Child TRENDS RESEARCH BRIEF

THE IMPORTANCE OF IMPLEMENTATION FOR RESEARCH, PRACTICE, AND POLICY

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Introduction

Program implementation is critical for obtaining intended outcomes and thus is relevant for practioners, researchers, and policy makers. This brief defines program implementation, and discusses why it is important, what factors affect implementation, who has responsibility for implementation and how implementation should be addressed by summarizing the numerous steps involved in the implementation process. There is also a section devoted to the adaptation of evidence-based programs. The concluding section describes some practical lessons that have been learned about implementation through systematic research and practice. The terms, program and intervention are used interchangeably to refer to a planned set of activities that are being introduced into a new setting to assist youth and their families in various ways.

WHAT IS IMPLEMENTATION?

Implementation refers to "a specific set of activities designed to put into practice an activity or program" (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005, p. 5). At first glance, one would assume that a proposed program and the one that is eventually delivered are very similar, that is, that no essential differences appear between the planned program and subsequent practice. However. when practitioners introduce evidence-based programs in new environments, whether in clinics, schools, or community organizations, they rarely—if ever—exactly reproduce the program that was evaluated or that the program developer piloted. They may alter the setting: for example, the Teen Outreach Program (TOP) was initially tested in a school setting, but it is now being replicated in a variety of community-based organizations. Changing the setting from a school, which students are mandated to attend, to a community-based organization, which youth may attend voluntarily may have significant implications for the program's effectiveness. For a variety of reasons, major changes can occur, so that the new program is not an accurate reproduction of the original version. Strong program implementation requires strength in several dimensions; three important ones are fidelity, adaptation, and dosage.

- Fidelity is the extent to which all the major elements of the original program are faithfully reproduced.
- Adaptation is the extent to which the program is changed or modified.
- Dosage refers to how much of the original program is delivered.

WHY IS IMPLEMENTATION IMPORTANT IN ALL PROGRAM DELIVERY FOR ALL OUTCOMES?

Evidence for the importance of implementation has been obtained in multiple areas including education, mental health, health care, community-based initiatives, technology, industry, and management (Durlak & Dupre, 2008; Fixsen, Naoom, Blase, Friedman, & Wallace, 2005) Moreover, implementation is important regardless of characteristics of the target population, the type of program, and specific program goals.

Research clearly indicates that quality implementation is one critical factor associated with program outcomes and is relevant to each aspect of implementation noted above (fidelity, adaptation, and dosage). For example, a review of school-based prevention programs found that implementation quality was the most important program feature associated with outcomes (Wilson, Lipsey, & Derzon, 2003). In some cases, programs have failed to achieve their intended outcomes for youth when implementation was poor whereas, in other cases, program impact was much higher when there were reports of more effective implementation (Durlak & Dupre, 2008). In other words, participants may receive more benefits as a result of better program implementation, or they may receive no significant benefit if program implementation is poor.

Some research findings offer additional and dramatic testimony to the importance of implementation. In some situations, it has been possible to compare outcomes when the level of implementation has varied systematically for different subgroups of participants receiving the same intervention. Compared to those receiving lower levels of program implementation , participants in the higher implementation category have demonstrated two or three times as much benefit (DuBois, Holloway, Valentine, & Cooper, 2002; Smith, Schneider, Smith, & Ananidou, 2004). Such data indicate it is clearly worthwhile to strive for more effective implementation.

In sum, implementation is important throughout the entire range and nature of child and youth services, whether the goal is to treat children with adjustment problems, prevent later problems, promote young people's personal and social development, increase students' academic performance, promote infant health, or prevent teenage pregnancy.

It is possible to think of different points along a continuum as reflecting poor, medium, or high quality implementation and to relate these points to the probability of program success. In general:

- Programs are unlikely to achieve any of their goals if they are implemented poorly.
- Programs implemented with moderate levels of quality run the risk of failing to achieve their goals or of achieving reduced benefits.
- High quality programs are more likely to be successful in achieving and maximizing participant benefits compared with programs of low or moderate quality.

Of course, success is never guaranteed, if it were, then we would always know what results would occur in every situation.

The point is that quality implementation is necessary to increase the chances of being successful. In other words, **"when it comes to implementation, what is worth doing, is worth doing well."**

The importance of implementation is widely recognized in the medical field, and drug treatment for medical conditions offers a useful analogy: The correct drug must be given and in sufficient dosage to obtain the desired effect. Moreover, there is always a need to monitor drug use because many patients do not follow the prescribed drug regimen. When drug monitoring occurs, changes can be quickly made so the effect of the drug can be accurately assessed. Otherwise, the physician cannot determine if the use of a particular drug is having the intended effect.

The same goes for any evidence-based program (EBP). We need to know how well an EBP was conducted so we can achieve the intended effects. This meanswe must periodically monitor implementation as programs are delivered so we can adjust their implementation as needed. For example, an EBP may be unsuccessful in one setting due to poor implementation, but the same program may be successful in another setting when it is implemented with quality.

WHY IS IT COSTLY TO IGNORE THE QUALITY AND FIDELITY OF IMPLEMENTATION?

It is assumed that, for the general public welfare, societies strive toward the fairest allocation of resources to as many in the population as possible. However, resources are always limited in some way. Usually, important either-or decision must be made. Should we support this program or an alternative program? Should we introduce a new program or continue with services as usual? These decisions should be made in reference to the quality of implementation that has been achieved.

Society experiences serious short- and long-term costs when programs are poorly implemented. In an environment in which resources are limited, money and staff time are ill-spent on programs that do not reach their goals. The decision making process regarding the fairest allocation of limited social resources is also compromised when the potential impact of programs cannot be determined because implementation is poor. Decision-makers may assume that a program is ineffective when in reality the program might produce strong outcomes if it were well-implemented And finally—but not least--the human costs are high when those at risk and in need of services are ill-served.

In sum, investing in strong implementation advances research, practice, and policy and leads to better services within our communities, and better outcomes for youth.

FACTORS THAT AFFECT QUALITY IMPLEMENTATION

Research has identified at least 23 factors, which fall into five categories that affect the quality of implementation. A partial list of these 23 factors which were drawn from the research literature is contained in Table 1 and are discussed more fully elsewhere (Durlak & DuPre, 2008). The relative importance of each factor and how different factors may interact to influence implementation has yet to be clarified, but it is important to consider their possible relevance in each situation.

HOW SHOULD IMPLEMENTATION BE CONDUCTED WITH QUALITY?

Several researchers and practitioners have offered their understanding of the implementation process and recently we synthesized this information to create what we called the "Quality Implementation Framework" (Meyers, Durlak & Wandersman, in press). This framework identifies the important steps in implementation as identified in previous research and practice, the major goals to achieve in each step, and also suggests a four-phase temporal sequence in terms of when the steps and goals should typically be addressed. We discovered there was consensus across diverse fields and types of programs regarding 13 steps related to quality implementation. It is important to consider and effectively address each step. These steps are summarized in Table 2. For example, the first several steps to address in implementation involve assessing how well the program answers a specific need, if staff hold realistic expectations about what can be achieved, and whether there is genuine buy-in or acceptance for the new program. Additional findings from our synthesis of the literature indicated that quality implementation:

- Is a systematic process of coordinated steps; quality implementation can be achieved with careful planning
- Has a temporal sequence; some things should be done before others; in fact, 9 of the 13 steps should be addressed **before the program begins.**
- Requires many different types of activities and skills that include assessment, negotiation, collaboration, planning, and critical self-reflection.

In sum, the time and effort required of implementation should not be rushed. Attempts to short-change the process or omit important steps can undermine successful implementation.

WHO IS RESPONSIBLE FOR QUALITY IMPLEMENTATION?

The findings that at least 23 factors may affect implementation and that the implementation process involves 13 steps can seem overwhelming to those who want to conduct a new program. However, it is important to keep two important points in mind:

1. There are many examples of well-implemented programs. Success is possible.
2. Implementation is a mutual responsibility shared by several groups. Solving the challenge of qual ity implementation requires the active collaboration of four major groups, including researchers/ program developers, local practitioners, funders, and local administrators.

The chances for quality implementation are enhanced when these groups work collaboratively and approach implementation in a careful, systematic fashion over time. **See Figure 1.**

ADAPTATION: CAN A PROGRAM BE CHANGED OR DOES IT ALWAYS HAVE TO BE CONDUCTED "AS IS?"

Adaptation refers to changes made in a program when it is implemented in a new trial. Whenever programs are tried in new settings, there is the issue of the extent to which they should be conducted as originally developed, or adapted in some way. This is a very important issue because, when others consider using a program, there is often a question in their minds that goes something like: "Yes, I know that program X has been effective elsewhere, but our situation here seems different. If we change the original program so it is a better fit for our circumstances, will it still be successful?" As the science of implementation has advanced, clarity regarding this issue has emerged.

Drug treatment again provides a useful analogy. A patient may want to use a generic drug rather than a more expensive brand name pharmaceutical. The prescribing physician is likely to agree to this switch (i.e., adaptation) but only if the generic alternative contains the same active chemical ingredients known to be associated with the effectiveness of the brand name drug. If the generic drug lacks the active ingredients, the physician is likely to tell patient that the generic drug will either not work, or not be as effective as the more expensive drug.

In a similar fashion, there is now a growing consensus that whenever the core components of a program are known (i.e., the active ingredients of a program that are primarily associated with its effectiveness), these elements should be implemented without adaptation. If you do not administer the core components, then the program either will not work or will not work as well as it could. However, beyond its active ingredients, other aspects of the innovation can be modified to suit the setting or the population served, and this often offers possibilities for some adaptation to occur. In other words, fidelity and adaptation are not necessarily mutually exclusive, either-or considerations, and programs can be a blend of both fidelity and adaptation.

There are many different aspects to developing a program for children or youth (e.g., home visitation, teen pregnancy prevention) that might be adapted. For example, there are choices to be made about how many sessions to provide, when to offer the program, if certain sections can be omitted or repeated if necessary, and what exercises, activities or materials are optional, required, or can be altered. Depending on the circumstances, some of these elements can be adapted to fit the new setting, as long as the core components are delivered. If possible, decisions regarding adaptation should be made collaboratively by the original program designer, or others who know the theory and central operational features of the intervention, and those hosting the new program who know their setting, the target population, and the local culture.

Collaborative working relationships are crucial for making wise decisions regarding fidelity and adaptation. Depending on each unique circumstance, some changes can be made, but improving the organization's ability to help its clients should always be of central importance. In other words, an organization's primary motive for its actions should be to improve its services by offering the most effective assistance to its clientele. Extrinsic reasons for adapting programs such as bowing to political pressure, administrative fiat, and grabbing available money are not associated with quality implementation. Similarly, changing a program merely to save time, effort, or money is not wise. The adage: "You get what you pay for" applies to implementation.

IMPLICATIONS FOR RESEARCH, PRACTICE AND POLICY

Implications for research:

1. All program evaluations must carefully examine the quality of implementation that was achieved. Implementation is as important as any other aspect of a program evaluation.
2. Incorporating implementation research into program evaluations will help us evaluate programs fairly and to eventually learn what program components are necessary to produce intended effects. As this occurs, we will be able to make evidence-based programs more efficient, flexible, and effective.
3. Those who design new programs and those who evaluate them need to identify the core components of interventions so that decisions about fidelity and adaptation can be made based on sound theoretical and empirical considerations.

Implications for practice:

Whether a new program is begun in a school, health care setting, mental health clinic or other community-based organization, the host must be committed to insuring the new program is well implemented. This means the organization must devote sufficient effort and resources toward this process. An investment in evidence-based programs requires an investment in quality implementation.

Implications for policy:

Society must invest in quality implementation through mechanisms such as:

1. Providing adequate funds for quality implementation.
2. Recognizing that time is needed to bring new programs on-line and implement them well.
3. Fund groups and organizations willing to assist others in professional development activities related to implementation.

In sum, public policy decisions should be based on strong evaluations of strong programs, that is, those that reflect quality implementation, as well as information on impacts. Otherwise we cannot determine the relative value and cost-effectiveness of alternative programs.

DISCUSSION

Some practical "Lessons Learned" include the following key additional findings from implementation science and practice:

Implementation is never perfect. Some slippage inevitably occurs when programs are conducted in new settings. This need not be a concern as long as implementation quality is high enough. There can be a variety of unanticipated implementation problems that arise related to such things as changes in leadership and staff, sudden budget re-authorizations, and conflicts with transportation, scheduling, emergencies and competing job pressures. Fortunately, good judgment and guidance from implementation research and practice can help anticipate and deal with the challenges that might occur.

Practitioners vary in their performance when implementing new programs. It is important to monitor each practitioner's performance and offer additional professional development as needed. People have different learning styles and learning curves; some can develop new skills quickly while others require more time and practice.

Implementation often varies over time: sometimes quality drops and other times it increases. Both types of changes have implications. If implementation drops to too low a level after a good start, there is a need to intervene quickly through professional development activities to improve implementation. Such a drop may also signal a need to re-examine if commitment, support and enthusiasm still exist for the new program and what steps might be taken to rekindle the initial interest and support of the organization and its staff.

Increases in implementation have been noted in longer and complex programs in which it may take more than a year to achieve quality implementation. **Therefore, patience is required in estimating the true value of some programs.** Some programs do not reach their full impact until quality implementation has been achieved after a certain passage of time

The possible changes that might occur in levels of implementation over time, underscores the critical importance of continual monitoring. One cannot assume that the level of implementation displayed during the early stage of a program will be the same as that achieved at the end of the program.

A pilot program is often a good idea. Because doing something new requires time and practice to achieve mastery, it may be a good idea to try a new program on a small pilot basis instead of launching into a large-scale project. A pilot program can help an organization "work out the kinks" regarding implementation and plan more effectively for a later more extensive program (see Blasé and Fixen And Embry papers).

Don't implement an evidence-based program on your own. There are advertisements demonstrating new products that carry the following admonition in various forms: "Professionals were used. Do not try this at home." This caution also applies to the implementation of evidence-based programs. After all, one of the advantage of using an evidence-based program, compared to an innovative program, is that others have used it before and—ideally—have developed standards for the program. Drawing on the expertise of outside professional assistance can be very helpful.

There may be rare cases in which a brief and simple program can be learned by reading a manual or participating in a short workshop or on-line training session, but these are rare exceptions to the rule that outside assistance is needed to achieve quality implementation. Moreover, it is wishful thinking that a few simple "magic bullets" will achieve important social goals.

Fortunately, there are now more opportunities to benefit from outside assistance that may come from the original developers of a program or from consultant groups who offer professional development. Several professional groups and organizations exist that either provide professional development or disseminate information about others who can provide these services (e.g., Safe and Supportive Schools TA Center link to http://safesupportiveschools.ed.gov ; The Collaborative for the Advancement of Academic and Social and Emotional Learning CASEL, www.casel.org).

Practitioners can find assistance in implementing evidence-based programs in various ways. For example, there may be a national replication office for a specific program, such as the Nurse Family Partnership. Other organizations can provide materials, training and guidance for several models. State intermediaries, such as Smart Start in NC, can provide statewide assistance in select program models. There are also organizations, such as the National Implementation Research Network, that provide more general—as opposed to model specific—support for implementing high quality programs.

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Table 1. A Partial Listing of the Factors that may Affect Implementation

Community-wide or Societal Factors	Practitioner Characteristics	Characteristics of the Program	Factors Related to the Organization Hosting the Program	Factors Specific to the Implementation Process
Scientific theory and research	Perceived Need for the Program	Its compatibility or fit with the local setting	The organization's openness to change and innovation	Successful training
Availability of funding	Perceived Benefits of the Program	Its adaptability (can parts of the program be modified if needed?)	Shared vision and consensus about the program	On-going technical assistance
Policy			Effective leadership	

Table 2. Four Phases of Quality Implementation: 13 Steps

Phase One: Initial Considerations Regarding the Host Setting
Assesment Activities
1. Conduct a Needs and Resources Assessment
2. Conduct a Capacity/Readiness Assessment
Decisions about Adaptation
3. How should Fidelity and Possible Adaptations be Decided?
Capacity-Building Strategies
4. Obtain Explicit Buy-in from Critical Stakeholders
5. Build General/Organizational Capacity
6. Recruit Implementation Staff
7. Effective Pre-Innovation Staff Training

Phase Two: Creating a Structure for Implementation
Structural Features for Implementation
8. Create Teams Responsible for Quality Implementation
9. Develop an Implementation Plan

Phase Three: Ongoing Structure Once Implementation Begins
Ongoing Implementation Support Strategies
10. Technical Assistance/Coaching/Supervision
11. Process Evaluation
12. Supportive Feedback Mechanism

Phase Four: Improving Future Applications
13. Learning from Experience

Figure 1. Collaboration Among Multiple Stakeholders Leads to Quality Implementation