Training alone will not enable early childhood practitioners to operationalize evidence-based practices. When newly learned practices do not immediately work as intended, the temptation to return to old ways can be great. Moving an innovation from research to practice may require the use of implementation drivers. The field of implementation science informs us of the need for ongoing support during the implementation process. Implementation guides using a flow chart design may assist practitioners to implement evidence-based practices with fidelity immediately after training. This article provides a framework for developing implementation guides to move quickly from knowledge to utilization after a training occurs as well as a means to consider the usefulness of flowcharts for driving implementation efforts.

Keywords: Research-to-practice, Implementation Science, Professional Development, Flow-charts, Early Intervention.

Introduction

The research-to-practice gap when it comes to early childhood intervention is deep and wide. The difficulty of translating research findings to the everyday practice of early intervention providers negatively impacts their competence as well as child and family outcomes (Carroll, et al., 2007; Cook & Cook, 2011; Fixsen et al., 2013; Metz & Bartley, 2012). The field of implementation science has helped administrators and implementation teams understand the conditions under which practices and innovations are most likely to be adopted with fidelity (i.e., staff selection, training, coaching, leadership support, supportive systems, etc.) (Easterling & Metz, 2016; Fixsen et al., 2005; Metz & Bartley, 2012). Even with this knowledge, states and programs struggle to ensure that training and follow-up resources are used efficiently to maximize outcomes for children and families.

Researchers have estimated that it can take nearly 20 years for research to be implemented in the mainstream with even a marginal degree of reliability (Elmore, 2016; Landry et al., 2016; Vanderlinde & van Braak, 2010). The gap can be attributed to practices at both the systems level (e.g., lack of buy-in or involvement by management and insufficient organizational resources, infrastructure, and supports); and the practitioner level (e.g., practitioner inertia). Overcoming the tendency to continue a current set of practices can result in lengthy transitions from outdated practices to new innovations even after having participated in training. Even with organizational supports and a planned change initiative Fixsen and colleagues (2013) estimate that it can take two to four years for a team of practitioners to develop competence and confidence with using an innovation. The time and energy it requires for new information to be implemented reliably enough to result in the
intended outcomes can be a deterrent for many practitioners who are managing competing priorities. During that time, many practitioners can become disheartened with the struggle to be competent and abandon innovations or supplant them with old practices diluting the intended effects.

Operationalization is the critical link between research and practice. Attending to how practitioners are to move from knowledge to practice may narrow the gap. Fixsen and his colleagues (2013) note that in the absence of effective implementation, research-based interventions will not result in intended outcomes. Practitioners may need scaffolding to help bridge knowledge and utilization in the form of implementation guides. In this article, implementation guidelines are resources designed to promote implementation fidelity of a practice or set of practices. Implementation fidelity is the degree to which an intervention is delivered as intended and is critical to successful translation of evidence-based interventions into practice (Carroll et al., 2007; Mihalic, 2004). Implementation guidelines address, in part, what implementation science would identify as a key driver to the consistent and competent implementation of evidence-based practices. Implementation guidelines can provide the necessary support to enable practitioners to successfully apply training content immediately after training so that practitioners can “hit the ground running.” The immediacy of the practitioner success may help practitioners realize the positive outcomes, buy-in sooner, and keep practicing longer as they habituate to new practices.

The purpose of this paper is to propose a framework for developing implementation guidelines that gives practitioners the ‘roadmap’ they need to move quickly from knowledge to utilization after a training occurs. This paper uses an implementation science lens to consider the usefulness of flowcharts for driving implementation efforts. While the focus is primarily on the use of flowcharts to enable practice utilization in the field of early intervention, the applicability of flowcharts to support operationalization of evidence-based practices potentially has a broad range of applications.

Implementation Science
Definition
Eccles and Mittman (2006) defined implementation science as “the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice”. The goal of implementation science is to research and understand how innovations are adopted and maintained. Fixsen and colleagues (2005) concluded that providing guidelines, policies, information, and training is not enough to result in consistent implementation. The authors identified components that when in place and functioning at a high level, can change and improve practitioner behavior related to the implementation of evidence-based practices. These components are referred to as implementation drivers.

Implementation Guides as Implementation Drivers (the Engine of Change)

Implementation drivers are the key functional infrastructure supports that enable a program’s success (Fixsen, et al, 2013). Fixsen and colleagues identified three categories of implementation drivers: (1) competency, (2) organization, and (3) leadership. Competency drivers are mechanisms to develop, improve, and sustain a practitioner’s ability to implement an intervention as intended in order to achieve the associated outcomes such as training, follow-up coaching, and performance assessments. Organizational drivers are mechanisms to create and sustain hospitable organization and system environments for effective services and include facilitative administration and strong systems for data. Leadership drivers include technical and adaptive leadership to ensure a persistent and integrated approach. Leadership drivers focus on providing appropriate leadership strategies and supports for the challenges that emerge during the implementation phase of a new set of practices. Implementation guides are competency drivers and are designed as a mechanism to improve practitioners’ abilities to implement an intervention the way it was designed and to enable the intervention outcomes to be achieved.

Implementation guides provide practitioners with the supports and structure needed to ensure they are equipped with concrete ideas about how to immediately operationalize the practices in the field. Foster (2013) also proposes a need for implementation guides to support practice utilization. Foster calls for enablers to implementing evidence-based practices. Enablers are strategies that make evidence-based practices accessible to practitioners whose job it is to make use of the practices. Enablers include materials that summarize, show how findings fit into a wider context, use straightforward language, give examples and illustrations, and provide practical decision-making guidance (Bambara et al., 2012; Foster, 2013; Nelson, Leffler, & Hansen, 2009).

Fixsen, and colleagues (2013) remind us that a critical mass (60% of the service providers) needs to be achieved in order for an intervention to produce socially significant benefits.
Implementation guides are intended to maximize the number of practitioners using the practices consistently post-training and minimize the number of practitioners who abandon or drift from the practice before reaching fidelity, making it more likely that programs will achieve the critical mass needed to scale the practices program-wide or state-wide.

Flowcharts have been used across professional sectors and within the field of early childhood to break down complex applications into visual, individual, and sequential steps for an easy-to-follow flow or process (Bernhardt, 2003; Dunst, 2006; Grosskisnky et al., 2019; Halle et al., 1984; Sugai, 1997). Flowcharts help conceptualize, organize, and communicate information, teaching strategies, or interventions (Sugai, 1997; Wandersman et al., 2012). Wandersman and colleagues (2012) noted that flowcharts can assist in producing desired outcomes when they display current, evidence-based information presented in a way that is understandable by the consumer. Within early childhood intervention, flowcharts have been used to teach parents the steps of an intervention (Stoner et al., 2013), help teachers implement language assessment in natural environments and provide intervention with preschoolers with severe impairments (Halle et al., 1984), clarify the process of selecting the behavioral observation methods (Halle & Sindelar, 1982), operationalize processes for conducting participation-based assessments (Rush et al., 2020), and delineating the decision-making process for determining Part C program participation (Dunst, 2006).

The Use of Flow Charts to Support Implementation Fidelity in Early Intervention

Flow charts can be effectively used to help early intervention professionals operationalize the use of a coaching interaction style within the varied contexts that coaching is applied within the field of ECI. Coaching has become an evidence-based interaction style commonly used to build parent and caregiver capacity to promote child learning (Lorio, et al, 2020; Ward & Shelden, 2020; Salisbury et al., 2018) help families address child and family well-being priorities, provide opportunities for reflective supervision, and as a professional development strategy for building the capacity of individuals who work with families and children (Dunst, 2015; Fettig et al., 2016; Powell & Diamond, 2013). How exactly coaching is operationalized when used with families and as a professional development strategy that aligns with the effective characteristics of adult learning has been reported in the literature as inconsistently implemented and elusive for many practitioners (Lorio, et al, 2020; Stewart & Applequist, 2019; Ward et al, 2019).

Coaching is an interaction style used to improve existing knowledge and practices, develop new skills, and promote continuous learning (Rush & Shelden, 2020). After an extensive review of the literature, Rush and Shelden proposed a framework for coaching that includes five key characteristics: joint planning, action/practice, observation, reflection, and feedback. Joint planning involves the coach and coachee working together to determine the coachee’s next steps for continuous improvement as well as a plan to mobilize needed supports. Action/practice refers to opportunities the coachee is afforded to actively practice a skill needed to attain a priority. Observation refers to opportunities the coachee has to watch the coach model a strategy or the coach has to see the coachee practice a new skill. When observation occurs as part of the coaching process, it is often followed by reflection. Reflection refers to the opportunities provided by the coach for the coachee to consider one’s actions in light of intentions. Reflection is prompted through the use of awareness (what have you done in the past?), analysis (why do you think you got that result?), alternative (what are your other options?), and action (what is your plan?) questions. Feedback is provided as needed, but generally after the coachee has had the opportunity to reflect. Rush and Shelden (2020) describe four commonly used types of feedback. Affirmative feedback consists of comments made by the coach to acknowledge and validate the coachee’s thoughts and actions. It is frequently operationalized by active listening skills (e.g., nodding, repeating a comment made by the coachee, sharing an observation). Evaluative feedback includes a judgement of what the coachee sees or hears (“that’s great!” or “smart thinking on your part.”). Informative feedback is providing the coachee with evidence-based information (e.g., describing a practice, teaching a strategy, sharing a specific resource). Directive feedback, or telling the coachee what to do, is inconsistent with a capacity-building approach, therefore, should only be used in situations of imminent danger requiring a call to action.

Coaching as defined by Rush and Shelden (2020) works as a capacity-building process because it is consistent with widely held beliefs about adult learning. For coaching to be effective, coaches must understand how the research-based characteristics work together to achieve capacity-building outcomes. Since coaching is an interaction style that focuses heavily on conversations that use reflective questions to promote analysis and action planning on the part of the coachee as well as the sharing of timely informative feedback, it can be learned.
Roadmaps for Reflection: Implementation Drivers to Bridge the Research-to-Practice Gap in Early Childhood Intervention, 18

Roadmaps for Reflection as an Implementation Driver

Description of Roadmaps for Reflection

Roadmaps for Reflection are flow charts that show practitioners how to operationalize evidence-based early childhood intervention practices using a coaching interaction style. They align with Fixsen and colleagues’ (2013) description of competency drivers and with what Foster (2013) refers to as a ‘guide-on-the-side’. They are not scripts, but rather provide a framework that helps practitioners implement the key characteristics of critical early childhood intervention practices (i.e., a caregiver capacity-building interaction style, natural learning environment practices, resource-based family support practices, and relational help-giving practices).

Roadmaps for Reflection are aligned with Bernhardt’s (2003) description of well-prepared flowcharts and operationalize practitioner evidence-based interactions (see Figure 1 for an example) and evidence-based adult learning interactions operationalized by leaders and peer coaches (see Figure 2 for an example).

Figure 1.
Example of a Roadmap for Reflection operationalizing a coaching conversation to build a caregiver’s capacity to promote child participation in family routines
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The Roadmap for Reflection Using Evidence-Based Practices follows a basic flow that includes:

- Identifying information about the practice’s intended outcomes
- Developing an understanding of the research behind the practice
- Determining whether or not the practice should be used based on the research
- Developing an action plan and plan for follow-up

Figure 2.

Example of a Roadmap for Reflection operationalizing a coaching conversation to build a practitioner’s knowledge and use of evidence-based practices.

Roadmaps for Reflection lay out the intricate connections between the components of a target evidence-based practice and different conversational paths based on information that may be shared by a coachee. The Roadmaps enable practitioners to see and implement target practices using a coaching interaction style and provide a mechanism for helping practitioners understand where they are aligning with evidence-based practices and where they need more support. The visual breakdown of complex information into implementation steps facilitates the accessibility of the information and enables immediate operationalization of the coaching process after training.

Framework of the Roadmaps for Reflection

The framework for the Roadmaps for Reflection includes the basic flow of a coaching conversation characterized by use of the five research-based coaching characteristics as appropriate (see Figure 5) and the characteristics of the other early childhood intervention practices serving as the focus of the conversation (i.e., natural learning environment practices, resource-based family supports, positive behavior supports, or practitioner supervision/mentoring).

Every Roadmap begins with either (a) the priority, need, or concern shared by the coach, (b) a question presented by the coach to identify the coachee’s reason or need for the coaching conversation, or (c) revisitation of a previous plan summarized by the coach or coachee followed by a reflective question posed by the coach for the coachee related to success of plan implementation. Based on the response of the coachee, the coach follows a specified path containing awareness, analysis, alternatives, and action questions as well as opportunities for the coach and coachee to brainstorm ideas, the coach to provide informative feedback, and opportunities for the coachee to practice new skills while the coach observes and/or the coach to model for the coachee, if needed. Each Roadmap concludes with a joint plan developed by the coach and coachee that serves as the starting point for the next coaching conversation.

Learning aids should be predictable with a consistent format and organization to help the learner focus on the meaning of the content (Schwartz, 2014). Roadmaps for Reflection are coded by the shape and color of the text boxes depending upon the purpose of each step in the coaching conversation in order to be easily recognizable and help the coach follow the process. For example, square boxes are used for
the reflective questions, feedback, action/practice, and observation opportunities. Circles represent where in the diagram conversations begin and serve as a reminder to end with a joint plan. Arrows guide the coach through the conversation and provide branching based on responses of the coachee. Color coding is also used to make the Roadmaps predictable. For example, green boxes represent reflective questions, yellow boxes indicate use of informative feedback or joint brainstorming, blue boxes are actions to be taken, pink circles are for planning next steps. The color-coded boxes can also be used to extend the user’s learning if more information about a component of the process or practices is needed. For example, since yellow boxes on the Roadmap describe places in the conversation to provide informative feedback, the back of the Roadmap includes a yellow section with examples of appropriate informative feedback. All Roadmaps are developed to be jargon-free, collaborative, family-friendly, culturally sensitive conversation formats and rely on a combination of contextualized observations and information provided by informed and familiar caregivers in the child’s life.

Whereas the flow of the coaching conversation is similar across Roadmaps the content and follow of the conversation may vary depending on the practice area of focus. For example, Roadmaps for Reflection about natural learning environment practices focus on caregiver responsiveness used to promote child learning within the context of everyday activities. Roadmaps regarding resource-based practices provide the caregiver with opportunities to (1) identify a priority, (2) generate possible formal and informal supports to address the priority, (3) analyze the resources and select the one(s) that best meet the priority and match the families values and preferences, (4) mobilize the selected resource, and (5) evaluate the effectiveness of the resource at addressing the priority. The Roadmap for positive behavior supports incorporates a framework that follows the specific components of this type of caregiver capacity-building approach. Roadmaps for mentors and supervisors are based on a capacity-building, problem-solving framework beginning with the presenting issue, concern, or problem, followed by analysis of the situation and identification of solutions for resolution followed by development of the joint plan.

While real time conversations with families, other caregivers, and practitioners take many twists and turns that could not possibly be anticipated and built into a quick-reference flow chart, the Roadmaps were designed as a way to help participants understand the flow a capacity-building conversation so that they can move the conversation forward using the “stepping stones” provided by the Roadmaps. Although the Roadmaps provide systematic guidance, they are not scripts and participants are expected to use their professional expertise to have responsive and individualized conversations with the families whom they support.

Implications and Future Directions

As implementation guides, Roadmaps for Reflection may have the potential to provide practitioners with the scaffolding needed to operationalize target practices more quickly after training, thereby narrowing the research-to-practice gap. For example, despite more than a decade of research supporting specific early childhood intervention pedagogical practices, individuals working with families, particularly those who are novice, struggle with utilization (Brown, 2016; Campbell & Colletti, 2013; Dias & Cadine, 2019). State early intervention systems and local programs are often responsible for teaching multidisciplinary teams of practitioners the capacity-building practices that define early childhood intervention. Under the best of circumstances, high-quality training transfers knowledge to participants, but rarely results in utilization without additional support and/or follow-up (Dunst, Bruder, & Hamby, 2015; Fixsen et al., 2013). The Roadmaps for Reflection can provide the scaffolding many practitioners need to translate knowledge to utilization. With the help of these implementation guides, practitioners can prepare to systematically implement natural learning environment practices and a coaching interaction style in alignment with the research. This type of fidelity to evidence-based practices has been strongly associated with positive outcomes for families and children (Fixsen et al., 2005).

Roadmaps for Reflection represent a simple form of scaffolding that can be developed by practitioners and programs to support a range of implementation practices. Once developed, the templates can be used repeatedly to create training supports, implementation guides, practice tools, and the like. Since the evidence-based characteristics of coaching are built into the template staff developers can create Roadmaps for any practice or intervention that uses or could benefit from a capacity-building coaching style of interaction (i.e., conducting reflective supervision, providing technical assistance, promoting healthy lifestyles, supporting family well-being, obtaining resources, building informal networks of support, etc.).

Roadmaps for Reflection can also help advance the field of implementation science by creating an opportunity to further investigate the
role of implementation guides as competency drivers to support the use of evidence-based practices across contexts and fields of practice. Additional research can and should be conducted to fully understand the characteristics of resources and implementation guides that have an impact on a professional’s utilization of a set of practices or a specific process. For example, the effectiveness of flowcharts as an implementation driver within various early childhood contexts could be investigated as an easy and efficient professional development intervention. The use of flowcharts in the field of social work can help professionals charged with working shoulder-to-shoulder with families to increase and maximize the use of informal networks of supports provide long-term family stability. The use of flow charts in the field medicine can be used much like checklists have been to routinize decision-making processes and assist medical professionals with mundane but critical tasks that must be performed precisely (Gwande, 2010). With support from further research, implementation guides could be an important advancement of implementation science.

Conclusion

To successfully bridge the gap between research and utilization of practices, research must be accessible and user-friendly to practitioners in the field. Professionals across the ECI spectrum (practitioners, service coordinators, administrators, etc.) can become overwhelmed with the amount of trainings, webinars, and their accompanying handouts. Utilization of practices requires more than knowledge acquisition and a desire to learn. It requires practice and refinement within the contexts in which the new skills must be applied. Roadmaps for Reflection implementation guides are presented as a user-friendly mechanism for bridging the research-to-practice gap by making evidence-based practices immediately accessible to practitioners and providing concrete supports with which to operationalize the practices following a training. Roadmaps for Reflection can assist by providing the scaffolding practitioners need to implement evidence-based practices quickly after training. Given the critical link between adherence to evidence-based practices and child and family outcomes, the importance of developing specific systems that efficiently provide for the use of these critical practices is timely and necessary.

References


