

December 3, 2002

What Works Clearinghouse
2277 Research Boulevard, MS 6M
Rockville, MD 20850

To Whom It May Concern:

On behalf of the Software & Information Industry Association (SIIA) and our member publishers, I write to submit our comments on the What Works Clearinghouse (WWC), and in particular on the draft Design and Implementation Assessment Device (DIAD). SIIA is generally supportive of the WWC's goals, and we look forward to working with the WWC team throughout the development and implementation process to help ensure the Clearinghouse's program is of the highest quality, usefulness and appropriateness.

SIIA is the principal trade association of the software code and digital content industries, representing more than 800 leading high-tech companies that develop and market software and electronic content for business, education, consumers and the Internet. Many SIIA member companies provide educational software tools, digital curriculum and related technology products and services, as well as textbooks, assessments and other basal curricular materials. All SIIA members depend on the nation's schools for a skilled high-tech workforce, and view technology as critical to meeting the nation's education and workforce goals.

Through their work with students, educators and policy makers across the country, SIIA member companies are in a unique position to help translate knowledge of what works into practice, including through incorporation of research-based methods into, and effective use of, their curricular materials and innovative technology tools. In addition to being consumers and disseminators of educational evidence who stand as partners to improve teaching and learning, publishers are critical stakeholders in a WWC that could review research on their products. Finally, SIIA members welcome clearly stated research guidelines to help ensure the quality design of their own efficacy studies.

SIIA member publishers therefore have a great stake in the What Works Clearinghouse as they continue their efforts to meet the needs and goals of their education partners. We urge continued steps to ensure the WWC is objective, transparent and follows due process. To that end, we present the following recommendations and raise various issues for your consideration.

Development Process

SIIA participated in the November 22 outreach meeting, and appreciates the continuing WWC efforts to solicit stakeholder input. We agree that the WWC's value, real and perceived, will be greatly aided through an open and transparent process. This process must be applied through the development cycle.

We therefore recommend the following:

- An opportunity to review the DIAD standards once they are further revised in response to comment and Technical Advisory Group (TAG) review;

- An opportunity to review the WWC as a completed package when available and described in full, including additional standards such as the Cumulative Research Evidence Assessment Device (CREAD);
- That these review and comment periods be concurrent rather than sequential to allow for consideration of the WWC in its entirety (While we understand the WWC effort to quickly complete development, the DIAD standards can be best considered in context, rather than in isolation); and.
- Adherence to Administrative Procedure Act (APA) notice and comment, FACA and other federal standards as a model to help the WWC best ensure consideration of stakeholder views.

As part of this effort, SIIA offers to convene a forum for the discussion of issues unique to publishers. One particular consideration is the need for stability of the DIAD and other WWC standards. Given the long lead time for the development, evaluation research, adoption (including the state textbook adoption process) and implementation of many published instructional products and programs, there is a great need for standards to remain relatively constant over time. It is therefore critical that the WWC adopt a thorough development and review process now to ensure the standards and process are as fair, strong and widely supported as possible before the WWC is operationalized.

Validity

In light of its significant potential impact, we also recommend additional steps to ensure the validity of both the DIAD and the entire WWC review process. As an instrument to assess the design and implementation features of educational research studies, the WWC should be built on the same set of assumptions and professional measurement standards it expects of the studies it reviews. Stakeholders must be assured the process works before its results are publicly presented. We therefore urge that the WWC institute a thorough process to validate the draft standards and processes, including through the use of an operational pilot review.

Such validation must include inter-evaluator reliability to ensure all evaluators reviewing the same research with the DIAD reach the same conclusions. Both the DIAD standards as implemented through the Yes/No questions as well as the thirteen questions (in particular questions 8, 9 and 10) pertinent to the Evidence Report lack explicit sub criteria, and reviews are therefore open to significant subjectivity. Although SIIA generally supports the WWC's call for flexibility, there appears to be too much margin for subjectivity, bias and error in this case, raising several questions:

- How can the WWC assure that the questions posed, and the interpretive framework used, will be appropriate to each study?
- What factors will be used by evaluators to make these determinations?
- How will the WWC control against principal investigator conflict of interest or political, pedagogical or philosophical bias?

We therefore urge that the WWC give significant attention to developing and detailing a training and evaluation process that will be implemented to ensure accuracy and consistency across evaluators.

Operational Procedures

SIIA is concerned that insufficient explanation has been provided of the practical operational procedures upon which the WWC's effectiveness and validity will depend. While U.S. Department of

Education and WWC officials have effectively explained the WWC's goals and tasks, this new, complicated and far-reaching project requires significant attention to the many practical issues that must be resolved and vetted prior to implementation. While SIIA provides a number of comments herein specific to the draft DIAD, as noted above, this effort is hampered by a lack of specific contextual information in which to consider the standards.

In short, it remains unclear how the WWC would actually operate in light of the many decision elements that compose the review process. Perhaps foremost among these issues is a thorough explanation of the rubric that will be used to categorize educational interventions and approaches to allow for appropriate and useful comparisons and conclusions. For example, assuming a common goal of improving mathematics achievement, should research on a particular instructional mathematics software product be reviewed with other interventions and products that employ the same instructional strategy, with any other mathematics software that shares a common technology regardless of instructional strategy, or in some combination of these and other factors? Is technology an approach or an intervention? Further explanation is needed to define and differentiate interventions and approaches, including how these terms interrelate with other educational descriptors such as policies, programs, practices and products.

Furthermore, SIIA is concerned about the sufficiency of WWC resources to make such determinations in that specific, topical expertise will often be needed to make useful categorizations. For example, the impact of class size reduction is dependent upon the scale of the intervention, with effect only below a certain class size. Appropriate categorization by an expert is therefore necessary to account for such significant implementation nuances in a way that allows for a determination of effectiveness.

Finally, publishers seek an understanding of the procedures that will be used for hearing and resolving objections as required by the due process procedures in the Statement of Work. We recommend that objections be resolved as early on and in as non-public a manner as possible. If the WWC waits to resolve concerns until after an Evidence Report is posted on the WWC website, much of the harm may already have been done.

SIIA also presents the following additional questions:

- What exactly is the process for determining which questions/topics will be given priority for review? What is the process for determining which approaches, interventions and studies are reviewed within a given question/topic? Will there be a public listing of topics, approaches and interventions being reviewed?
- Will submissions be solicited and/or accepted? Will there be a deadline for submitting studies (and completing Evidence Reports), or will there be a rolling process for both (which raises bias concerns as expressed below)?
- To what degree will Evidence Reports present information in a synthesis across studies compared to specific individual studies?

Bias

Educational publishers are especially concerned about potential bias in the WWC review process. Evaluator bias and bias related to political, pedagogical or philosophical differences was noted above; while a second bias related to the types of research considered is described below under the Scope of

Reviewed Research Designs section. A third bias manifests itself in the form of omission whereby the WWC could unintentionally narrow educational options.

This omission bias would result from the fact that many education decision makers – especially in response to the *No Child Left Behind Act's* “scientifically based research” requirements – may only employ educational solutions included as effective in the WWC. As such a definitive source, WWC inclusiveness will be critical in terms of the questions and topics reviewed as well as the scope of interventions and approaches reviewed to address them. As a simple example of the question/topic bias, WWC review of reading but not mathematics could lead to a marginal shift in educational attention and resources away from mathematics toward reading. This issue is especially important in light of the many technology applications designed to indirectly impact (e.g., by facilitating systemic reform, problem solving, student collaboration, etc.) primary educational questions and/or designed to address secondary educational questions (e.g., technology literacy). As an example of the solution bias, WWC review of some but not all interventions (and products) that address a given question could lead to a relative shift in instruction and resources toward that which has been reviewed. Thus, in the case where a certain product does not fit within the scope of topics, approaches and interventions reviewed by the WWC, that product could be prejudiced through omission, regardless of evidence of its effectiveness.

To help avoid these unintended consequences, SIIA therefore makes several recommendations.

- First, the WWC must be very strategic in determining what topics to examine to avoid the dangers of topic bias.
- Second, the WWC must employ sufficient resources to review all approaches and interventions (and products) within a given question in a timely manner, while not releasing any conclusions unless all related reviews have been completed. This is crucial to the WWC's ability to be fair and inclusive (i.e., not implicitly disqualifying those for which research has not yet been assessed) and useful (i.e., matching state and local timelines for choosing instructional programs from the full range of research-proven offerings).
- Finally, the WWC must employ a process allowing continuous updates of its conclusions to ensure new evidence is considered in a fair and timely manner. This is especially critical for publishers seeking timely reviews of new products and/or evidence in a manner necessary to address educational needs and ensure a fair marketplace.

If the WWC believes its resources and initial methodology are significantly limited as to make this bias inevitable, or that significant revisions will be made in the initial year(s), SIIA would urge that the WWC not initially include reviews of research on specific interventions (and products), but rather on broad questions of policy. When the model is firm and resources clear, the WWC could expand to include reviews of research on specific interventions.

SIIA applauds WWC for recognizing the importance of considering how its information will be used. For example, the WWC has been explicit that it will not rate specific interventions or products. To help minimize unintended consequences and the improper interpretation and use of WWC information, we recommend that specific guidelines and disclaimers regarding WWC information be drafted, vetted for review by all stakeholders and implemented.

Draft DIAD Standards

SIIA is generally supportive of the draft DIAD standards as a tool to determine the quality of empirical research in education, and thus its subsequent use to inform the appropriate evidence report. We raise the following recommendations to enhance the Device:

Questions #1.1a and #1.2. The combination of education's complex settings, interaction effects, and implementation variables creates a virtually infinite number of actual educational approaches and interventions. This creates a number of challenges to the WWC and the DIAD. SIIA recommends strengthening Questions 1.1a and 1.2 to emphasize the need to examine interventions at a significant level of detail in order to recognize these variables and provide useful conclusions on effectiveness.

Question #1.3. SIIA recommends downgrading the relative weight placed on a placebo in Question 1.3. It is not practical to include truly neutral placebos in many educational experiments, in part because to do so would do relative harm to the students by essentially wasting their time on an activity intended to have no effect. This is especially complicated in the measurement of technology-based interventions when the placebo would involve the control group's use of computers. SIIA therefore recommends allowing a "Yes" or "No" response in the "Yes" column for Composite Question #1.

Question #1.4. As noted above, among the variables impacting the effect of an educational intervention is the implementation of the treatment. Ultimately, a given classroom intervention does not constitute the theoretical or model intervention unless accompanied by proper implementation. This is especially critical – but not at all unique – in the implementation of technology-based interventions, where research has found that sufficient access, teacher training and proper use are necessary preconditions for the effectiveness of software and electronic curricular materials. Therefore, monitoring is necessary to ensure a quality study and thus to determine effectiveness. SIIA therefore urges that a "Yes" response to Question 1.4 regarding the measurement or description of the implementation be necessary for the "Yes" column for Composite Question #1.

Question #4. It is difficult if not impossible in many cases to conduct a study in which intervention conditions are not known to the study participants, including students, teachers and parents. As noted above, this is especially the case with computer-based interventions. SIIA therefore recommends allowing a "Yes" or "No" response to Question 4.2b for the "Yes" column in Composite Question #4. Perhaps other questions can be added to allow for alternative controls to this type of contamination.

DIAD Findings. SIIA seeks further explanation on the following questions regarding the determination and presentation of DIAD findings:

- Will the sponsor or subject of the study be notified the study is under review, and will there be opportunity to respond or clarify before publication of the findings?
- How will the WWC characterize interventions and approaches deemed to have not been appropriately evaluated according to the global questions? What steps will be taken to clearly differentiate between lack of research, lack of sufficient evidence from high-quality research and evidence of ineffectiveness?
- How public will the evaluation process be, including the presentation of research deemed of insufficient quality?

Scope of Reviewed Research Designs

SIIA appreciates the WWC's stated assumptions that "studies with different purposes require different design and implementation assessments" and that the DIAD is not appropriate for all types of research. However, WWC descriptions and documents to date provide little clear indication of efforts underway to address these important alternatives, including within the family of quantitative models outside of two group comparisons, as well as for qualitative models.

While SIIA recognizes the value and importance of quantitative studies for determining what works, publishers are concerned the model may not be sufficient to evaluate all relevant studies of effectiveness and to truly inform educational practice. Education is subject to complex interaction or contamination effects, while technology applications are additionally subject to significant variables that impact implementation. It is therefore difficult to isolate the effects of many technology applications, as well as other educational interventions, solely by use of quantitative experimental designs. Publishers therefore often engage in a variety of research and development methodologies, including combinations of qualitative and quantitative methods, as a necessary and practical means of investigation to ensure product quality and effective use. To categorically ignore qualitative research is neither in the best interest of the science of educational research nor in the best interest of informing educational practice.

Qualitative studies are critical to understanding how and under what conditions a given intervention is effective. By ignoring these variables and oversimplifying the educational equation to only the quantitative information, the WWC could lead educators down a certain path without their consideration of the necessary implementation conditions necessary for success. In addition, the authoritative effect of the WWC will likely provide a disincentive to conducting qualitative research. SIIA therefore urges an expeditious effort to develop a companion set of criteria for both additional quantitative models as well as qualitative research. WWC standards and review of these alternative research methods is critical to best meet education's needs and inform practice and to drive the conduct of more rigorous evaluation research of all types.

Thank you for considering SIIA's comments on the What Works Clearinghouse. SIIA and our member companies look forward to working with you on these and related issues throughout the development and implementation process to ensure the WWC meets its important goals of informing educational practice in the highest quality, useful and appropriate manner. We would especially appreciate a response to the many questions raised in these comments; and at the appropriate point, offer to convene a forum for the discussion of issues of concern to, and often unique to, publishers. If we can be of further assistance, please contact me at (202) 789-4444 or marks@siia.net.

Sincerely,

A handwritten signature in dark ink, reading "Mark Schneiderman". The signature is written in a cursive, flowing style. To the right of the signature is a vertical line.

Mark Schneiderman
Director, Education Policy