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Advancing the Use of Core Components of Effective Programs: Suggestions for Researchers Publishing Evaluation Results

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Abstract

Core components are the parts, features, attributes, or characteristics of a program that a range of research techniques show influence its success when implemented effectively.[1] These core components can serve as the unit of analysis that researchers use to determine "what works," and they become the areas practitioners and policymakers seek to replicate within and across a range of related programs and systems in order to improve outcomes. Research techniques such as meta-analysis can shed light on which components make programs successful across a range of programs and contexts, and help researchers identify with greater precision what works, in which contexts, and for which populations. This brief explains why it is important to collect and report on a wide range of program characteristics and the kinds of characteristics that should routinely be collected and reported in order to facilitate future meta-analyses that can help the field identify core components of effective programs.

Background

This issue brief is part of a series of working papers designed to increase awareness, understanding, and use of the "core components" approach, designed to identify *parts* of a program that research suggests influence its success when implemented effectively. The first issue brief developed by the Forum for Youth Investment described what core components of effective programs are. In that paper, Ferber, Sileo, and Wiggins (2019) also described the benefits of using core components of effective programs, five steps researchers and policymakers can take to identify and implement these core components, and examples of this approach being used in afterschool, juvenile justice, and mental health settings.

[1] Ferber, T., Sileo, A., & Wiggins, M. E. (2019). Advancing the use of core components of effective programs. Washington, DC: Forum for Youth Investment. Retrieved from https://forumfyi.org/knowledge-center/advancing-core-components/

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This second issue brief, developed by ASPE in its role as Chair of the Interagency Working Group on Youth Programs[2] and the American Institutes for Research, builds upon a multi-year effort. Given the focus of the Interagency Working Group on Youth Programs on youth, the brief frequently describes youth-based work but the concept of core components applies broadly to program evaluation. It dives deeper into Steps 1 and 2 of the "core components" approach—to identify effective components and determine whether these components predict improvements in target outcomes across multiple contexts and subpopulations (see Appendix A for more information). It is important for researchers to be able to empirically test and identify core components within the context of a systematic review or meta-analysis because this offers practitioners and others more flexibility when choosing, adapting, and evaluating programs and services for a local community (Melendez-Torres, Bonell, & Thomas, 2015). However, researchers conducting systematic reviews or meta-analyses are often limited in their ability to test core components across effective programs because of inadequate information about the content, approach, and/or training and supports provided.

There are existing resources and checklists that encourage researchers to report more detailed information to describe key characteristics of interventions and evaluation studies. For example, the CONSORT-SPI, TIDieR, BCT Taxonomy, and Oxford Implementation Index provide suggestions for people who evaluate social and behavioral programs and intend to publish their results, whether in peer-reviewed literature, grantee annual reports, or other mechanisms that will be made available for future meta-analyses or systematic reviews. This issue brief adds to existing resources by translating some of the information in these resources and lifting up details that may be challenging to understand from the technical explanatory documents. It also provides more information on how to use the existing checklists and helps to identify which characteristics or domains appear across checklists to indicate those characteristics people agree are important to report on. There is no checklist that is right for every study, so we recommend reviewing all of these resources to determine which checklist(s) might best fit your specific needs given the research aims/goals of your study and local context.

Why use meta-analysis to identify core components? *It offers several benefits over standard evaluation of programs and services including (a) improving accuracy of the size of an effect, (b), resolving uncertainty when reports disagree, and (c) allowing results to be generalized to a larger population.*

What kinds of information do meta-analyses rely on? *They require having information about outcomes (for people participating in the program and, ideally, for a comparison group) and characteristics such as those setting, participant, program, and implementation characteristics that can be coded across studies.*

We begin by describing what core components of effective programs are, some benefits of using this approach, how and why we developed these suggestions, and then provide suggestions for reporting on setting, participant, program, and implementation characteristics.

What Are "Core Components" of Effective Programs?

As described by Ferber, Sileo, and Wiggins (2019), *core components* are the parts, features, attributes, or characteristics of a program that research suggests influence its success when implemented effectively.[3] For example, a component might be a particular way staff and youth interact, a key feature of the relationships or environment a program creates for the target

[2] The Interagency Working Group on Youth Programs (IWGYP) (https://youth.gov/about-us), representing 21 federal departments and agencies, was formed in 2008 to improve outcomes for young people by promoting collaboration among federal, state, tribal, and local organizations, and through the identification and dissemination of promising strategies and practices that have been proven effective through rigorous evaluation.
[3] The field has not yet adopted a common nomenclature for this work. What we call *core* in this brief has also been called *evidence-based, evidence-informed, essential, common,* and *active*. What we call *components* in this brief have also been called *practices, features, ingredients, elements, characteristics,* and *kernels*.

population (e.g., a youth-driven environment), one of many activities within a program (e.g., coaching), the way the program is delivered (e.g., a combination of in-person and virtual events), or the amount ("dosage") of a particular activity. Components can serve as the unit of analysis that researchers use to determine "what works," and they become the areas practitioners and policymakers seek to replicate within and across a range of related programs and systems. Through using research techniques that attempt to figure out what makes programs successful across a range of programs and contexts, researchers can identify with greater precision what works, in which contexts, and for which populations.

Why Use Core Components of Effective Programs?

The use of core components of effective programs complements existing federal efforts encouraging the use of evidence-based programs in the following ways:

1. ***More flexibility to apply and adapt evaluation findings in policy and practice***. This approach can enable practitioners and policymakers to integrate evidence into their work in a range of ways, including:

    - *Identifying strategies or activities that may drive change across a range of programs, settings, and populations.* For example, if certain staff behaviors or activities prove especially effective with youth, policy and program leaders can better articulate and lift them up for adoption across youth-serving systems.

    - *Being able to adapt a new or existing program.* This approach allows people to adapt programs in ways that fit the particular context and constraints of a community, organization, or population while still implementing with fidelity those strategies and activities that research shows matter the most.

    - *Supporting continuous improvement over time.* By identifying specific strategies and activities that are effective, focusing on core components may help further strengthen programs that are already showing some positive effects.

2. ***Ability to target funding and services to improve impact.*** Using this approach can help agencies, provider organizations, and even individual practitioners allocate resources and time to specific strategies or activities likely to succeed for a population, setting, or individual.

How Did We Develop These Suggestions?

The resources and information used to develop these suggestions were gathered from input from federal and nonfederal experts and informant interviews over a two-year time period with both federal and nonfederal staff who have expertise in implementing and evaluating social, emotional, and behavioral programs (see Appendix B for additional detail).

The following suggestions build upon the four documents referenced earlier (CONSORT-SPI, TIDieR, BCT Taxonomy, Oxford Implementation Index) and focus on "setting, participant, program, and implementation characteristics." These particular characteristics matter because they have been shown to influence the extent to which programs improve outcomes for youth and their families in real-world conditions. For example, even if an evidence-based program is being delivered with fidelity, if it is being delivered in ways that do not align with the setting or participant needs (e.g., there is no child care provided for parents while attending behavioral management classes), participants will not attend the program regardless of how high-quality it is, and outcomes will not be achieved.

While it would benefit the field to have researchers and evaluators report on *all* of these aspects, this is often not feasible. The research aims/goals of a study should guide people in determining which characteristics are of highest priority to collect and report. For example, if the research aims/goals of a study are to understand to what extent a program can be adapted to address the needs of older Hispanic youth (aged 18-25) because the original program was developed and effective for White youth aged 10-17, then it would be important to prioritize collecting information regarding participants, the setting of the program, and how the program was adapted. The following suggestions should be considered with specific research aims/goals of a study and related program goals in mind. Again, it might not be feasible to report on all of these factors, but the more information available, the better the analyses of core components will be.

CONSORT-SPI *was developed for reporting results of evaluations for social and psychological interventions. The CONSORT-SPI is an extension of the CONSORT, which was designed to help biomedical researchers report randomized controlled trials transparently.*

TIDieR is *a guide and reporting checklist that was developed to improve the completeness of reporting, and ultimately the replicability, of interventions done in clinical settings.*

BCT Taxomony *is a consensually agreed, reliable taxonomy that could be used across behaviors, disciplines and areas of interest (e.g. health, the environment) to understand "active ingredients" of behavior change interventions.*

Oxford Implementation Index *is a methodology designed to develop and test methods for assessing implementation fidelity that can be applied to many domains.*

Setting Characteristics

All four checklists recommend describing these aspects related to setting characteristics:

- *Contextual factors such as setting(s), geographic location(s), and date/time; characteristics of the delivering organization and wider service environment; unique ethical considerations; and significant events occurring at the time of the intervention*
- *The type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features*
- *The expertise, background, and any specific training given for each intervention provider (for example, psychologist, nursing assistant)*

Examples of information researchers should consider including in the setting characteristics section of a checklist include:

- Describe the research site(s) in terms of country, region, state, and locale (urban/rural/suburban) as well as characteristics of the community, site, and staff where the program occurred—and of the organization that operated the program. For example, it would be helpful to report on:
    - *community characteristics* such as economic opportunities, violence, and crime rates;
    - *site characteristics* such as whether it was a residential institution/outpatient clinic/school/or other setting, age of organization, agency finances, other services provided, organizational climate and culture, structure, role of leadership, need and degree of support for the program (both in terms of local support and/or implementation resources), and micro- and macro-level influences; and

- *staff characteristics* such as demographics (and match between demographic characteristics of staff and participants being served), staff mobility rates, educational credentials of staff, attitudes and beliefs of staff who will be implementing the program, and skills, knowledge, and training relevant to the program being implemented.

Participant Characteristics

All four checklists recommend reporting on participant characteristics.
Examples of information researchers should consider including in the participant characteristic section of a checklist include:

- Describe the people who participated in the study in terms of gender, race/ethnicity, socioeconomic status, age/grade levels, distinctive characteristics of participants, risk and protective factors of participants, and measures of responsiveness, engagement, and motivation to participate in the program with as much granularity as possible over time to address issues of intersectionality, ecological fit, and cultural competence. For example, it would be helpful to report on:

  - *distinctive characteristics* of participants such as percentage of participants with disabilities, percentage who are uninsured, or percentage who are homeless/runaway youth;

  - *risk and protective factors* such as internalizing/externalizing symptoms; racism, violence/bullying, or social isolation experienced; involvement in the justice system; family and peer relationships; academic performance; social-emotional competencies; interest/skills in the arts, sports, or other activities; leadership, advocacy, or community service experience; and

  - *measures of responsiveness, engagement, and motivation* to participate in the program, including the extent to which participants want to be part of the program, the program is something they are interested in and passionate about, they feel ready to make a change, and they want to persevere in their goals.

Program Characteristics

All four checklists recommend describing these aspects related to program characteristics:

- *Any rationale, theory, or goal of the elements essential to the intervention*

- *Any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or training of intervention providers*

- *Each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities*

- *Interventions for each group with sufficient details to allow replication, including how and when they were actually administered*

- *The core program components including (among other things) whether the program includes goals and planning (e.g., goal setting, problem solving, action planning), feedback & monitoring (e.g., feedback on behavior, feedback on outcome of behavior), social support (e.g., either practical or emotional social support, and antecedents (e.g., restructuring the physical and social environment*)

Examples of information researchers should consider including in program characteristics section of a checklist include:

- Describe the program and comparison program(s) participants received It is critical to report similarly detailed information on the comparison program(s) participants received, with as much detail as is provided for the program of focus. For example, it would be helpful to report on:
    - the program(s)' name and whether it was manualized or branded,
    - if it was intended for everyone, individuals who are at risk of or presenting particular problems,
    - integration of program practices that have been shown to be effective from other research, and
    - the program's *theory of change*, which articulates the core program components, mechanisms of action/change, and the primary and secondary short- and long-term outcomes the program aims to change.

Implementation Characteristics

All four checklists recommend describing these aspects related to implementation characteristics for the people receiving the program and people in the comparison group (if they received a program):

- *Sequence of intervention components; technology, materials, and technical requirements/support staff; staff characteristics, training and support; steps to promote staff and participant compliance.*
- *The modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group*.
- *The number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity or dose*.
- *If the intervention was modified during the course of the study and describe the changes (what, why, when, and how).*
- *If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them*.
- *If there was not a program provided for people in the comparison group, a description of what people in the comparison group received (e.g., access to services).*

Examples of information researchers should consider including in the program characteristics section of a checklist include:

- Describe how the program was implemented, when, by whom, how often and for how long, in what format, and if implementation strategies were adapted or tailored to the local context. For example, it would be helpful to report on:
    - how *site leadership* was trained and included in program implementation and whether a team oversaw program implementation;

- *supports provided to those implementing the program* such as training (prior to the program being delivered, advanced training, and follow-up training); resources, manuals, toolkits or other supporting materials designed to help people learn about the program and how to deliver it; ongoing coaching or consultation; peer learning communities in which groups of people implementing the program learn from one another to foster better implementation; and financial incentives that allow people implementing the program ways to access new or existing money to facilitate implementation;

- whether the program was *delivered online/in person/both* and whether the program was delivered to individuals, a group of participants, participants and family members, groups of families, or mixed;

- whether there were *quality standards for program delivery and information collected to monitor implementation quality*, including collecting information related to program appropriateness, fidelity, and reach of program (defined in bullet below) through peer reviews, data from people implementing/supervising the programs, and using administrative and electronic record data; and

- *results of implementation monitoring* that indicate perceptions of key stakeholders regarding whether the program was appropriate, relevant, and compatible for the setting and participants (*appropriateness*); the degree to which the program was implemented as prescribed in the original protocol or as intended by program developers (*fidelity*); and the degree to which the program was integrated within a setting (*reach*).

Cost

None of the existing resources recommend reporting on cost but this type of information would be very beneficial for return-on-investment analyses designed to understand the short- or long-term benefits of a specific program relative to the program's cost. We suggest including a description of the average cost of the program per participant, any return-on-investment analyses that were done, and the results of those return-on-investment analyses.

Next Steps and Future Directions

This brief is designed to increase people's awareness about the existing resources in the field that should be used so that evaluators and researchers can pool information across research studies to identify and test core components. There are several ways in which these suggestions can be used by different audiences, some of which are described below:

- Individual researchers could use these resources and suggestions by following them in their own work.
- Professional organizations could consider how to use these resources and suggestions to promote consistency in how members of their organization are documenting and reporting the implementation of programs and evaluation findings.

- Funders (both private and federal) could adapt these resources and suggestions into their foundation or agency grantee reporting. For example, the suggestions could be converted into a checklist for researchers evaluating grantee programs. This checklist might be completed before funding is received, as part of annual progress monitoring reports, and/or at the study end.

Conclusion

Overall, this series of issue briefs is intended to increase the field's awareness of the resources available that can advance work related to a core components approach and to highlight additional steps the field needs to take to fully leverage a core components approach as a critical tool for advancing evidence-based policy and practice.

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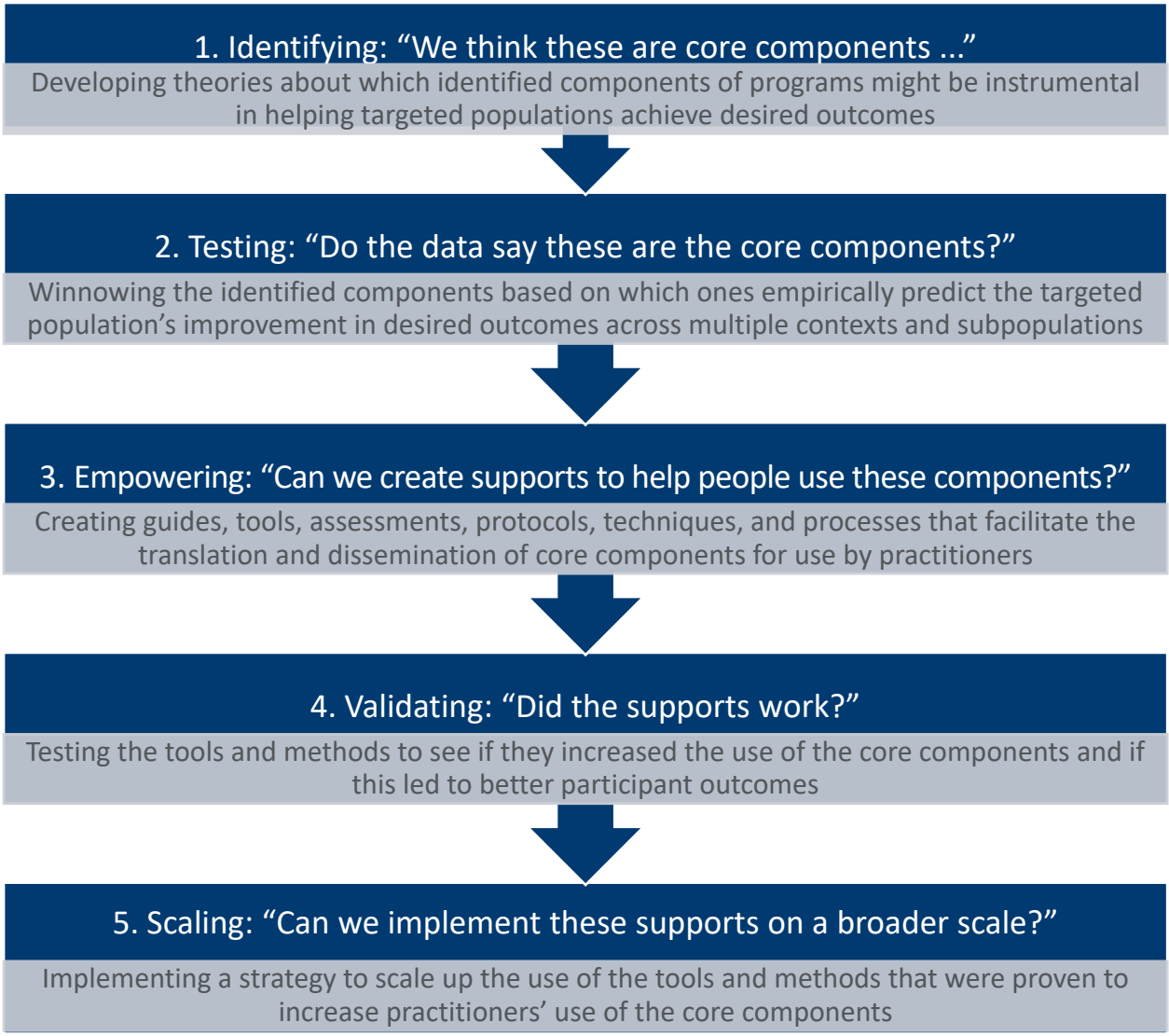
Appendix A. Five Steps for Advancing the Use of Core Components of Effective Programs

There are a number of ways policymakers, practitioners, and researchers are identifying and advancing the use of core components of effective programs. Although each approach has unique features, most include many or all of the following steps. Please see *Advancing the Use of Core Components of Effective Programs (2019)* for more information and examples of these steps in action.



Appendix B. Additional Information Related to Developing These Suggestions

To develop these suggestions, we completed a multi-phased process. First, we convened a two-day in-person meeting with experts doing this type of work in different disciplines and approximately 25 federal staff doing relevant work. The meeting focused on sharing current efforts taking place and determining appropriate next steps to advance work in this area. A smaller working group of federal staff, led by AIR and several experts in the field, determined that an important next step was developing suggestions for researchers and evaluators. With this goal in mind, a checklist was developed and shared with experts in the field and federal staff.

Both groups raised important questions related to the audience, purpose, motivation for, and timing of completing the checklist. In response to this feedback, the current document was developed and shared with the working group of federal staff and two experts for a final round of input.

Several resources that are related to reporting core components, have been widely endorsed in the field, and we recommend readers review. These include:

- The CONSORT SPI checklist and CONSORT SPI- Explanation & Elaboration which describes reporting aspects such as:
    - *Introduction: background and objectives of the study, scientific background and explanation of rationale, and specific objectives or hypotheses.*
    - *Methods: the interventions for each group with sufficient details to allow replication, including how and when they were actually administered.*
    - *Discussion: generalizability (external validity, applicability) of the trial findings.*
- The TIDieR provides guidance for describing an intervention via a checklist of items with examples including:
    - *The why behind an intervention: Describe any rationale theory, or goal of the elements essential to the intervention (Item 2).*
    - *The what (procedures) of an intervention: Describe each of the procedures, activities, and/or processes used in intervention, including any enabling or support activities (Item 4).*
    - *The how well the intervention was implemented: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them (Item 11).*
- The BCT Taxonomy provides a way of describing core program components by including a taxonomy of:
    - 93 behavior change techniques (e.g., *negative reinforcement, self-monitoring of behavior, review of outcome goals, emotional social support practices*) and
    - 16 hierarchical clusters organizing these behavioral change techniques (e.g., *scheduled consequences, feedback & monitoring, goals & planning, social support*), as well as definitions for each of these.
- The Oxford Implementation Index highlights characteristics of implementations broadly organized by four domains:

- *intervention design (e.g., intended dosage, setting, materials, training*),
- *the actual delivery by clinicians (e.g., staff qualifications, the quality and use of materials, dosage administered and efforts to monitor adherence or drift overtime),*
- *the uptake of the intervention by participants (e.g., number of sessions attended and whether participants sought out support outside of the trial period*), and
- *contextual factors (e.g., socioeconomic characteristics, culture, geography, legal environment, and service structures*).