Is Online Training an Effective Workforce Development Strategy for Transition Service Providers? Results of a Comparative Study

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Abstract

Service providers working with transition-aged young people with mental health disorders require specialized research-based training to better meet their needs. A 10-module interactive online training program, Promoting Positive Pathways to Adulthood *(PPPA) was developed to build service provider competencies to improve outcomes for the youth with whom they work. In total, 19 organizations participated in a longitudinal quasi-experimental study that compared training outcomes for participants receiving PPPA online training only (Group 1) with those receiving PPPA online training with team-based practice activities (Group 2). Most of the 63 service providers participating in the training were female, under 40, had at least one college degree, and were non-Hispanic White. Both groups made significant gains in their transition-related knowledge, and their self-efficacy to provide transition services. Group 2 with additional practice activities achieved significantly higher knowledge scores than Group 1 receiving online-only training. Team-based activities evaluated by Group 2 participants as more engaging and culturally-relevant were also rated as more likely to help improve practice. Future research is needed to track youth outcomes after service provider training, and to examine the organizational supports necessary to promote knowledge translation for transition service providers.*

Introduction

A skilled workforce of service providers is needed to effectively support young people with mental health difficulties during their transition years (14-29; Clark & Unruh, 2009; Podmostko, 2007; Vance, 2010). In addition to developing skills to engage and partner with youth cross-culturally and deliver evidence-based interventions, service providers need access to training to incorporate new information about mental health and emerging populations in their work (Clark & Unruh, 2009; Podmostko, 2007; Stein, Connors, Chambers, Thomas, & Stephan, 2014). Training needs vary, because youth-serving organizations are typically staffed by people with varied levels of experience and professional education. Additionally, inadequate funding, high levels of need, and heavy workloads in publicly-funded mental health systems and schools have resulted in limited resources for staff training (Bruns et al., 2016; Morris & Stuart, 2002).

Online training has emerged as a promising cost-effective training approach in human services (Dimeff et al., 2009; Ruzek et al., 2014; Westbrook, McManus, Clark, & Bennett-Levy, 2012). Research also indicates that learning outcomes are enhanced when training participants receive organizational support, peer consultation, and opportunities to apply skills in practice (Beidas & Kendall, 2010; McCay et al., 2017; Morris & Stuart, 2002; Reeves

et al., 2006). Responding to the need for accessible training for service providers working with youth with mental health needs in the transition years, our research team developed and evaluated a 10-module web-based training program, *Promoting Positive Pathways to Adulthood* (Jivanjee, Brennan, Grover, & Sellmaier, 2016). The researchers compared outcomes for two groups of participants from randomly assigned organizations who participated in online training only or online training plus team-based exercises where they applied module content to practice scenarios. This article reports on training outcomes that were assessed using knowledge tests and self-ratings of confidence in service provider competence. Participants' assessments of the usefulness of the training for practice and team leaders' reports of their teams' participation are also discussed.

Knowledge Translation and Training

Research-based knowledge of effective practices with individuals with mental health needs is under-utilized by service providers (McCay et al., 2017), particularly in publicly-funded systems (Bruns et al., 2016). Training has been identified as a core component needed to implement and sustain the effective use of evidence-based practices (EBPs; Bertram, Blasé, & Fixsen, 2015; Fixsen, Blasé, Naoom, & Wallace, 2009; James, Thompson, & Ringle, 2017). However the development of training strategies grounded in EBPs has been limited (Bruns et al., 2008; Lyon, Stirman, Kerns, & Bruns, 2011). For research findings to improve practice they must be translated into user-friendly formats, with training designed to assure applications of new learning in service delivery in the local context (Wandersman et al., 2008).

Competency-Based Education and Training

The first steps toward building an effective workforce of service providers for youth mental health are to identify and clearly describe the knowledge and skills required to meet individual and community needs (Frank et al., 2010; Vance, 2010), to develop effective training initiatives to increase service provider competencies, and to create measures for assessing training outcomes (Hoge, Tondora, & Marrelli, 2005). Best practices in workforce development for service providers include delivering training that reflects the conditions they encounter in community settings (Hoge, Huey, & O'Connell, 2004; Vance, 2010). As well as mastering a broad range of skills, providers must continually adapt them in response to changing contexts and needs (Boahin & Hofman, 2014; Gravina, 2017).

Studies of therapist training in EBPs suggest that multi-component trainings that involved treatment manuals, workshops, consultation, taped review of practice sessions, supervisor training, booster sessions, and completion of case reviews resulted in increased knowledge and skills and improved client outcomes (McCay et al., 2017). Unfortunately, resource limitations make it difficult for community agencies to offer such multi-method training programs (McCay et al., 2017). Training is also more effective when guided by principles of adult learning (Kadushin & Harkness, 2002). When training participants are self-directed, motivated, and actively engaged, when content is individualized to build upon what trainees already know and presented in meaningful ways, when expectations are clear, and when time is available to focus on learning, then learning is rewarding (Kadushin & Harkness). Learning is also facilitated in supportive team environments when members are willing to challenge their own thinking and feel comfortable speaking out (Gururaja, Yang, Paige, & Chauvin, 2008; Lick, 2005; Senge, 1990). Knowledge translation is more likely to occur when organizations provide the time, resources, and effective supervision for service providers to: implement new skills in practice, obtain ongoing peer coaching and feedback, and learn to deal with ongoing and emerging challenges (Joyce & Showers, 2002; McCay et al., 2017; Morris & Stuart, 2002; Reeves et al., 2006).

Technology-based Training

Given the limited training budgets available in many mental health organizations, there is growing interest in training delivered using technology. Technology-based training is cost-effective

for preparing large numbers of service providers and there is beginning evidence of its effectiveness across several fields of practice. It is also well-suited for use with multiple learning methods (self-guided, instructor-guided, active learning, deliberate practice) to produce skill development (Beidas, Koerner, Weingardt, & Kendall, 2011; Lyon et al., 2011; Morris & Stuart, 2002). Web-based training has been described as private, self-paced, convenient, engaging, and transportable across locations (Khanna, Carper, Harris, & Kendall, 2017).

Research so far demonstrates the effectiveness of online training for mental health service providers. For example, in an exploratory study of web-based training in cognitive-behavioral therapy (CBT), participants reported that at the conclusion of training they felt more confident that they could apply the theory and techniques in practice and they showed improved performance on standardized tests of CBT knowledge (Westbrook et al., 2012). In a study of a multi-component dialectical behavior therapy (DBT) skills training program that included self-directed online training, webinars, and a self-study skills manual (McCay et al., 2017), participants demonstrated increased knowledge and confidence to deliver DBT. In a follow up survey by McCay et al., participants reported applying DBT skills in their practice and that these skills were beneficial to the youth they served. Other investigations have found positive outcomes from online training compared with training using other modalities (Dimeff et al., 2009; Harned et al., 2014; Ruzek et al., 2014). Clinicians who participated in web-based training in trauma-focused CBT for children expressed appreciation for its flexibility and self-pacing (McMillen, Hawley, & Proctor, 2016), although participation rates were relatively low for some training activities and measure completion. In response, McMillen et al. (2016) recommended agency-based learning groups to enhance online training and increase the potential for implementation in practice by building in accountability mechanisms. There have also been calls for agency-based coaching, mentoring, supervision, and peer learning to enhance knowledge translation and sustain the implementation of new approaches to practice and evidence-supported therapies (Bertram et al., 2015; Fixsen et al., 2009; Hoagwood, Atkins, & Ialongo, 2013).

The Current Study

A set of 10 research-based *core competencies* for working with transition-age youth with mental health needs was identified by the authors through collaboration with a national advisory group of youth service providers across service systems, youth mental health researchers and educators, young adults, family members, and advocates (Brennan, Jivanjee, & Roser, 2010). Building on these competencies, the team also constructed and tested the Transition Service Provider Competency Scale (TSPCS; Jivanjee, Brennan, Roser, & Sellmaier, 2011) in order to evaluate the effectiveness of related competency-based trainings being planned.

Using the core competencies as a basis, and guidance from our organizational partners, the research team next developed a 10-module online training program, *Promoting Positive Pathways to Adulthood* (PPPA; Jivanjee, Brennan, Grover, et al., 2016). Training development was guided by principles of positive youth development and trauma-informed, empowerment-oriented practice. Module content focused on topics such as increasing cultural awareness and building community support, providing individualized and developmentally appropriate services, and promoting support from families, peers, and allies. The team also developed a *PPPA: Pathways Transition Training Toolkit* of accompanying team-based practice exercises (Jivanjee, Brennan, Gonzalez-Prats, et al., 2016), based on findings about the added benefits of peer learning, and agency-based coaching and consultation for knowledge translation (Bertram et al., 2015; Fixsen et al., 2009; Hoagwood et al., 2013). Further, a knowledge translation research study was conducted to assess the learning outcomes of participating in PPPA. A quasi-experimental design was used to compare learning outcomes of service providers assigned randomly in teams to participate in online training only or online training plus team-based practice exercises from the toolkit. Because program or team leaders agreed to facilitate their team's engagement in team-based toolkit exercises, this was viewed as

an indicator of *organizational support* for practice improvements (Beidas & Kendall, 2010; Reeves et al., 2006).

Method

Our research group recruited 19 organizations providing services to young people in the transition years (14 to 29) who had emotional, behavioral, or mental health disorders. Each organization agreed to recruit a team of at least four service providers who were willing to participate in PPPA, and perhaps to be part of the accompanying research study. Teams were randomly assigned to either Group 1 (Online Only; 10 teams) or Group 2 (Online Plus Practice Activities; 9 teams). Group 2 organizations named a team leader to coordinate the supporting practice activities from the toolkit, which included role playing, consideration of written scenarios and videos of practice situations, and reflecting on specific discussion questions.

Participants

Service provider characteristics are indicated in Table 1 for each group and the total set of participants who completed at least the first five modules ($N = 63$). The majority of participants were female (82%) and under 40 years of age (67.7%). Most of the participants identified as non-Hispanic Whites (66.1%) and possessed a college degree (87.1%). Services provided by the participants were concentrated in the fields of mental health (46%), social (49%), and transition-planning (46%) services. They had worked in their current position for an average of 2.2 years ($SD = 2.84$), and for a mean of 8.5 years in youth transition services ($SD = 7.61$). Group 1 had 31 members who successfully completed Modules 1 through 10 and completed the TSPCS at all three time points. Group 2 included 17 members who finished Modules 1 through 10 and associated assessments.

Procedure

The 10 hour-long PPPA online modules were designed to provide research-based content addressing the core competencies identified for transition service providers. Each module featured video segments of a young person with service experience and of service providers, and interactive exercises that presented opportunities for participants to apply what they had learned. Every module concluded with an online test of knowledge, which if completed successfully, allowed access to a certificate of completion or continuing education unit.

Team members who gave their informed consent to participate in the research study completed baseline demographic questions and self-ratings of transition competencies (TSPCS), then had access to Module 1. Team members not consenting to participate in the research were given direct access to the modules, and did not complete study instruments. To access each succeeding module, service providers had to pass the knowledge translation test (KTT) for the preceding module. Under the guidance of their team leader, Group 2 members also participated in team-based practice activities that were specific to each module from the toolkit.

In addition to the KTT measure given after the completion of each module, participants also provided ratings of their own mastery of the core competencies using the TSPCS at baseline (T1), halfway through PPPA after Module 5 (T2), and again after the completion of Module 10 (T3). Additionally at T2 and T3, service providers in Group 2 also completed an inventory of exercises they participated in with their team, and rated their helpfulness on a 5-item Pathways Activity Assessment (PAAS). Finally Group 2 team leaders who selected team activities and facilitated team meetings after each module also completed a report at T2 and T3 on their use of activities with their team members.

Instruments

Knowledge Translation Tests. At the conclusion of each module participants completed a 10-item multiple choice instrument based on test construction theory (McDonald, 2011) with questions related to the knowledge content specific to that module, for a total of 100 items in the KTT sequence of tests. A sample question from Module 6 is: "When young people live with chronic traumatic stress which of the following is *most* likely? (a) They will form lasting relationships; (b) Mental health

Table 1. Service Provider Participant Characteristics and Baseline Statistics by Group

| | Group Assignment | | | | | |
| | Group 1 (*N* = 37) | | Group 2 (*N* = 26) | | Total (*N* = 63) | |
Participant characteristic	*N*	Percent [a]	*N*	Percent [a]	*N*	Percent [a]
Gender						
Female	29	80.6	21	84.0	50	82.0
Male	7	19.4	4	16.0	11	18.0
Age Group						
Under 20	1	2.8	0	0.0	1	1.6
20-29	19	52.8	6	23.1	25	40.3
30-39	6	16.7	10	38.5	16	25.8
40-49	7	19.4	6	23.1	13	21.0
50-59	2	5.6	1	3.8	3	4.8
Above 60	1	2.8	3	11.5	4	6.5
Ethnicity/ Race						
Hispanic, Latino or Spanish Origin	7	19.4	5	19.2	12	19.4
Non-Hispanic White	24	66.6	17	65.4	41	66.1
Non-Hispanic Other race	5	14.0	4	15.4	9	14.5
Highest education level						
High school diploma or GED	0	0.0	2	7.7	2	3.2
Some college	5	13.9	1	3.8	6	9.7
2 Year college Degree	3	8.3	2	7.7	5	8.1
4 Year college Degree	16	44.4	8	30.8	24	38.7
Graduate degree	12	33.3	13	50.0	25	40.3

Group statistic	*M*	*SD*	*M*	*SD*	*M*	*SD*
Baseline TSPCS	1,102.70	219.37	1,055.08	191.44	1,083.05	208.04
Years in current position	1.99	2.86	2.54	2.84	2.21	2.84
Years in youth transition work	7.08	5.99	10.46	9.22	8.48	7.61

Note. No significant differences were found between groups on any characteristic or baseline statistic.
GED = General Educational Diploma; TSPCS = Transition Service Provider Competency Scale.
[a] Percentages are based on the total number responding to the demographic item.

disorders will be rare; (c) They will be hyper-vigilant and may be aggressive in the face of threats; (d) They will escape through envisioning themselves in a brighter future." Passing scores on each test were ≥ 7 items correct, resulting in a possible range of 70-100 of the summed scores of successful PPPA completers.

Transition Service Provider Competency Scale. The TSPCS is a 15-item scale that participants use to rate their self-efficacy in providing specific transition services (Jivanjee et al., 2011). The instrument is based on Bandura's (2006) scale construction process and requires service providers to assess their confidence in performing transition-related tasks linked to specific competencies. For example participants are asked to rate their level of confidence to "Engage youth and young adults as full collaborators in service planning, delivery, and evaluation." Following Bandura's procedure, the ratings can range from 0 (*very little confidence*) to 100 (*quite a lot of confidence*). Exploratory and confirmatory factor analysis of the TSPCS revealed a satisfactory one-factor solution, and reliability analysis found a Cronbach's alpha of .98, showing a high level of internal consistency (Sellmaier, Jivanjee, Brennan, & Grover, 2018).

Pathways Activities Assessment. Separate instruments were developed to assess the use of team-based practice activities from team members' and team leaders' perspectives. Team members were asked to indicate which activities they had participated in from a checklist for each of the modules, or whether they had not participated in activities for that module. An open-ended question asked what other activities they participated in that added to their learning. Furthermore, they rated the helpfulness of the practice activities on a 5-item Pathways Activities Assessment Scale (PAAS). For example, they were asked to rate their agreement with the statement, "The activities had me practice skills I needed in my work." Their level of agreement could range from 1 (*strongly disagree*) to 5 (*strongly agree*) for each of the five items.

Using a checklist, team leaders indicated the activities they engaged in for each module, and then rated the success of the team practice activities that supported the module. They were also given a modified version of the PAAS as it pertained to their team. For example, they were asked to rate their agreement with the statement "The activities were culturally relevant for the work that our team members do." Finally, team leaders responded to a series of open-ended questions requesting evaluation of the activities and asking them what additional types of training their team would find helpful.

Data Analysis

Data were analyzed using SPSS© 19 software. First, independent t-test and chi-square analysis was used to detect any differences between participants in Group 1 and Group 2 including TSPCS baseline scores and relevant demographic variables such as education and work experience. Attrition analysis was also conducted comparing participants who completed all 10 modules with participants who dropped out before completing all 10 modules. TSPCS baseline scores, and select demographic variables were included in the attrition analysis using independent samples t-tests and logistic regression analysis. Then TSPCS scores were analyzed at baseline, after Module 5, and after Module 10 using a mixed between-within subjects ANOVA comparing TSPCS scores of Group 1 and Group 2 across the three time points. The final sample for the analysis of the TSPCS scores consisted of 48 participants (Group 1, $n = 31$; Group 2 $n = 17$) who completed all 10 Modules, the TSPCS at all three time points, and the knowledge translation tests after each module. KTT scores of Group 1 and 2 were compared after Module 5 and Module 10 also using a mixed between-within subject ANOVA. The final sample for the analysis of KTT scores consisted of 53 participants (Group 1, $n = 34$; Group 2, $n = 19$), who completed the 10 modules and the 10 KTT scores. Wilks' Lambda is reported for the repeated measures tests in accordance with recommendations of Algina and Keselman (1997). Associations between the number of practice exercises completed by participants in Group 2, TSPCS scores, and KTT scores were examined using correlation analysis. Finally, a PAAS total score was constructed by reverse coding a negatively-worded item and adding the five individual items. Correlational analysis was implemented to learn more about the PAAS

total scores and the individual PAAS item scores in relation to TSPCS and knowledge scores for Group 2 members. Responses to open-ended questions were categorized, and illustrative responses were identified.

Results

As reported in Table 1, there were no significant differences between participants in Group 1 and Group 2 at baseline including TSPCS scores, years of work experience, and relevant demographic variables. Attrition occurred between the completion of Modules 1-5 ($n = 63$) and Modules 6-10 ($n = 48$). Some participants ($n = 5$) completed all the modules and the KTT scores, but failed to complete the final TSPCS score. There was also some differential attrition, since at the time of completion of the last TSPCS measure, Group 1 had lost 6 participants ($n = 31$) and Group 2 had lost 9 participants ($n = 17$). Attrition analysis of baseline demographics and baseline TSPCS scores did not show any significant differences between the 53 participants who finished all ten modules and participants who dropped out at some point after the baseline assessment. An independent samples t-test of differences in baseline TSPCS scores between these two groups was non-significant, $t(102) = 1.13$, $p = .26$. Binary logistic regression analysis of demographic information including time worked in the current position, time worked in transition services, education, age, and gender did not find any significant differences between participants who completed the training and those who dropped out.

A mixed between-within subject ANOVA was implemented using SPSS general linear model analysis. This strategy allowed a comparison of TSPCS scores at baseline, after Module 5, and after Module 10 with consideration of between-group differences (See Table 2). Both groups (Group 1, $n = 31$; Group 2, $n = 17$) showed significantly improved TSPCS scores from baseline to Module 5, and to Module 10, $F(2, 45) = 39.15$, $p = .00$; Wilks' Lambda = .37. This improvement is substantial with a partial $\eta2 = .64$. There was no significant main effect for group membership, $F(1, 46) = .39$, $p = .54$, partial $\eta2 = .01$, and both groups showed improved TSPCS scores on a similar trajectory. There also was no significant interaction between TSPCS scores over time and group membership, $F(2, 45) = .42$, $p = .66$; Wilks' Lambda = .98.

The second outcome relevant for testing the effectiveness of the online training program was the KTT score. Participants in both groups completed knowledge tests with 10 questions after each module, and had to answer at least 7 correctly to move on to the next module. One summary score (KTT2) was produced combining scores from modules 1 through 5, and a second summary score (KTT3) combining scores from Modules 6 through 10. Participants who successfully passed all 10 knowledge

Table 2. ANOVA Results for TSPCS and Knowledge Scores Between Groups and Across Time

Outcome Measure	df	F	partial η2	p
TSPCS				
Between subject	1/46	0.39	.01	.54
Within subject	2/45	39.15	.64	.00
Knowledge scores				
Between subject	1/51	7.26	.13	.01
Within subject	1/51	15.24	.23	.00

Note. N varies. TSPCS = Transition Service Provider Competency Scale.

tests independent of them filling out the TSPCS were included in the mixed between-within subject ANOVA analysis reported in Table 2 (Group 1, n = 34; Group 2, n = 19). There was a significant between-groups effect with Group 2 scoring significantly higher on the KTT at T2 and T3 compared to Group 1, F (1, 51) = 7.26, p = .01, partial η2 = .13. Additionally, both groups improved their knowledge scores significantly from KTT2 to KTT3 indicated by the significant within-subjects main effect, F (1, 51) = 15.24, p = .00, partial η2 = .23 with Wilks' Lambda = .77. Group 2 members improved their knowledge scores by almost two points (m_{time} 1 = 44.00, m_{time} 2 = 45.95), and Group 1 members by slightly more than one point (m_{time} 1 = 42.16, m_{time} 2 = 43.35). There was no significant within-subject interactive effect between group membership and KTT scores over time, F (1, 51) = .76, p = 39 with Wilks' Lambda = .99.

Participants in Group 2 also selected a variety of additional team-based exercises to complete after each module. All Group 2 participants indicated the additional exercises they completed, and two summary scores indicated the number of exercises completed by the end of Module 5 and the number of exercises completed by the end of Module 10.

Higher scores indicated more additional exercises completed. There was no significant correlation between the number of exercises completed after Module 5 and the TSPCS scores after Module 5 or the KTT2 scores. The number of exercises after Module 10 had a non-significant trend level positive correlation with the TSPCS scores after Module 10 (r = .45, p = .07), and a significant positive correlation with the KTT3 scores (r = .44, p = .03).

The total PAAS score was not significantly correlated with TSPCS or KTT scores. At T3, participants who completed more additional exercises gave significantly higher ratings on the total PAAS than participants with fewer additional exercises (r = .55, p = .03). Participants who completed more exercises therefore rated the exercises as more helpful overall. Participants (see Table 3) who rated the additional practice exercises as interesting and engaging were more likely to report that the activities helped them apply modules to their practice at work (r = .72, p < .001). Similarly, participants who evaluated the exercises as culturally relevant indicated that the activities were more likely to help them apply module content to their work (r = .76, p < .001) and more likely to help them practice needed skills (r = .76, p < .001). Activities that were

Table 3. Correlations of PAAS Items (N = 16)

	PAAS – not relevant (reverse coded)	PAAS – helped apply to work	PAAS – interesting/ engaging	PAAS – culturally relevant	M (SD)
PAAS – not relevant (reverse coded)					3.50 (1.41)
PAAS – helped apply to work	-.066				3.88 (0.72)
PAAS – interesting/ engaging	-.120	.721**			3.81 (0.98)
PAAS – culturally relevant	-.258	.762**	.744**		4.00 (0.73)
PAAS – practiced needed skills	-.197	.742**	.343	.762**	3.88 (0.72)

Note. AAS = Pathways Activity Assessment Scale.
**p < .001.

rated as culturally relevant were more likely to be rated interesting and engaging as well ($r = .74$, $p < .001$). As expected, participants who indicated that the exercises supported their ability to practice their skills also reported that the exercises helped them apply the module content to their work ($r = .74$, $p < .001$). Participants who completed more additional exercises rated the activities as more helpful for practicing the needed skills ($r = .50$, $p = .05$).

Responding to an open-ended question about additional activities that their training team participated in after Module 5, Group 2 participants focused on group-based discussions of the material, such as "Bringing our own client scenarios" and "Continue to bounce ideas." There were also reports of how teams worked to improve services, as illustrated by the comment, "Discussion as it pertains to local resources, beliefs, and what we will do to improve pathways." One participant commented on the team's rich discussion: "The feedback and questions as a team while working through this was great. We had a great amount of debate and reasoning." Following Module 5, responses reflected efforts to apply learning to local situations, for example, "We came up with our own role plays and case study discussions from our own experiences," and "In depth conversations focused on materials and content of modules and how best to apply it to our particular organization, including the development of a peer-led group to inform upcoming groups in the clinic." There were reports of participants' contributions to the training experience, such as "We asked each person to bring stories from their own agencies since we had different programs within our group" and "Sharing information learned with other staff, reviewing what was learned in supervision." One participant also noted the benefit of working across systems: "Conference calls to discuss progress, topics and areas to reflect on cross system/knowledge translation across service systems."

Following Module 5 and Module 10, team leaders described the additional activities their team had engaged in following each module, most of which focused on "local scenarios and resources," "local agency practice examples," or case presentations. One leader commented on the usefulness of tailoring their team discussions to local situations using "Collaborative case scenarios that made it real to our town and population." Responding to the question about what activities the team found most helpful, after Module 5 team leaders noted, "Cultural awareness and diversity," "Discussion of brain development, inclusion, and defining best practices for our developing Young Adults in Transition Program," and "Module 2 had extremely relevant content; we had a lot to say because we have a client with very similar issues." Following Module 10, activities described as most helpful were discussion questions and "modules on cultural awareness and brain development."

In response to a 2-month follow up question about the most important result of participating in the training, a Group 2 participant noted, "It was useful to apply the framework and inquiry questions and apply them to local case examples (youth and family experiences) in a multi-agency discussion." Other participants described the most useful results as, "The cultural and diversity aspect of helping young people with mental health difficulties" and "I was able to apply them to real life." Responding to the question about specific changes in their ways of working with young people following the training, a Group 1 participant noted, "I believe I'm able to provide a more well-rounded approach when working with them." Group 2 members mentioned several types of changes in their work resulting from their participation in the training, such as improved cross-system collaboration exemplified in the following response: "A group of staff from 5 different agencies know each other better, understand each other's work priorities, and have shared their commitment to supporting youth in our community." Several participants indicated specific changes in their therapeutic approach, reporting that they now: "Apply the trauma-informed framework," "Empower them [youth] more in treatment planning," and "as a result of this training, I have learned new skills and understanding about working with young people from cultures different from mine."

Discussion

In summary, the PPPA online training helped improve participants' self-ratings of transition competency, with similar improvement for both groups.

Therefore, online training can be an effective tool to improve transition service providers' reported self-efficacy, and can meet a workforce development need, by providing relevant competency-based training. Practice skills were not tested directly, but improvement in self-efficacy is still important, since a sense of confidence is critical for motivation and performance (Bandura 2001; Bandura & Locke, 2003). Self-efficacy, "the belief in one's capabilities to organize and execute specific courses of action" (Ozer et al., 2004, p. 102), has been studied as a key factor linked to subsequent behavior and application of practice skills (Kunst, Mitchell, & Johnson, 2017; Lippke, Wiedemann, Ziegelmann, Reuter, & Schwarzer, 2009; Osteen, Frey, Woods, Ko, & Shipe, 2016)

The online training successfully improved service providers' knowledge relevant to effective practice with youth and young adults with mental health needs. Although knowledge scores improved significantly for both sets of service providers, group membership was shown to be relevant. Specifically, participants in Group 2 had significantly higher knowledge scores than participants in Group 1. Additional organizational supports in the form of team-based practice exercises appear to be relevant for improving knowledge, since Group 2 participants who completed practice activities in addition to online training had higher knowledge scores than Group 1 receiving online training only. After 10 modules, Group 2 participants who reported completion of more exercises scored significantly higher on knowledge tests than Group 2 participants with fewer exercises. There was also a non-significant trend-level positive association between the number of practice exercises and Group 2 participants' TSPCS scores after Module 10. Group 2 participants reported that practice exercises that were considered interesting, engaging, and culturally relevant helped them with the implementation of the training content in their workplace. Activities that were indicated as helping participants practice needed skills were positively related to their self-reported application of the module content to their work. Also Group 2 participants who completed more practice activities reported them as more helpful for practicing their needed skills. These results indicate that interesting, engaging, and culturally relevant practice exercises can play an instrumental role in knowledge translation.

Practice Implications

Although conferences and face-to-face workshops are popular with service providers (Jivanjee, Brennan, Grover, & Thorp, 2018), to improve their skills in working effectively with young people, providers may need to seek team-based peer support and ideally, obtain encouragement and coaching in the relevant skills from supervisors and other senior staff.

Our study depended on organizations' willingness to involve service providers in an intensive research-based training experience, and for team leaders to participate fully in the training process and coordinate staff engagement in practice exercises. To assure that staff implement evidence-based practices and attain high levels of competencies in serving youth, mental health organizations need to insure that clinical supervisors and team leaders are also trained in the relevant evidence-based practices or needed competencies and that they have the time and skills to provide continuing coaching. In addition, changes in structures for accountability and reporting may be needed to reinforce changes in practice (van Zyl, Antle, & Barbee, 2011).

Limitations

There were some limitations in this study worth noting, particularly attrition and selection. Attrition occurs frequently in self-paced learning, since service providers may struggle for time to complete work tasks in busy service delivery environments, leaving little time for new learning. Accordingly, more participants dropped out between completion of Modules 6 through 10 compared to Modules 1 through 5 and participants were more likely to drop out of Group 2 whose members were required to complete team-based exercises in addition to the modules. This reflects attrition findings from other training evaluations, such as those reported by Mc-Millen et al. (2016). Our attrition analysis found no significant differences in demographic characteristics and the baseline TSPCS scores of participants

completing all modules and those who dropped out, increasing confidence in study results. Another limitation is that participants were associated with organizations willing to engage in research, reducing the generalizability of the findings.

In addition, there are measurement limitations. The absence of a baseline knowledge score limits the interpretation of differences and improvements between Group 1 and Group 2. The TSPCS as one outcome measure is also a self-reported measure looking at service providers' sense of competency. Although there is evidence that increased self-efficacy boosts the application of related skills (Kunst et al., 2017; Osteen et al., 2016), it is not possible to know whether the participants' work changed due to completion of the online trainings, and whether their clients benefited. However, there are relevant implications that can be drawn from this study despite these limitations.

The study's use of team-based practice exercises was based on research suggesting the importance of organizational supports, coaching, and supervision for staff to implement new skills in practice (e.g., Beidas & Kendall, 2010; Bertram et al., 2015; Hoagwood et al., 2013; Joyce & Showers, 2002). However, we have limited information about the extent to which teams received these supports and therefore it is difficult to draw conclusions about the effects of team-facilitated practice exercises on service provision. Our online data collection system revealed many participants completed training modules and instruments at times outside usual working hours. This may have resulted from their organizations being unable to relieve them of their usual responsibilities during work hours, a premise confirmed by studies reporting that the lack of adequate funding and heavy workloads in many mental health organizations constrain staff's access to training (Bruns et al., 2016; Morris & Stuart, 2002).

Future Directions

The findings of the *Promoting Positive Pathways to Adulthood* study adds to the body of research demonstrating that online training can be a cost-effective and convenient training strategy in mental health services (Dimeff et al., 2009; Ruzek et al.,

2014; Westbrook et al., 2012) with increased benefits from team-based learning. When additional organizational supports in the form of team-based practice exercises were a supplementary training component, knowledge acquisition was greater. These promising results suggest the need for future studies that also determine actual changes in practice following online training and team-based practice activities, and that track outcomes for young people served by staff who complete transition training programs.

This study also requires consideration of results from other investigations confirming that the addition of face-to-face workshops, consultation, coaching, and organizational support with accountability mechanisms are likely to enhance knowledge transfer (Bertram et al., 2015; Hoagwood et al., 2013; Joyce & Showers, 2002; McCay et al., 2017). Given the resource constraints in many mental health service delivery organizations, particularly underfunded public systems, further research is needed to identify the appropriate combinations of online and face-to-face training strategies and additional supports associated with improvements in practice. Additionally, future research is necessary to discover the combinations of modalities that will lead to improvements in practice for service providers at different stages of professional development and with different learning preferences. Future studies are also needed to uncover how self-assessed competencies are related to service providers' behaviors, and to measure changes in practice over time and their effects on outcomes for young people receiving services.

Our research also highlights the key role that organizational support can play in facilitating the training of service providers to improve their practice with transition-aged young people. PPPA enlisted organizations willing to form teams and to engage in practice exercises that supplemented staff self-paced online training experiences. When organizations engage in training in response to mandatory adoption of particular evidence-based practices, additional obstacles can stand in the way: managing already demanding workloads, providing effective supervision, and dealing with staff

turnover (Regan et al., 2017; Roundfield & Lang, 2017; Sigel & Benton, 2013). Future studies are needed to uncover ways in which organizations can support transition service providers as they engage in training opportunities and knowledge translation activities.

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Declaration of Conflicting Interests

References

Algina, J., & Keselman, H. J. (1997). Detecting repeated measures effects with univariate and multivariate statistics. *Psychological Methods, 2*(2), 208-218.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*, 1-26.

Bandura A. (2006). Guide for constructing self-efficacy scales. In F. Pajares, & T. Urdan (Eds.), S*elf-efficacy beliefs of adolescents* (pp. 307-337). Greenwich, CT: Information Age Publishing.

Bandura, A., & Locke, E. A. (2003). Negative self-efficacy and goal effects revisited. *Journal of Applied Psychology, 88*(1), 87-99.

Beidas, R. S., & Kendall, P. C. (2010). Training therapists in evidence-based practice: A critical review of studies from a systems-contextual perspective. *Clinical Psychology: Science and Practice, 17*(1), 1-30.

Beidas, R. S., Koerner, K., Weingardt, K. R., & Kendall, P. C. (2011). Training research: Practical recommendations for maximum benefit. *Administration and Policy in Mental Health, 38*, 223-237.

Bertram, R. M., Blasé, K. A., & Fixsen, D. L. (2015). Improving programs and outcomes: Implementation frameworks and organization change. *Research on Social Work Practice, 25*(4), 477-487.

Boahin, P., & Hofman, W. H. A. (2014). Perceived effects of competency-based training on the acquisition of professional skills. *International Journal of Educational Development, 36*, 81-89.

Brennan, E., Jivanjee, P., & Roser, E. (2010). *Direct service core competencies*. Portland, OR: Research and Training Center for Pathways to Positive Futures, Portland State University. Retrieved from https://www.pathwaysrtc.pdx.edu/pdf/projPTTC-Compiled-Core-Competencies.pdf

Bruns, E. J., Hoagwood, K. E., Rivard, J. C., Wotring, J., Marsenich, L., & Carter, B. (2008). State implementation of evidence-based practice for youth, part II: Recommendations for research and policy. *Journal of the American Academy of Child and Adolescent Psychiatry, 47*(5), 499-504.

Bruns, E. J., Kerns, S. E. U., Pullmann, M. D., Hensley, S. W., Lutterman, T., & Hoagwood, K. E. (2016). Research, data, and evidence-based treatment use in state behavioral health systems, 2001-2012. *Psychiatric Services, 67*(5), 496-503.

Clark, H. B., & Unruh, D. K. (2009). Understanding and addressing the needs of transition-age youth and young adults and their families. In H. B. Clark, & D. K. Unruh (Eds.), *Transition of youth and young adults with emotional or behavioral difficulties: An evidence-supported handbook* (pp. 3-24). Baltimore, MD: Brookes Publishing.

Dimeff, L. A., Koerner, K., Woodcock, E. A., Beadnell, B., Brown, M. Z., Skutch, J. M., . . . Harned, M. S. (2009). Which training method works best? A randomized control trial comparing three methods of training clinicians in dialectical behavior therapy skills. *Behaviour Research and Therapy, 47*, 921-930.

Fixsen, D. L., Blasé, K. A., Naoom, S. F., & Wallace, F. (2009). Core implementation components. *Research on Social Work Practice, 19*(5), 531-540.

Frank, J. R., Mungroo, R., Ahmad, Y., Wang, M., De Rossi, S., & Horsley, T. (2010). Toward a definition of competency-based education in medicine: A systematic review of published definitions. *Medical Teacher, 32*, 631-637.

Gravina, E. W. (2017). Competency-based education and its effect on nursing education: A literature review. *Teaching and Learning in Nursing, 12*, 117-121.

Gururaja, R. P., Yang, T., Paige, J. T., & Chauvin, S. W. (2008). Examining the effectiveness of debriefing at the point of care in a simulation-based operating

---

room team training. In K. Henrikson, J. B. Battles, & M. A. Keyes (Eds.), *Advances in patient safety: New directions and alternative approaches, Vol. 3: Performance and tools* (pp. 1-17). Rockville, MD: Agency for Healthcare Research and Quality.

Harned, M. S., Dimeff, L. A., Woodcock, E. A., Kelly, T., Zavertnik, J., Contreras, I., & Danner, S. M. (2014). Exposing clinicians to exposure: A randomized controlled dissemination trial of exposure therapy for anxiety disorders. *Behavior Therapy, 45*, 731-744.

Hoagwood, K., Atkins, M., & Ialongo, N. (2013). Unpacking the black box of implementation: The next generation for policy, research, and practice. *Administration and Policy in Mental Health, 40*(6), 451-455.

Hoge, M. A., Huey, L. Y., & O'Connell, M. J. (2004). Best practices in behavioral health workforce education and training. *Administration and Policy in Mental Health, 32*(2), 92-106.

Hoge, M. A., Tondora, J., & Marrelli, A. F. (2005). The fundamentals of workforce competency: Implications for behavioral health. *Administration and Policy in Mental Health, 32*(5/6), 509-531.

James, S., Thompson, R. W., & Ringle, J. L. (2017). The implementation of evidence-based practices in residential care: Outcomes, processes, and barriers. *Journal of Emotional and Behavioral Disorders, 25*(1), 4-18.

Jivanjee, P., Brennan, E. M., Gonzalez-Prats, M. C., Melton, R., Lewis, K. H., & Members of the Pathways Transition Training Partnership. (2016). *Promoting positive pathways to adulthood: Pathways transition training toolkit*. Portland, OR: Research and Training Center for Pathways to Positive Futures, Portland State University. Retrieved from https://www.pathwaysrtc.pdx.edu/pathways-transition-training-toolkit

Jivanjee, P., Brennan, E. M., Grover, L., & Sellmaier, C. (2016). *Promoting positive pathways to adulthood*. [Medium: video files] Retrieved from https://www.pathwaysrtc.pdx.edu/pathways-transition-training-partnership

Jivanjee, P., Brennan, E. M., Grover, L., & Thorp, K. (2018). What do transition service providers need to know and be able to do? Results of a national survey. *Focal Point: Youth, Young Adults, and Mental Health, 32*, 31.

Jivanjee, P., Brennan, E. M., Roser, E., & Sellmaier, C. (2011). *Transition Service Provider Competency Scale*. Portland, OR: Research & Training Center for Pathways to Positive Futures, Portland State University. Retrieved from https://www.pathwaysrtc.pdx.edu/pdf/projPTTC-Transition-Service-Provider-Competency-Scale.pdf

Joyce, B., & Showers, B. (2002). *Student achievement through staff development* (3rd ed.). Alexandria, VA: Association for Supervision and Curriculum Development.

Kadushin, A., & Harkness, D. (2002). *Supervision in social work* (4th ed.). New York, NY: Columbia Press.

Khanna, M. S., Carper, M. M., Harris, M. S., & Kendall, P. C. (2017). Web-based parent-training for parents of youth with impairment for anxiety. *Evidence-Based Practice in Child and Adolescent Mental Health, 2*(1), 43-53.

Kunst, E. L., Mitchell, M., & Johnston, A. N. B. (2017). Using simulation to improve the capability of undergraduate nursing students in mental health care. *Nurse Education Today, 50*, 29-35.

Lick, D. W. (2005). A new perspective on organizational learning: Creating learning teams. *Evaluation and Program Planning, 29*, 88-96.

Lippke, S., Wiedemann, A. U., Ziegelmann, J. P., Reuter, T., & Schwarzer, R. (2009). Self-efficacy moderates the mediation of intentions into behavior via plans. *American Journal of Health Behavior, 33*(5), 521-529.

Lyon, A. R., Stirman, S. W., Kerns, S. E. U., & Bruns, E. (2011). Developing the mental health workforce: Review and application of training approaches from multiple disciplines. *Administration and Policy in Mental Health, 38*(4), 238-253.

McCay, E., Carter, C., Aiello, A., Quesnel, S., Howes, C., Beanlands, H., . . . Lord, C. (2017). Training front-line community agency staff in dialectical behavior therapy: Building capacity to meet the mental health needs of street-involved youth. *The Journal of Mental Health Training, Education, and Practice, 12*(2), 121-132.

McDonald, R. P. (2011). *Test theory: A unified treatment* (2nd ed.). New York, NY: Routledge.

McMillen, J. C., Hawley, K. M., & Proctor, E. K. (2016). Mental health clinicians' participation in web-based training for an evidence-supported intervention: Signs of encouragement and trouble ahead. *Administration and Policy in Mental Health, 43*(4), 592-603.

Morris, J. A. & Stuart, G. W. (2002). Training and education needs of consumers, families, and front-line

staff in behavioral health practice. *Administration and Policy in Mental Health, 29*(4/5), 377-402.

Osteen, P., Frey, J. M., Woods, M. N., Ko, J., & Shipe, S. (2016). Modeling the longitudinal direct and indirect effects of attitudes, self-efficacy, and behavioral intentions on practice behavior outcomes of suicide intervention training. *Suicide and Life-Threatening Behavior, 47*(4), 410-420.

Ozer, E. M., Adams, S. H., Gardner, L. R., Mailloux, D. E., Wibbelsman, C. J., & Irwin, C. E. (2004). Provider self efficacy and the screening of adolescents for risky health behaviors. *Journal of Adolescent Health, 35*, 101–107.

Podmostko, M. (2007). *Tunnels and cliffs: A guide for workforce development practitioners and policymakers serving youth with mental health needs*. Washington, DC: National Collaborative on Workforce and Disability for Youth, Institute for Educational Leadership.

Reeves, S., Freeth, D., Glen, S., Leiba, T., Berridge, E.-J., & Herzberg, J. (2006). Delivering practice-based interprofessional education to community mental health teams: Understanding some key lessons. *Nurse Education in Practice, 6*, 246-253.

Regan, J., Lau, A. S., Barnett, M., Stadnick, N., Hamilton, A., Pesanti, K., . . . Brookman-Frazee, L. (2017). Agency responses to a system-driven implementation of multiple evidence-based practices in children's mental health services. *BMC Health Services Research, 17*, 671-684.

Roundfield, K. D., & Lang, J. M. (2017). Costs to community mental health agencies to sustain an evidence-based practice. *Psychiatric Services, 68*(9), 876-882.

Ruzek, J. I., Rosen, R. C., Garvert, D. W., Smith, L. D., Sears, K. C., Marceau, L., . . . Stoddard, A. M. (2014). Online self-administered training of PTSD treatment providers in cognitive-behavioral intervention skills: Results of a randomized controlled trial. *Journal of Traumatic Stress, 27*, 703-711.

Sellmaier, C., Jivanjee, P., Brennan, E. M., & Grover, L. (2018). Development and psychometric testing of the Transition Service Provider Competency Scale. *Journal of Behavioral Health Services & Research*. Advance online publication. doi: 10.1007/s11414-018-9608-9

Senge, P. (1990). *The fifth discipline: The art and practice of the learning organization*. New York, NY: Doubleday.

Sigel, B. A., & Benton, A. H. (2013). Characteristics of 17 statewide initiatives to disseminate trauma-focused Cognitive-Behavioral Therapy (TF-CBT). *Psychological Trauma: Theory, Research, Practice, and Policy, 5*(4), 323-333.

Stein, K. F., Connors, E. H., Chambers, K. L., Thomas, C. L., & Stephan, S. H. (2014). Youth, caregiver, and staff perspectives on an initiative to promote success of emerging adults with emotional and behavioral disabilities. *The Journal of Behavioral Health Services & Research, 43*(4), 582-596.

van Zyl, M. A., Antle, B. F., & Barbee, A. P. (2011). Using training to change the learning environment in public child welfare organizations. In M. Roberts-DeGennaro & S. J. Fogel (Eds.), *Using evidence to inform practice for community and organizational change* (pp. 177-199). Chicago, IL: Lyceum.

Vance, F. (2010). A comparative analysis of competency frameworks for youth workers in the out-of-school time field. *Child Youth Care Forum, 39*, 421-441.

Wandersman, A., Duffy, J., Flaspohler, P., Noonan, R., Lubell, K., Stillman, L., . . . Saul, J. (2008). Bridging the gap between prevention research and practice: The Interactive Systems Framework for Dissemination and Implementation. *American Journal of Community Psychology, 41*, 171-181.

Westbrook, D., McManus, F., Clark, G., & Bennett-Levy, J. (2012). Preliminary evaluation of an online training package in cognitive behaviour therapy: Satisfaction ratings and impact on knowledge and confidence. *Behavioural and Cognitive Psychotherapy, 40*(4), 481-490.

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