



The Design and Methods of the *Success at the Core* Impact Study: Scaffolding Usage and Portraying the Process of Impact

**Inverness Research
September 2011**

Success at the Core (*SaC*) is a free on-line toolkit that serves as a resource for education practitioners working to improve instruction. The toolkit consists of 7 Leadership Development Modules designed for use by instructional leadership teams and 24 Teacher Development Strategies designed for use by classroom teachers and others, either individually or in teams¹. Developers of *SaC* have commissioned a series of evaluation studies to ascertain the quality, relevance, usability, value, and impact of *SaC* for a range of users.² Within the evaluation portfolio, the Impact Study focuses on the extent to which and the ways in which usage of *SaC* can have an impact on teaching and learning.³

In this paper, which is a companion to the Impact Study report, we describe the design and methods of the study. We do this in part to fulfill our basic responsibility as researchers—to make transparent how data were gathered and analyzed. The qualitative research processes and tools enabled us to trace the nuances of how the teachers' school contexts (including multiple other improvement efforts), their existing practices, and their professional judgment and thinking all interacted to shape how they selected and used *SaC* materials and how they and their students were impacted by that usage. In this sense, the design of the study served to “open the black box” to shed light on the micro-processes involved in the improvement of classroom teaching.

Additionally, we explain how we conducted the study in order to portray the ways in which the research processes and tools that we used had particular and important results. As we note in the Impact Study report, the research processes ended up serving as a scaffold of support for teacher usage that was not present in their workplaces. We believe a description of this scaffold can help

¹ See www.successatthecore.com.

² See the results on the Research page of the *SaC* site at http://www.successatthecore.com/about_research.aspx.

³ See the Executive Summary of the *SaC* Impact study, “*Success at the Core: The Impact of SaC Usage on Teachers and Students*”, on the Research page of the *SaC* site at http://www.successatthecore.com/about_research.aspx. The Impact Study was carried out by Inverness Research, an independent national education evaluation and research group. See www.inverness-research.org.

district and school leaders develop and support similar scaffolds for teachers, and can help teachers recognize the value of such scaffolds for themselves.

Design and Methods

A qualitative study

SaC can be used by a wide range of educators (school teams, district teams, administrators, teachers, professional development leaders) working in a variety of subject areas and educational settings. A hallmark of *SaC* is its flexibility: teams can adapt Leadership Development modules to their own schedules and sequence them according to their own priorities; and teams and teachers can select and combine Teacher Development strategies to be consistent with their particular goals for improvement. Given *SaC*'s design as a user-directed tool that works in the service of local priorities, it made sense to design an evaluation that focused on user decision-making and on the actualities of usage in multiple settings, and that examined impacts of usage that could be expected based upon the interaction between the design of the tool and its usage in multiple contexts. We thus designed a qualitative study in which we could closely document the nuances of *SaC* usage, the thinking behind that usage, and the multiple impacts of usage.

Conceptual framework: Usage in context and impacts of usage

The Impact Study focused on impact in the classroom, with an emphasis on student impacts. We framed the study around a simple and fairly linear logical sequence that we derived from our study of the *SaC* pilot: If teachers were to use *SaC* strategies in their classrooms, the usage of those strategies would have an impact on their practice, and those changes in their practice would in turn have an impact on their students. We assumed also that teachers' usage of *SaC* would be impacted not only by their individual judgments and choices about how to use *SaC*, but also by contextual conditions within their schools. Based on this framework, these were our guiding questions:

- What does teachers' usage of *SaC* look like in the classroom?
- What forces shape teachers' usage of *SaC* in their classrooms?
- In what ways and to what extent does usage of *SaC* impact teachers' thinking and practices?
- In ways and to what extent does the experience of *SaC* strategies impact students?

We did not pre-define the qualities of implementation expected, nor the types of impacts expected, beyond some simple lessons learned from the pilot study, which suggested that teachers would need to define their own purposes for use and embed strategies as they saw fit, and that the experience of *SaC* strategies would likely increase students' engagement and motivate them to take more responsibility for their own learning. The study documents impacts on teachers and students that arise naturally and straightforwardly from effective, consistent usage of *SaC*.

Selection of 12 teacher participants

We set out to design a study that would involve 12 teachers in 6 schools. The relatively small sample would permit the depth of qualitative study our design relied upon, while offering considerable variation in terms of school context and subject area. Originally, we wanted to study teachers from 3 middle schools in Washington and 3 middle schools in one other state; the sample in Washington

would include mathematics and language arts teachers and the sample in the other state would include science teachers. Circumstances in the other state ultimately prevented their participation, and thus the sample of 12 was selected from 5 schools in Washington. Of the 12, seven were mathematics teachers, three were English language arts and social studies teachers, one was a social studies teacher, and one was a science teacher. The following table displays the distribution of teachers and school contexts.

	Locale type/school size	Subject areas of teachers
School 1	Suburban/large	Math, ELA+SS, SS
School 2	Rural/medium	Math, Math
School 3	Rural/small	Math, ELA+SS, ELA+SS
School 4	Rural/small	Math, Science
School 5	Urban/large	Math, Math

The sample was over-represented in mathematics and under-represented in science, mostly due to the loss of the second state from which the science sample was to come. However, as often happens in the real world of research (where context conditions also have an impact!), the composition of the sample turned out to have some advantages. For example, the group included teachers of social studies, which is not a subject area that *SaC* was designed for in particular; thus, the study was able to demonstrate that the materials are, in fact, relevant to and workable for teachers of social studies. Also, in three schools there were pairs of teachers (2 pairs in math and 1 pair ELA+SS), which enabled us to explore the extent to which teachers would be able to use the materials collaboratively. It is unfortunate, ultimately, that the sample did not include more science teachers.

Role of teachers as partners in inquiry

The participating teachers volunteered to participate after receiving written information and having opportunities to answer questions about the nature of the study and their roles. Their principals, who were familiar with *Success at the Core*, also agreed to their participating in the study. The teachers played a much larger role than being the “subjects” of study: we defined them as “teacher partners” with the roles of helping identify relevant data that would show impact relative to their goals, and of reflecting on their usage of *SaC*, the impact on them, and the impacts on their students. We asked the teachers to inquire along with us because we wanted to inform our independent external interpretation with teachers’ inside-the-classroom lenses.

Each teacher selected a focal class for purposes of the study. Although most of them used *SaC* in more than this class, the focal classroom was the one we observed and from where student artifacts and surveys were collected.

Teachers each received a substantial stipend of \$1500 for the study, which ran from October 2010 through June 2011, distributed in three installments. In return, they devoted considerable time to the research tasks we asked of them, detailed below.

Tools and processes for gathering data

The data collection activities below required about 50 hours of teachers' time between October and June. This does not include the time that teachers spent on their own perusing the *SaC* website, reviewing videos and other materials, and planning how to adapt and integrate *SaC* strategies into their classrooms.

Initial interview. Before they began using *SaC* in the fall of 2010, we conducted an interview with teachers to learn about the details of their teaching contexts, their workplace context (e.g., school priorities for improvement, other reform initiatives underway, the nature of the professional culture and school climate, the availability of professional development time), and their initial purposes, hopes and plans for *SaC* usage. These interviews provided us with our first insight into the weight and complexity of the conditions surrounding the teachers' work with *SaC*.

Semi-monthly logs. At two-week intervals from November through April, we collected logs from the teachers. These were in the form of Excel spreadsheets where teachers wrote responses to questions about the following: 1) they explained what *SaC* strategies they used, their reasons for using them, the ways they used them (including a narrative description of use in a class period), and when and how often they used them; 2) they reflected on how well the strategies worked, what was difficult or not to use and what they needed to adapt for their own classroom context, how the use of the strategies enabled them to do something in their practice they could not do before, how the usage of *SaC* was benefiting them as the year progressed, and any challenges or concerns they faced; and 3) they reflected on the benefits in terms of student engagement, attitude toward learning, gain of knowledge and skills, and any other benefits they observed. We also asked teachers to attach documentation to their logs, including lesson plans or handouts that reflected usage of *SaC* and student work products. Teachers spent about 2 hours on each semi-monthly log. Following the semi-monthly logs, we interviewed teachers more briefly to discuss notable log entries in more depth.

Classroom observations. We observed each teacher in late October or early November, as the study was getting underway, to document his or her initial explorations of *SaC* usage in the classroom. In mid-year, we visited seven teachers, and in the spring we observed all of the teachers.⁴ Each observation took place in a full class period. We conducted pre-observation interviews to find out what the teachers were planning to use and for what purposes, and conducted post-observation interviews to invite the teacher to reflect on the class period and to ask further questions. During the observations we collected relevant artifacts, including handouts, student samples, and work or other artifacts posted on the walls. In the mid-year observations, we conducted very short focus groups or surveys of students in order to pilot methods and questions for the year-end data collection, as well as to begin documenting students' perceptions about the strategies. These classroom observations served as our opportunities to see for ourselves what usage of *SaC* looked like in the classroom, as well as to examine the congruity between teachers' self reports (logs and interviews) and our independent observations.

Individual research plan. Following the fall observations and first few logs, we realized that most of the teachers were struggling with finding a focus for their usage. With a couple of exceptions, the teachers remained in what we called the "messaging about" stage, trying a strategy once or twice, then

⁴ One teacher had to drop out of the study so we observed 11 in the spring.

looking for more and trying them. In contrast, two of the teachers were becoming quite focused on using a small number of strategies—a main strategy and one or two others that combined well. We could observe that these more focused teachers were making strides toward consistent and effective use that could have an observable impact on students within the short timeframe of the study. To help the others pause and reflect on how they might want to focus their usage in the winter and spring, we worked with each one to create an individual research plan (“IRP”). We crafted a process whereby they created their own plans through several steps: we sent them feedback from our fall data collection; explained the IRP concept and provided them with a set of questions so they could reflect more on their purpose for use; participated in a phone conference with each person to provide feedback and suggestions as they shared their ideas for using *SaC* going forward; and sent them a short, informal summary of the plan they settled on.

Artifacts showing use and impact. We asked teachers to attach artifacts to their semi-monthly logs that would demonstrate their usage of the *SaC* strategies as well as exhibit the impacts they were seeing among their students. Typically, teachers attached samples of work—such as math homework, math assessments, writing samples—from students who were of special interest to them in terms of hope for positive impact. These included students who were chronically disengaged, or were English learners, or were highly gifted and perhaps difficult to motivate. Teachers also devised ways to document impact in other ways, for example, tracking trends in homework completion, tardiness, or participation in group discussions. Some teachers routinely interviewed or surveyed students following use of *SaC* strategies. In our classroom observations and interviews, we also suggested what artifacts teachers could collect that would demonstrate impacts that we observed, and we also collected some artifacts during our visits.

These artifacts provided important empirical evidence of impact on teaching and on students to complement teacher reflections and our classroom observations. In their range and variety, these artifacts reflected the multiple ways in which *SaC* usage can benefit students.

Teachers’ culminating written reflections. At the end of the year we asked teachers to spend about 2 hours reflecting on lessons they had learned about their trajectories of development as users of *SaC*, about the conditions that had an impact on their usage, about the impacts usage of *SaC* made on themselves, and the reasons for specific impacts. While admittedly this felt like a somewhat onerous “take-home” exam, it provided the teachers with an opportunity to stand back and survey their development over the full year. In retrospect, we would probably change this written reflection to a lengthy phone interview after providing teachers with the questions in advance.

Student surveys. Students in each teacher’s focal class completed a 20-30 minute paper-pencil survey. There were items asking students to give ratings on a 1-4 scale for each of the 8 possible impacts of the *SaC* strategies, with a request to explain each rating, and 2 open-ended questions. We developed the survey items based upon what we had learned about student impact during the early months of the study, and invited teachers to give us feedback before it was completed by students. While the surveys for each classroom included exactly the same items, we customized the introduction to students so that they would be able to identify the particular strategies that we asked them to report on. Additionally, we asked the teachers to remind the students which strategies the students should have in mind while they completed the survey, and to emphasize that we wanted honest answers and that the survey would have nothing to do with their grades. Each teacher administered the survey a day or two after the spring classroom observation and mailed us the responses.

Exit interview on student impacts. At the end of the year we conducted a lengthy exit interview with the teachers that included reflection on artifacts of student work and how the work reflected impacts on students. We used a detailed protocol that covered each of the eight dimensions of student impact. With guidance from our questioning, teachers used the artifacts of student work, along with other data such as homework completion or test scores, to analyze how usage of *SaC* impacted students in particular ways. These exit interviews were the culminating step by which we could link effective usage of specific *SaC* strategies to multiple impacts on students.

Analyzing the data

Data analysis involved these steps:

Synthesis of multiple data sources to form individual portraits of *SaC* usage and impact. Using a uniform data analysis template, the research team drew from all data sources to develop detailed accounts of each individual teacher's usage (and conditions affecting usage), impact on teaching, and impact on students. These analyses involved comparing teacher self-reports with independent observational data, student survey results (ratings and comments), and evidence from artifacts. Developing individual portraits involved assessing each teacher's trajectory of development as a *SaC* user over the period of the study, from November through the end of May. We then conducted cross-case analyses of these portraits to develop the findings and reflections we present in the report.

Analyses of student survey ratings. We statistically analyzed the student survey ratings to ascertain which impacts students were more likely to report and whether the effectiveness of *SaC* usage affected student reports.

Reporting

As part of our agreement with the developers, we produced detailed reports each quarter, in September (design and recruitment), December (the start-up of usage), April (progress of usage and early signs of impact), and July (year-end impact). Producing these reports required that we analyze data fairly continuously throughout the year, which enabled us to share lessons learned as they arose. For example, as early as December we were able to report that focused use of a small number of strategies held greater potential for immediate impact than occasional use of a larger number of strategies. These and other preliminary findings provided the developers with insight they could use to educate existing and new users, and gave the funders cumulative understanding of the potential returns on their investment.

Reflections on the Research Process

The secondary effect of the research tools and activities: Scaffolding usage

It turned out that our research tasks served important dual purposes, not only providing us with data and information, but also providing the teachers with structures and procedures to support them in becoming familiar with the toolkit, using tools that made sense to them and their practice, and reflecting on and articulating their usage and its benefits. First and foremost, the Impact Study provided important context, purpose and incentive for teachers. We asked them to participate in a study in which they would serve as partners to us, we compensated them with a generous stipend,

and laid out clear duties and responsibilities. Additionally, many of the supports we created, in particular the logs and the follow-up interviews, were used frequently and consistently over many months, so that over time teachers had the opportunity to develop trust and familiarity with us, as well as intimacy with and even expertise with the website. One teacher explained the value of the logs and interviews this way, showing how the research process created relationship among the researcher, teacher and toolkit:

I so appreciate how safe these reports [logs and interviews] are for reflection. Often in my teaching everything just goes great. Yeah. But, these last several weeks have been serious speed bumps. Seeing clearly that student performance is decreasing and then trying to trouble-shoot it has been humbling, to say the least. I appreciate having a patient audience to think with that is not a coworker or a boss. So, that is how the [SaC] materials are working for me just now: forcing some realization, but also providing materials for growth.

The IRP process we describe above helped to limit and focus teachers. A teacher commented in his log: “Being able to focus is important. Then you can possibly carry what you have learned over to other situations.” We saw that with sustained use, teachers often made small adaptations that produced smoother integration and generated more authentic ownership.

Another important element of the scaffold created by the research process was that it encouraged and at times even pressed teachers to look inward, to take on responsibility and authority for selecting areas of their instruction they wanted to change. This was not easy, because in today’s prevailing school climate teachers have few opportunities to be in charge of their own professional aims, purposes, and development. Finally, a very important element of the process was impetus to practice critical and reflective thinking. The many research tools supported teachers in thinking about what they were doing and why, and about what impacts they were making—in other words, inquiring into their own teaching through the use of the *SaC* toolkit.

An insight that became obvious to us only when the study was well under way is that our research effort engineered teachers’ usage through what we call “generative structures.” By generative structure, we mean neither a closed structure that highly directs responses and therefore constrains and caps what participants bring with them and potentially have to offer, nor a wide-open structure that fails to frame purpose and intent sufficiently and thereby diffuses and diminishes response. A generative structure falls somewhere in between—i.e., it is deliberately configured to generate rich response by achieving the critical balance between parameters that guide and focus and windows that open and un-constrain.

Importantly, our study does not suggest that such scaffolding can come only from an external entity as it did in this study. The opportunities, resources and colleagues for such supports are potentially available at schools. Teachers working with other teachers (with the backing of a principal or school/district mandate) in department settings, or grade level teams, or even through specially organized projects that may exist alongside of the regular school structure, such as district-wide teacher inquiry groups or professional coaching, are all possible venues for well-engineered generative structures.

Opening the black box: Seeing how SaC can contribute to instructional improvement

As a final reflection on research design, we return to the example of a teacher whose usage of *SaC* we highlight in the Impact Study report. This teacher worked in a school that has had low achievement scores and in 2010-11 was under extraordinary pressure to meet federal funding requirements to raise scores immediately. The school had a new principal who involved the staff in many meetings and professional development sessions focused on increasing achievement. The following is the math teacher's explanation of how usage of *SaC*, along with other changes, helped contribute to dramatic increases in 7th grade performance on the annual state assessment in the spring of 2011:

I had 6 out of 7 sections of 7th grade math. Each of my classes had SaC strategies incorporated. Thinking about last year [2010-1]), there were a few changes I made to instruction. First, last year was the first year of our new math textbook. This may have accounted for part of the increase [in test scores]. Second was a 7th grade push in writing in all content areas. This is where I used SaC content vocabulary with writing. I believe this played a part in the increase because it allowed me to make decisions on how to deliver instruction for future lessons. It also helped me choose students to pull for individual or small group instruction. The writing strategy also forced students to think critically about the content and vocabulary. Third was standards based grading. With standards based grading I did not have a grade for homework. This was a big change. Some students did little homework because of this. However, I incorporated the SaC strategy for peer editing which made students somewhat accountable to their partner. This strategy also gave students opportunity for meaningful conversation about math as well as gave me informal assessment of understanding. This was the first year I used peer editing for homework. I believe it helped contribute to the increase. I also assessed much more frequently this year and allowed students multiple opportunities to show understanding of the standards. The last change was a school wide 30-minute study hall [called "focus"]. I do believe the SaC strategies played a role in the increase.

The teacher's summary reflection of how *SaC* played a role in raising student achievement points to the reality that many, many forces are at play in the enterprise of instructional improvement. No single improvement tool or resource is sufficient, on its own, to raise achievement. Qualitative studies that engage teachers as partners in inquiry can be especially effective at opening up the "black box" of how externally designed interventions such as *SaC* are implemented in particular contexts—all of which are rich and complex—and provide nuanced insight into how they combine with other supportive conditions to contribute to positive impacts on students.