for preparing staff prior to onsite face-to-face training.

Online Camp Staff Training

Online learning has been defined as ‘learning that takes place partially or entirely over the Internet’ (Means, Toyama, Murphy, Bakia, & Jones, 2009, p. 9). Providing online learning to staff as a part of training (i.e., online staff training) is alluring to organizations because of the benefits it may afford, including cost-efficiency, reduced in-person training time, and increased availability of learning opportunities (Marquart, Rizzi, & Parikh, 2010; Means et al., 2009). But these benefits are not universal, and limitations of online training have been noted for both organizations and staff, such as challenges associated with assessing knowledge gains (Means et al., 2009).

Although research related to the benefits of online camp staff training is limited, some studies support online training approaches for enhancing staff competence (Heidgerken et al.,

2005). For example, Heidgerken et al. (2005) studied the effectiveness of online diabetes education modules for training staff and found significant increases in staff competency in the pre-training to post-training test scores associated with insulin injections, nutrition, and medications. As another example, in a five-year study of injuries and illnesses in camp, the American Camp Association (Garst, Erceg, & Walton, 2013) gave more than 120 camps access to online modules related to injury and illness prevention (i.e., communicable disease prevention, minimizing trips and falls, knife and sharp object safety, and protective equipment) and used a self-report camp director questionnaire administered at the end of the study to measure the effectiveness of the interventions. In a post-camp questionnaire, 134 camp directors reported that the online modules were effective for teaching them how to train their staff in effective practices related to injury and illness prevention practices.

While only providing preliminary evidence, these studies illustrate the potential of online camp staff training to positively impact staff outcomes, however both studies investigated multi-module online content. Correspondingly, online training for camp staff is moving towards shorter online and webinars (e.g., 10-60 minutes in length). For examples of these offerings see the American Camp Association (2013b) and CampSpirit, LLC/Target Directories (2016). Although some studies have examined compressed online courses [see Heidgerken (2005) who condensed a 3.5 day in-person training into 11 online modules], to the researchers' knowledge there are no published empirical studies of shorter online courses.

Influence of Online Training on Staff Competency

In the broader staff training literature, training has been operationalized as the knowledge staff gain (e.g., facts, concepts, procedures, strategies, and beliefs) through their experiences that changes and improves what they know (Mayer, 2009), or in other words, *competency*

development. As competency development is a cognitive process, it is difficult to observe and/or assess changes and growth. As Mayer (2009) suggested ‘the change in knowledge [competency] cannot be directly observed but must be inferred from a change in the learner’s **behaviour** – such as performance on a test. The change may involve reorganizing and integrating knowledge rather than simply adding new knowledge’ (p. 60). More simply, staff competency can be assessed by measuring the degree to which (1) they apply the learning to their job responsibilities and (2) how well they recall job related knowledge (e.g., performance on a test).

Because few camp studies have used experimental designs (i.e., comparing learning outcomes for treatment and comparison or control groups) to assess the effectiveness of staff training on learning or competency, the broader literature related to online learning was consulted for evidence of the efficacy of this approach. A meta-analysis of online learning published by the U.S. Department of Education examined 51 effect sizes isolated from 46 experimental or controlled quasi-experimental studies (Means et al., 2009). The researchers found that ‘learning outcomes for students who engaged in online learning exceeded those of students receiving face-to-face instruction, with an average effect size of +0.24 favoring online conditions’ (p. xiv), providing compelling evidence for the effectiveness of online learning.

Researchers have also examined characteristics of effective online training (i.e., training that transfers from the learning setting to the work setting) (Gunawardena, Linder-VanBerschot, LaPaointe, & Rao, 2010). For example, Gunawardena et al. (2010) found that collegial support (i.e., encouragement from coworkers, opportunity to share what was learned with coworkers) was the highest predictor of learners’ ability to transfer online learning to their work setting. Other elements important for online learning effectiveness include clearly identifying the

training purpose and paying attention to elements of multimedia design within the online environment (Bedwell & Salas, 2010).

Influence of Experiential Contexts on Staff Competency

In addition to the training modality (e.g., online training), the context in which learning occurs and/or is applied can also influence staff competency (Hansman, 2001). As Hansman (2001) suggests, ‘learning is not something that happens, or is just inside the head, but instead is shaped by the context, culture, and tools in the learning situation’ (p. 45). Camp can serve as an experiential context when staff engage in hands-on skill-building activities with youth or other staff based on their training (Bialeschki, Henderson, & James, 2007; Hill et al., 2015).

Experiential learning theory (ELT; Kolb & Kolb, 2009; Kolb, 2015) provides one way to conceptualize how staff may learn experientially through their work in camp. ELT recognizes that learning is a process; it involves the testing and refinement of prior beliefs and ideas, includes reflections, actions, feelings, and behaviours; it is influenced by the relationship between a person and their environment; and it involves the construction of new knowledge. Figure 1 illustrates how camp can serve as an inherently experiential context for competency development when staff have the opportunity to participate in (1) abstract conceptualization (i.e., learning from staff training), (2) active experimentation (i.e., practicing what has been learned during staff through participatory training or role playing), (3) concrete experience (i.e., delivering a youth programme based on the training, and (4) reflective observation (i.e., reflecting on how the programme was delivered.) Thus, the act of a camp staff member carrying out his/her daily responsibilities according to how they were trained (i.e., the application of what was learned during training) is an inherently experiential process involving ‘learning by doing.’

INSERT FIGURE 1 HERE

In summary, the literature supports the importance of staff training for achieving targeted programme outcomes and for helping staff understand how to apply what they learned in practice. The literature also supports online learning as a strategy for enhancing staff competency, yet it is recognized that the context of learning as well as how learning is applied can also influence staff competency.

Study Purpose and Contribution

Online training as a mechanism to prepare staff for their camp roles and responsibilities is relatively new as a research area within the context of camp, but online training may offer a new and more efficient mechanism to develop and prepare staff, especially when camps face increasing challenges to resource levels (Means et al., 2009). Thus, the current study explores the efficacy of an online course for enhancing staff competency. The study questions were: ‘Does working in camp enhance staff competency in targeted subject matter?’ and ‘Does completion of an online course in targeted subject matter result in enhanced subject matter staff competency sustained over the camp season?’

Research supports that camp-based experiential learning enhances staff competency in areas associated with their training (Kendellen et al., 2016). For example, Kendellen et al. (2016) found that working in camp boosted camp staff skills in areas that included communication, particularly when staff had the opportunity to ‘shadow’ senior staff as role models. In addition, Williams, King, and Koob (2002) found that an experiential camp-based service learning programme including small-group projects and teamwork enhanced participants’ group and organizational skills. Although the competencies targeted in these studies (e.g., communication, organizational skills) differ from the competencies targeted in the current study (i.e., camp healthcare), the effectiveness of similar online interventions for improving camp healthcare

practices among camp directors (Garst et al., 2013) suggested that such an intervention could also be effective for influencing camp staff competency. Therefore, in this study we recognized that staff competency in targeted subject matter might increase following an online course as staff performed their day-to-day camp roles and responsibilities. Specifically, we hypothesized (H_1) that working in camp would cause staff competency test scores associated with completion of an online course related to camp healthcare to increase over the course of the camp season.

In addition to studying the impact of online training on staff competency over the course of the summer, we also wanted to compare staff competency with that of a comparison group of young adults who did not receive online training. The previously described meta-analysis by Means et al. (2009) provided evidence of the effectiveness of online learning for undergraduate students, graduate students, and professionals using experimental or quasi-experimental designs. This meta-analysis supported a hypothesis in this study that camp staff who received online training in specific subject matter (i.e., the role of staff in camp healthcare as described below in the Method section) should perform better on a competency test than a comparison group who did not. Therefore, we hypothesized (H_2) that staff competency test scores associated with completion of an online course would increase at a higher rate than the comparison group's competency scores.

Method

Study Site

The study was conducted at a university-affiliated, not-for-profit, camp and conference center located in the Southeastern United States which provides residential camp experiences for children, youth, and adults with disabilities (e.g., developmental disabilities; speech or hearing impairment; visual impairments). The camp, accredited by the American Camp Association,

employs approximately 55 staff members each summer to implement these camp experiences. Staff members receive five to ten days of pre-camp training depending on their position, which is provided on-line through a combination of internal and external trainers. The study site was selected because it had a history of using online modules as a component of staff training, thus mitigating potential issues associated with implementation and administration of an online training component and corresponding competency assessment.

Camp staff employed at this camp lived with and cared for a group of children or adults who have various types of disabilities, including cognitive disabilities, speech or hearing impairments, or visual impairments/blindness. Staff were responsible for the well-being of the youth and adult participants, which included supervision and help as needed with hygiene, daily living skills, adjustment to the camp setting, group dynamics and activity leadership. Staff also served meals, attended to medications, monitored camper activity levels and engaged in behavior management.

Participants and Data Collection

This study used a quasi-experimental design (i.e., use of treatment and comparison groups without randomization to each group from the same population) to determine if completion of an online course influenced staff competency in targeted subject matter areas. Specifically, this study examined if applying skills learned in an online course within the context of camp led to better performance on a competency test as compared to a comparison group that did not work in a camp environment. Treatment group participants (i.e., those working in camp) were 32 college-aged seasonal camp staff employed at a nonprofit resident camp in the Southeastern United States. The comparison group participants ($n = 23$) were selected from a demographically comparable sample of undergraduate students not working in a residential

summer camp. Both groups included male and female staff between the ages of 18-24 years old. See Table 1 for complete demographic information for the treatment and comparison groups.

Fifty-five participants were involved in the study, with 32 individuals assigned to the treatment group and 23 individuals assigned to the comparison group. The treatment group was comprised of an equal number of male and female staff, with an average age of 20.38 years and an average of 2.42 years of college experience. The comparison group was comprised of eight males and fifteen females, with an average age of 20.74 years and an average of 2.67 years of college experience. The treatment group was on average more experienced in facilitating groups in camp and camp-like settings (average = 1317 hours of group facilitation) than the comparison group (average = 734.65 hours), but this difference was not statistically significant, $t(53) = 1.44$, $p = .16$.

INSERT TABLE 1 HERE.

Measurement

The asynchronous online course ‘A Counselor’s Role in Healthcare’ (CRH; American Camp Association, 2018) used in this study was designed to be completed in 45 minutes as a part of preservice (i.e., prior to staff arrival on site) camp staff training. The CRH course was designed to teach staff how to: apply their ‘duty to act’ to camper healthcare, maintain personal health, act as a role model for youth, and intervene to improve youth health outcomes. The CRH course was selected as it fit within the study site’s training goals and the shift in focus towards identifying practices for reducing the prevalence of injuries and illnesses within the camp environment (Garst et al, 2013; Goldlust et al., 2009). To the research team’s knowledge, no prior explorations of the efficacy of the CRH course have been conducted.

The camp healthcare practices competency test, which was designed by the same subject matter expert who developed the CRH course, included ten multiple choice and twelve true/false questions that assessed camp staff competency in the following areas: counselor role and responsibilities, self-care, scope of role, youth development, duty, risk management, and attitude. See Figure 2 for an example of one of the competency questions and its format. The use of multiple choice questions such as these have been identified as most appropriate for tests of knowledge (Russell, 2010).

INSERT FIGURE 2 HERE

Both the treatment and comparison groups completed a pretest of camp healthcare competency (M1), then completed the online CRH course, and within 48-72 hours of completing the CRH, the treatment and comparison groups completed an identical test of camp healthcare competency (M2). Finally, both groups completed the same CRH test 45-55 days later (M3). Figure 3 provides a visual representation of the data collection points for both groups.

INSERT FIGURE 3 HERE

Data Analysis

In this study, we hypothesized that (H₁) working in camp would cause staff competency test scores associated with completion of an online course to increase over the course of the camp season, and (H₂) that staff competency scores associated with completion of an online course would increase at a higher rate than the comparison group's competency scores. Test scores for both groups were analysed using hierarchical linear modeling (HLM). As few studies in the leisure and recreation sciences (nor within the camp literature specifically) use analyses such as HLM, we briefly explore this statistical approach; however, for a more thorough explanation we recommend the works of Tabachnick and Fidell (2012) and Cohen, Cohen, West,

and Aiken (2003). In its simplest form HLM (also known as a mixed effect or random effect model) is an analysis that examines a phenomenon and its variation at multiple levels (Hofmann, 1997). In this study the individual level (i.e., camp counselors and college students) and the group level (i.e., the treatment or comparison group) were measured over multiple time points. One advantage of HLM over repeated measures ANOVA (RMANOVA) is that HLM focuses on the differences between groups (i.e., treatment and comparison groups) in relation to differences within groups (i.e., the level of variation in test scores in the treatment group; Garson, 2012). RMANOVA only focuses on the variation between groups (i.e., treatment and comparison groups). Moreover, RMANOVA is vulnerable to missing data; that is, if a person does not complete all tests at all times they are excluded from analysis in an RMANOVA, compromising the effective study sample size (Cohen et al., 2003). This provides an advantage for researchers where sample attrition may be expected (e.g., longitudinal designs). Indeed, 'researchers may keep all available data rather than exclude missing data when they use HLM and obtain more valid conclusions' (Shin, 2009, p. 215).

Given these advantages, HLM was used to analyse the cross-level effects of group assignment (i.e., treatment or comparison) and time on the observed CRH test scores. This approach was well-suited for repeated measures with missing observations, as was the case for the present study where 50 test scores were missing across the three measurements (i.e., 30% of 165 possible test scores). Additionally, 12.77% of the variance in test scores was observed within individuals, demonstrating the nested (multilevel) nature of the data further supporting the selection of an HLM approach to test the study hypotheses.

Results

Comparison of Scores

There was a significant non-linear trend in test scores over time, $B = -7.92$ (SE = 1.38), that was further moderated by the treatment group, $B = -7.03$ (SE = 2.82). Results of this analysis are reported in Table 2. Furthermore, average test scores for individuals in the comparison group increased between M1 (pre-test) and M2 (post-test #1), then declined slightly at M3 (post-test #2). In contrast, average test scores for individuals in the treatment group remained the same from M1 and M2 (pre-test and post-test #1), then declined sharply at M3 (post-test #2). At M3, the difference in average test scores between groups was approximately 30 points (on a 100-point scale), with the treatment group scoring significantly lower on average than the comparison group. As shown in Figure 4 (in which “1” is the intercept), a significant nonlinear trend was found in test scores over time, and this effect further varied by group. Specifically, the treatment group performed significantly worse than the comparison group in their level of competency on the CRH assessment.

INSERT TABLE 2 HERE

INSERT FIGURE 4 HERE

Discussion

The purpose of this study was to examine the efficacy of an online course for enhancing staff competency. We first hypothesized that working in camp would cause subject matter competency test scores for the treatment group to increase; paradoxically though, scores for the treatment group did not significantly ($p \leq .05$) increase at the first post-test and were significantly lower at the second post-test. We then hypothesized that staff competency test scores associated with completion of an online course would increase at a higher rate than the comparison group's competency test scores. Somewhat surprisingly, the treatment group's test scores were significantly lower than the comparison group's scores at both the first and second post-test

measures. These findings contradict other studies suggesting online education is an effective strategy for camp staff training (Heidgerken et al., 2005; Weaver et al., 2014).

Based upon prior research exploring camp and outdoor industry staff training (Garst et al, 2013; Thomas, 2001), a possible explanation for the significant drop off in scores at the end of the summer for camp staff is that staff were fatigued when they completed the final (end-of-summer, post-test #2) competency test, which negatively compromised their CRH test scores. This reasoning is supported by literature suggesting the negative role of fatigue in influencing cognition and work performance (Pilcher & Huffcutt, 1996; Thomas, 2001) Compounding the negative influence of fatigue on performance is evidence suggesting that, as staff become more fatigued, they become less accurate in assessing their work performance (Dorrian, Lamond, & Dawson, 2000). More simply, due to fatigue camp staff may perform their job less effectively yet fail to recognize their performance has diminished. Although it is possible that the comparison group also experienced some level of fatigue over the course of their day-to-day lives, members of the comparison group were not employed in a residential camp setting during the summer so as a group they were not exposed to the same work environment as camp staff.

A second explanation for the decrease in camp staff scores is that working in camp decreases staff competency in the CRH subject matter areas. As illustrated in Figure 3, the comparison group did not experience the significant decreases in test scores that active camp staff (treatment group) did. More simply and perhaps ironically, *working in camp may make counselors less competent in camp healthcare practices*. While this explanation for the significant differences in test scores is possible, there are other potential confounds that may have caused these problems. Some staff may have had limited hands-on experience with the online course content due to their position. For example, programme staff responsible for the

delivery of camp activities and not the provision of camp healthcare may not have had regular opportunities to apply the CRH content and simply forgot what they were exposed to during the online course. Forgetting is a foundational concept in human cognition and memory, and research in this area suggests that the decline in memory retention over time begins as soon as learning ends, with close to 50 percent of learning forgotten within the first twenty-four hours (Finkenbinder, 1913). The negative influence of forgetting on learning has been validated across multiple studies (Murre & Dros, 2015) and may explain the declines in staff competency in this study. However, given that the same absence of knowledge application would have been true for the comparison (non-staff) group, this possibility warrants further exploration in future research. Residential camps have been recognized as high-stress environments for camp staff (Paisley & Powell, 2007), and the relationship between stress and memory dysfunction is well documented (Lindau, Almkvist, & Mohammed, 2016; Vogel & Schwabe, 2016), which may explain why forgetting could have been greater in the camp staff group compared to the comparison group.

A third potential explanation for the decrease in effects is that for active camp staff, online training simply does not effectively sustain the desired CRH competencies. The poor camp staff (treatment) test scores versus the higher comparison group test scores highlights important questions about the efficacy and/or rationale for online training. Camp staff performed no better than those not working in camp, and in fact *camp staff performed significantly worse*. This explanation is contrary to much of the existing literature suggesting the effectiveness of online learning (Means et al., 2009). However, Maag's (2004) findings that a one-hour online course did not impact nursing students' math competencies suggest that this study's findings may not be an anomaly. The challenges highlighted by the higher scores of the comparison group notwithstanding, declines in competency during the summer support the work of Browne

and Sibthorp (2014), who suggested staff training may not be durable over time. Lack of durability may be explained by camp staff having limited collegial support around the CRH subject matter. Research supports that effective online training includes collegial support from peers and supervisors (Gunawardena et al., 2010; Burke & Hutchins, 2007). Furthermore, peer and supervisor support is one dimension of ‘environment’ mentioned earlier within the ELT framework; that is, experiential learning is more effective when environmental factors are present. In this study, camp staff may not have had the opportunity to receive sufficient feedback from their environment (through support from and interaction with peers and supervisors and the opportunity to apply new CRH knowledge), which resulted in learning that was less experiential and therefore competency was not sustained. The lack of sustained competency resulting from staff training may be particularly true for training delivered through online formats; studies comparing in-person versus online camp staff training could substantiate this limitation.

A related explanation for the study findings is that the targeted online course was insufficient for influencing change in camp staff competency. In other words, the presentation of the CRH subject matter was not delivered or packaged in such a way as to promote learning or the transfer of learning from the training to the performance environment. Or conversely, the online course subject matter may have been pedagogically sound yet not a good fit for the online delivery method. Poor fit between the subject matter and the delivery of the subject matter may have reduced camp staff’s perceptions of their own competence. As Hodges (2008) pointed out, ‘research on the relationship between self-efficacy for course content and performance in online courses is mixed’ (p. 13). From this perspective, had camp staff learned the subject matter through an in-person format, then competency may have been sustained.

Numerous other potential confounds may have caused camp staff to perform worse than the comparison group (e.g., learning styles or other unmeasured differences between the camp staff and comparison groups, differences in the learning or performance environments), but the findings of the current study do not provide evidence suggesting working in a camp environment and receiving training online is a substantive or durable mechanism of learning. Further, the results suggested that the use of online training negatively influenced staff competency when combined with working in a camp environment.

Implications for Research and Practice

First and foremost, the findings of this study critically question the usefulness of online training modules as a component of camp staff training. The surprising findings in combination with the relative paucity of research in this area illustrate the need for camp researchers and others working in the outdoor recreation and experiential education industry to carefully evaluate the benefits (in cost and convenience) of online training as compared to negative gains in camp staff competency found in the current study. Additional research is needed to identify if, and if so under what circumstances, online training is effective for producing and more importantly sustaining staff competencies. Learning is highly contextual, as pointed out by Cook et al.'s (2008) comment regarding inconsistent findings across studies of Internet based learning: 'heterogeneity may arise from variation in learning, instructional methods, outcomes measures, and other aspects of the educational context' (p. 1190-1191). So, the findings from this study may be unique to this group of camp staff within this organization. Research examining the efficacy of online training for camp staff should also examine the influence of factors such as staff fatigue, the durability of online training, and the cost and benefits of online versus on-site training as they relate to staff competency development.

With only a few studies to guide camp researchers' understanding of characteristics of, and factors influencing, effective online camp staff training (and no camp literature to the authors' knowledge assessing short asynchronous courses, webinars, and videos such as the one examined here), this study is important as it can inform camp staff training practices. Providers of online camp staff training should consider the necessity and value of online training, and if implemented, account for factors that may reduce training effectiveness. For example, to address fatigue, programme providers could address staff workload to ensure that staff are mentally and physically prepared for their positions. Strategies suggested by Rogers (2008) for reducing fatigue in the workplace include staff rest breaks, exercise, and napping. These approaches could be easily supported in the camp setting when encouraged by camp administrators and intentionally planned during the scheduling of staff assignments. To address the potential issue of durability of staff training (i.e., maintenance of competency over time), programme providers could incorporate practices that strengthen learning transfer, such as clearly identifying the purpose of the online training and associating it with specific roles and responsibilities of staff (Bedwell & Salas, 2010), providing mechanisms for peer and supervisor feedback following the training (Gunawardena et al., 2010), providing opportunities for staff to practice key skills learned in the training (Machin & Fogerty, 2004), and scheduling regular in-service training throughout the summer to support what was learned through online training. As stressed by Leff, Retallick, and Franz (2015), the application of what staff learn during training 'tends to happen much less frequently and should be developed more intentionally' (p. 12).

This study also has implications for the relevance and importance of camp staff training components. More simply, what's the value of a training component if training results in regression in staff competency (due to fatigue or other performance influencing factors)?

Broadly, how do providers of camp staff training determine what topics are most important and worthy of attention within a typical training period? The drivers of training content may be accreditation guidelines and organizational requirements as opposed to training content centered on the positive development of young people and their proper supervision. The study findings suggest an opportunity for providers to camp staff training to assess the importance and relevance of training content and to align training content with specific program goals. Related to this point is the opportunity camp training providers have to engage staff when making determinations about staff training content. Studying camp staff training components using an importance-performance framework may be beneficial for addressing these foundational needs assessment-type questions (Siniscalchi, Beale, & Fortuna, 2008). Studies involving staff in the development of camp competency models (Epley et al., 2017) may be an effective for engaging staff in conversations about training components most relevant and important for their positions.

Limitations

A few study limitations are acknowledged. First, this study was conducted within the context of a single camp, which limits the generalizability of the findings to a broader population of camp staff. However, the organizational focus (i.e., one camp) and sample size (i.e., $n = 56$) identified for this study are comparable to other evaluations of online course effectiveness for organizational staff: 67 staff from one camp (Heidgerken et al., 2005) and 14 staff from one library (Forrest, 2007). Two, the low statistical power in this study (i.e., the ability to detect an effect if one exists) associated with the small sample could have influenced whether or not the study findings reflect a true effect (Cohen, 1992). However, the use of HLM maximized statistical power compared to other approaches that would further reduce our sample size (e.g., RMANOVA) due to missing data. Three, the competency test was not developed with statistical

analyses in mind. While constructs were considered in the development of assessment questions, the questions were designed with the idea of the staff member picking the ‘best answer,’ therefore some participants may have chosen responses that while not correct could have been partially correct given the wording of the question. As stressed by Russell (2010), ‘classical test statistics were designed for dichotomously scored tests and do not conform well to polytomous items’ (p. 147). Indeed, referencing technology-enabled assessments, the American Psychological Association noted that ‘regardless of the increases in availability, efficiency, and convenience that technology can provide, no utility will be gained if the assessment scores lack reliability and validity’ (Reynolds & Rupp, 2010, p. 616). However, given the contradictory results presented by the comparison group, this explanation is unlikely. Four, possible confounds (e.g., fatigue) were not measured, which limits our ability to ascribe specific causes to the lack of camp staff CRH competency across the summer.

Conclusion

Fifteen years ago, Eccles and Gootman (2002) noted the need for programme staff working in youth development settings to receive better training and increased technical assistance including online training. Today numerous online professional development systems and learning opportunities have arisen to meet the needs of youth development programme providers including those working in camps, yet there is still much to uncover about effectively training staff who work in an inherently experiential field through learning opportunities that are characteristically virtual.

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Table 1

Treatment and comparison group descriptive information

	Treatment Group		Comparison Group	
Gender*	Male 50% <i>n</i> = 16	Female 50% <i>n</i> = 16	Male 34.8% <i>n</i> = 8	Female 65.2% <i>n</i> = 15
Age	<i>M</i> = 20.38 Years (<i>SD</i> = 1.42)		<i>M</i> = 20.74 Years (<i>SD</i> = 1.42)	
Total Years of College	<i>M</i> = 2.42 Years (<i>SD</i> = 1.99)		<i>M</i> = 2.67 Years (<i>SD</i> = 1.01)	
Facilitation Hours	<i>M</i> = 1317.00 Hours (<i>SD</i> = 1632.62)		<i>M</i> = 734.65 Hours (<i>SD</i> = 1232.03)	

*Note: Participants did not provide gender data in some cases.

Table 2

Test scores by time and group

Level and Variable	Model Estimates				
	Null	Model 1	Model 2 ^b	Model 3	Model 4
Intercept	79.89 (1.28)	85.17 (1.55)	83.01 (1.62)	83.16 (1.78)	82.53 (1.32)
Time (L1)	---	-5.41 (1.25)	9.11* (3.81)	8.91* (3.84)	9.82** (2.86)
Time ² (L1)	---	---	-7.37*** (1.83)	-7.33*** (1.83)	-7.92*** (1.38)
Group (L2)	---	---	---	-4.47† (2.45)	6.86† (2.74)
Time (L1) × Group (L2)	---	---	---	---	.39 (5.89)
Time ² (L1) × Group (L2)	---	---	---	---	-7.03* (2.82)
Variance Components					
Residual	146.31	115.78 ^a	97.83 ^a	76.85	42.45
Intercept	21.42	10.26	34.90	58.66	33.62
Slope	---	7.55	21.04	22.83	7.59
Additional Information					
-2 log likelihood (χ^2)	950.59	927.60	910.45	905.57	855.25
AIC	954.59	935.60	918.45	913.57	863.25
BIC	960.15	946.68	929.50	924.59	874.19
Model comparison	---	1 vs. null	2 vs. 1	3 vs. 2	4 vs. 3
$\Delta\chi^2$	---	22.99***	17.15**	4.88*	50.32***
Pseudo R^2	---	20.87%	12.26%	---	2.02%

Note. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$. L1 = Level 1 (measurement occasion level). L2 = Level 2 (individual level). AIC = Akaike's Information Criterion. BIC = Schwarz's Bayesian Criterion. Pseudo R^2 is the HLM version of reduction in variance. ^aResidual variance estimate used for effect size calculation for Model 1 is from a model with the random effect for Level 1 Time removed. ^bModel 2 includes only a fixed effect (i.e., no random effect) for the nonlinear effect of Time. □

Figure 1. Experiential learning associated with camp staff training and workplace performance [Adapted from the experiential learning cycle (Kolb, 2015, p. 51)]

Figure 2. Sample CRH competency question

*Figure 3. Data collection measurement points (M1=pre-test, M2=post-test #1, and M3=post-test #2) *Note: CRH represents the online course, 'A Counselor's Role in Healthcare.'*

Figure 4. Average test scores at three measurement occasions (M1, M2, and M3)