Teachers’ Perceptions and Uses of Every Day Counts: Meeting Students’ Needs

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Introduction

*Every Day Counts* (EDC) is a supplemental mathematics program that can be used to enhance almost any elementary mathematics textbook. EDC instruction revolves around an interactive bulletin board with a variety of elements, or components. The elements are used to represent many mathematical ideas. Students examine mathematical relationships fundamental to the curriculum by participating in discussions facilitated by the teacher. These 10-15 minute discussions occur daily as the EDC lesson.

The EDC program is complex. Each grade level has different mathematics content and different bulletin board elements. The program changes throughout the school year. New elements are added or new mathematical concepts are taught through the use of existing elements. In order to implement the program in a powerful way, teachers must learn the mathematics concepts that can be taught with each element, how to build and use each element, and how to facilitate meaningful student discussion around each element. Teachers’ knowledge of their students’ mathematical thinking is a further complication in the use of the program.

I work for Fairfax County Public Schools (FCPS) as a staff developer in the Title I office. I provide staff development to Title I Step-Up Mathematics (SUM) teachers and classroom teachers in Title I schools. As part of my job for FCPS, I have spent a lot of time and effort, as well as Title I money, on the *Every Day Counts* program. I have purchased EDC kits for teachers and facilitated training sessions to show them how to use the kits. I have learned a great deal about the EDC program while doing this work. I believe that the program makes a difference in student achievement when teachers implement it in the way the authors intended.

So implementation is a key. As a staff developer, I need to figure out what kind of support and how much support teachers need in order to implement EDC in a way that makes a
difference for students. I need to know the most efficient way to provide professional
development and/or on-site support for teachers.

Additionally, I am considering doing a study on EDC for my dissertation. What most
stakeholders want to know and what I want to know the most is does EDC make a difference in
student achievement. A quantitative study would be most helpful in answering this question, but
learning teachers’ perceptions of EDC could help me think about my dissertation.

Conceptual Framework

My knowledge of EDC and my belief that it makes a difference in student learning
informed and influenced this study. I remember when I first heard about EDC in the summer of
2001. I was at a meeting in the FCPS mathematics office with the Elementary Mathematics
Specialist and a sales representative from Great Source. The sales representative offered to give
EDC to one FCPS elementary school to pilot. We looked at the program and tried to decide
which school should pilot EDC. I was not impressed. I thought, “Calendar math? People have
been doing this for years. What’s so great?” The Mathematics Specialist chose a school for the
pilot, and they went on about their business. I was not involved in the pilot, did not attend the
EDC professional development, and did not pay much attention to the EDC program until almost
two years later.

In the spring of 2003, the Mathematics Specialist was facilitating a huge EDC training
session. EDC consultants were going to train thirty teachers at each grade level. Evidently, the
pilot school’s Standards of Learning (SOL) mathematics scores had increased. They were
attributing the gain to EDC. The Mathematics Specialist asked me to attend the training, and I
did. I’m not sure when my perspective changed, but this training session was the beginning. The
more I learned about the program, the more I liked it. The Mathematics Specialist was very much
in favor of the program, there was data to support its effectiveness (those SOL scores at the pilot school), and teachers were clamoring for training.

In the fall of 2003, I started facilitating EDC training sessions for Title I schools. I convinced the Title I Coordinator (my boss) to fund EDC kits and training for teachers at grades K-6. For the last two and a half years, I have been supporting teachers in the implementation of the EDC program. This has involved hiring consultants to conduct initial training sessions, facilitating consultants’ visits to school to conduct support training, teaching FCPS teachers how to conduct initial training sessions, and presenting EDC overview and initial training sessions myself. I am probably the best-trained teacher in FCPS because I have participated in many, many hours of EDC training. I have also spent countless hours working individually with teachers: helping them to plan and implement the EDC program and modeling EDC lessons in their classrooms. Many of the EDC consultants that I bring to Fairfax are the authors of the program. The main author, Patsy Kanter, and I have become friends. I really enjoy working with her and the people in her organization. I have learned a lot about the EDC program and teaching mathematics from her group.

My beliefs about teaching and learning also informed and influenced this study. I’m basically a constructivist. I believe that teachers facilitate learning rather than transmit knowledge. I think conceptual understanding is very important. I believe that students make sense of mathematics by solving mathematical problems and discussing strategies with their peers. When I teach, I ask students to explain and justify their mathematical thinking. I believe that it is important for teachers to listen to students in order to understand students’ mathematical knowledge and misconceptions. I believe EDC is a vehicle for this kind of learning. Teachers can use the elements of the program (the representations on the bulletin board) to generate
student discussion. Teachers need to be skilled at asking higher-level questions in order to do this. They must also understand the mathematics they are teaching at a deep, conceptual level.

I believe that teaching mathematics is much more complicated than most people believe. I think that teachers need a deep knowledge of the mathematics they are teaching. I have been thinking about this idea, “Mathematical Knowledge for Teaching” (Ball, 2003; Ball, Hill, & Bass, 2005; Salkind, 2005; Usiskin, 2002; Viadero, 2004), for about a year and a half. I have noticed that I use my beliefs about “Mathematical Knowledge for Teaching” as a lens when I’m talking to teachers or observing their instruction. I can’t help but notice when teachers show this kind of knowledge, or more frequently, don’t show this kind of knowledge. This lens influenced my relationships with teachers in the study and the way I interpreted the data.

My experiences as a mathematics learner also influenced this study. I loved math when I was growing up. I saw it as a puzzle to solve. I was always curious about why mathematical procedures and formulas worked. I wasn’t satisfied just knowing the formula; I had to figure out how it worked. In fact, I had difficulty memorizing formulas if I didn’t understand the reasoning behind them. I think these experiences have shaped my philosophy of teaching. I also believe that EDC can create this kind of excitement and mathematical curiosity in children.

Research Questions

My initial research questions were very broad: 1) how do teachers perceive the EDC program, and 2) how do they use it? I was able to focus my research questions as the study progressed. I developed three main research questions and subquestions to focus the study.

1. How do teachers perceive the EDC program?

   a. What aspects of EDC do teachers value?

   b. What aspects of EDC do teachers find challenging?
c. What do teachers suggest as evidence of student learning from EDC?

2. How do teachers use EDC?
   a. How do teachers plan for EDC instruction?
   b. How do teachers teach using EDC?

3. What kinds of support do teachers find useful in implementing the EDC program?
   a. How do teachers perceive support from their school administrators?
   b. How do teachers perceive support from their grade level team?
   c. How do teachers perceive support from their SUM teacher(s)?
   d. How do teachers perceive support from EDC initial training workshops?
   e. How do teachers perceive support from EDC support training sessions?

I expected teachers to tell me that a benefit of the EDC program was that it enabled students to “preview” and “review” mathematical concepts. This is an idea that is emphasized in the training sessions. I wasn’t sure what other aspects of the program they would find valuable.

I thought that teachers might be overwhelmed by the amount of resources in the program. I thought they might also talk about the logistics of finding enough bulletin board space in their classroom.

I wasn’t sure how teachers planned for EDC instruction. I thought that teachers might not plan at all because EDC was a small, routine part of their day, but I wasn’t sure if they would actually admit to this if it were true. I thought they might mention spending time creating materials.

I thought the teachers might mention support from the SUM teachers in their schools. SUM teachers may have modeled lessons or helped teachers’ set up the EDC bulletin board. I hoped they would talk about planning with their grade level team.
I expected teachers to tell me that the initial training was good because they learned all the elements in the program and they had time to put the materials together. I wasn’t sure what teachers would say about support training, which involved consultants modeling lessons in classrooms. I thought it might depend on which consultant had done the modeling.

Research Methods

Setting

I chose the research setting for my study by convenience. Since the Title I schools that I work with are using the program, it made sense to interview and observe teachers in those schools. I didn’t predict any negative affects from doing so. I chose to interview the teachers in their own classrooms. This allowed us to refer to the EDC bulletin board during our discussions.

Participants

I decided to interview and observe three teachers who were using the EDC program. I wanted to interview teachers who were excited about the program and whose EDC implementation was considered to be exemplary by the Title I SUM teacher(s) in their schools.

In order to find these three teachers, I explained my project to two Title I SUM teachers at schools in which I knew there was a good EDC implementation. I asked the SUM teachers to identify some classroom teachers who were excited about EDC and might want to participate in my study. One of the SUM teachers came through for me. She chose three teachers that were excited by the program and seemed to be using it in powerful ways. Two of those teachers had attended a two-day initial training session, so I chose to work with them.

I found a third teacher for my study by happenstance at a Title I workshop. I was talking to a SUM teacher about my project and the EDC program. A classroom teacher who was at the workshop overheard the conversation and said she loved the EDC program. I invited her to
participate in my study. She was someone I had face-to-face contact with at the start. That was important to my comfort level. I felt strange about visiting the two classrooms teachers whom I didn’t know. Here was someone I had met face-to-face. She was excited about the program, and her SUM teacher seemed to think she had a good implementation.

The three teachers I chose for my study were from two different Title I schools in Fairfax County. The teachers taught three different grade levels: kindergarten, third grade and fifth grade. They had been using the EDC program for different amounts of time. I will use pseudonyms to refer to the teachers in this report.

Ms. Abbott was the teacher I met at the Title I workshop. She taught fifth grade at a Title I school in the western part of Fairfax County. She had never been to an EDC initial training session but had participated in two support training sessions at her school. She had learned how to use the EDC program from the SUM teacher at her school. This was her second year with the program.

Ms. Butler and Ms. Coleman worked at the same school. The school was in the southern part of Fairfax County. Both teachers had participated in a two-day initial training workshop. Ms. Butler taught kindergarten. It was her first year using the program. She had participated in one support training session at her school.

Ms. Coleman was a third grade teacher. Of the three teachers, she had used EDC the longest. She started using pieces of the program before receiving an EDC kit or participating in an initial training session. She saw a colleague using the program and wanted to try it out. She borrowed the teacher’s guide and created elements that were easy to make without a kit. She spent about half a year using EDC in that way. The following summer, she attended a two-day initial training workshop and received her own EDC kit. This study occurred during her second
full year using the program. She had also participated in three support training sessions at her school.

Research Relationships

Having met Ms. Abbott ahead of time and talking with her about my study before the day of the interview helped me to be more comfortable. She knew me as a staff developer. She participated in the workshop that I presented on the day I met her, and she had seen me at her school facilitating EDC support training sessions. (The interview illuminated that fact that she didn’t really know that I was the one who put those things together. She thought her school administration had done it. I didn’t correct her.)

I exchanged emails with Ms. Butler and Ms. Coleman with an introduction from a SUM teacher at their school. Their names sounded familiar to me, but I couldn’t envision their faces. Ms. Coleman was married to a former SUM teacher, and I knew her name, but not her face. She may have attended one of my workshops with her husband last year. As it turned out, I recognized Ms. Butler when I arrived for the interview. We remembered each other from kindergarten workshops that I had done at her school.

My rapport with the teachers was good. They were all friendly and willing to help. After the interview and observation were over, I gave each teacher five decks of Partner Games cards (ten frame cards at grades K and 3, and decimal cards at grade 5) and instructions for playing 3-4 games with the cards at their grade level. I think this gift was unexpected and appreciated. I also indicated that I’d be willing to come back and participate in their EDC instruction, but I left it up to them to contact me if this was something in which they were interested.

Data Collection
Creating the interview guide. I generated an interview guide by brainstorming a list of questions. I took that list to my consultation group and asked for their feedback. I received varied input. The consensus was that I should group the questions by content, and then order them in a logical sequence. My opening question should draw the interviewee into the interview. One suggestion for an opening question that I liked was, “What do you like about Every Day Counts?”

In order to group the questions, I cut my list apart and sorted the questions into piles. I named those categories and then ordered the categories in the order I thought the conversation might flow. Since the opening question was so general, I thought that I would be able to jump to a category that the teacher generated in her answer. For example, if the teacher said she liked the program because the students learned so much, I would jump to the “student learning” category. This turned out to be a very effective strategy.

Some of my categories only had one question, so I generated more questions in that category by thinking about what the teachers’ responses might be to the initial question. This enabled me to create questions that would dig a little deeper into the topic. One such question was, “How do you plan for EDC instruction?” I created follow up questions that included: 1) “How do you use the teachers’ guide?” 2) “Do you plan with your teammates?” and 3) “How much time do you spend planning?”

I used positive presupposition when phrasing many of the questions. Rather than ask, “Do you plan for EDC instruction?” I asked, “How do you plan for EDC instruction?” This is a positive presupposition because I assume a positive thing – that the teacher is planning. If, in fact, the teacher is not planning at all, she would answer, “I don’t” in response to the question. Therefore, I was not worried that the question would lead to misinformation. I believe that
positive presupposition leads to open-ended questions and builds rapport between the teacher and myself.

The final version of my interview guide is in Appendix A. It was a useful tool, and I did not need to make revisions to it during the course of the interviews. I referred to the interview guide during the interviews, but I did not read the questions verbatim. I knew the topics I was interested in and found it easy to have conversations with the teachers around these topics. Another thing that I found very useful when conducting interviews was my training in Cognitive Coaching. This training helped me to be comfortable asking questions without leading the teachers. My ease in paraphrasing the teachers’ thinking and probing for clarity can also be attributed to my Cognitive Coaching training.

*The schedule.* I set up the interview and observation schedule according to the teachers’ wishes and my work schedule. It was easier for me to do both the interview and the observation on the same day since it only required one school visit. I was able to arrange this on two occasions. The teachers’ schedules impacted the timing of the interviews because I needed an hour of uninterrupted time, and most teachers don’t have that amount of free time during the school day. Table 1 outlines the interview/observation schedule.
Table 1. Interview/Observation Schedule.

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Grade</th>
<th>School</th>
<th>Method</th>
<th>Day</th>
<th>Date</th>
<th>Time</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Abbott</td>
<td>5</td>
<td>A</td>
<td>Interview</td>
<td>Monday</td>
<td>3/6/06</td>
<td>1:35 PM</td>
<td>57 min</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Observation</td>
<td>Monday</td>
<td>3/13/06</td>
<td>9:30 AM</td>
<td>25 min</td>
</tr>
<tr>
<td>Ms. Butler</td>
<td>K</td>
<td>B</td>
<td>Interview</td>
<td>Monday</td>
<td>3/20/06</td>
<td>7:30 AM</td>
<td>41 min</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Observation</td>
<td>Monday</td>
<td>3/20/06</td>
<td>9:36 AM</td>
<td>18 min</td>
</tr>
<tr>
<td>Ms. Coleman</td>
<td>3</td>
<td>B</td>
<td>Observation</td>
<td>Friday</td>
<td>3/24/06</td>
<td>10:38 AM</td>
<td>21 min</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Interview</td>
<td>Friday</td>
<td>3/24/06</td>
<td>11:07 AM</td>
<td>36 min</td>
</tr>
</tbody>
</table>

As Table I shows, the interviews/observations were scheduled approximately a week apart. This gave me time to reflect on the interviews, but it did not give me time to transcribe the interviews and do some data analysis on one interview/observation before conducting the next. I would like to include this kind of time in future studies.

The interviews. At the beginning of the interviews I reviewed the teachers’ rights as research participants. I made sure that they understood that they could drop out of the study at any time and that the information they gave me would be kept confidential. Since this was not a formal study and since observing EDC lessons and talking to teachers was something that I do in the normal course of my job, I did not get formal permissions from the district, the principals, the teachers, the students, or the parents.

During the interviews, I was careful not to impose my values or philosophy on the teachers. I didn’t want to hide my beliefs, but the interview was really about me listening to their beliefs, not sharing mine. My goal was to listen and to understand what the teachers were saying. This strategy was successful. I conducted three interviews. The teachers seemed to be open and
honest about their beliefs and perceptions of the EDC program. Each interview was audiotape and transcribed.

The observations. I obtained student assent before each observation. The teachers introduced me to the class, and I told them I was there to observe their calendar lesson because I wanted to see how they were learning from the calendar. I got group verbal assent from each class.

I was worried that I would be disappointed in the observations if I didn’t see teachers teaching the program in the same way I would. I was concerned that I would be looking for higher-level questioning and student discourse and that I would judge the teachers if I didn’t see those things. This didn’t turn out to be a problem. I was able to keep an open mind. The teachers didn’t teach in the same way that I would, of course, but I was able to observe their instruction without judging too much. I tried to watch, just to see what was happening. That helped me to focus on what I was observing and not project to what I wish were happening.

I conducted three observations. In all the observations the children were gathered on the carpet in front of the EDC bulletin board. In the first and second observations I sat behind the students so that I could observe what the teacher was doing (i.e., how she was using the EDC bulletin board). I decided that I was missing a lot of the student interaction because of my location. So, for the third observation, I sat in front of the children. I had to turn my head to see the teacher and the bulletin board, but I was able to view the children. This gave me a different perspective on the lesson.

All of the observations were audio taped. I also took notes in my fieldnotes book. The notes included a detailed map of each classroom. During the first observation I drew a picture of the EDC bulletin board in my fieldnote book. For the second and third observations, I took some
pictures of the bulletin boards. The transcripts, maps, notes, and pictures were all useful during data analysis.

*Data Analysis*

The first thing I did, after transcribing my data, was to create organizational codes based on my research questions and what jumped out at me as I was transcribing. These codes were teacher knowledge, student need, aspects of Every Day Counts (EDC), support, and planning. I read all three interviews and bracketed the parts that fit the codes. Some of the text fit more than one code. After bracketing the texts, I copied and pasted the parts into five separate documents. I titled each document with the appropriate organizational code.

Then I began reading the five documents looking for themes and categories. I created codes for each document as themes and categories emerged. (See Appendix B for lists of the codes and subcodes.) I then highlighted the parts of the documents that went with the new codes, usually one code at a time, rereading each document many times over. After finishing highlighting for a code, I reread what I had highlighted and wrote notes about that theme or topic in my fieldnotes book. As I was doing this analysis, many ideas popped into my head. When I had an overarching idea that I wasn’t sure of, I recorded the idea as a conjecture in my fieldnotes book. (See Appendix C for a list of conjectures.)

I continued to read and reread the interview transcripts looking for evidence to substantiate my conjectures. I also looked for connections among the categories. I wrote my thoughts and ideas in my fieldnotes book, and I occasionally read the notebook to revisit old ideas. I drew some diagrams in the notebook to help me think about the connections among the categories. Some of my conjectures became the themes of my study. I put away other conjectures because I did not have much evidence to support them.
As substantive categories emerged from the codes and conjectures, I reviewed the transcripts again to see if the three teachers had similar views on the topics. I created a matrix (see Appendix D) to help me in my analysis. The matrix listed line numbers from each of the transcripts that supported the substantive codes. It helped me to see if all three teachers had addressed the topic or just one or two. It also helped me to find quotes to use in my report.

I learned that it was helpful to number the lines in the transcripts and to keep these line numbers consistent as I worked with the data. Each time I reformatted the text, the line numbers changed. I think it would be helpful to format the text once and then use that formatting in the total analysis. The line numbers would be consistent throughout the analysis and could be used as a way to find data quickly. When the line numbers changed from one formatting of the transcript to another, it was hard to find the piece of data that I was looking for.

As I continued to read and review the interview transcripts and my notes, I categorized and recategorized the topics in the matrix. It was also helpful to reorganize my research questions and then organize the matrix in the same order. Finally, I returned to the interview transcripts to look for connections that the teachers made.

The observations were not as helpful in my analysis as the interviews. I highlighted all the questions that the teachers asked because I was interested in how they used questioning in their instruction. I also read the observations looking for evidence to support the conjectures and substantive codes.

Even when I wasn’t reading and rereading the transcripts, I was mulling over the results of my research in my head. I played with the graphics in my fieldnotes book to see if I could connect the topics in some way. Everything seemed to be interconnected, and I struggled to
make sense of it. A conversation that I had with a colleague helped me to see the connections that I decided to write about in the results portion of this paper.

Results

*What Aspects of EDC Do Teachers Value?*

*Review and preview of mathematics content.* All three teachers mentioned repetition and review when I asked the first interview question, “What do you like about *Every Day Counts*?” The idea resurfaced many times throughout the interviews. It was clearly an aspect of the EDC program which the teachers valued. Ms. Abbott said:

Traditionally you teach [a] concept for a week or however long and then you move on to the next. In Every Day Calendar math you always revisit the concepts that you’ve taught so the students really get a chance to practice and really understand many of the different things that you’re teaching them. And apply it each and every day. Rather than it just being taught once and moving on. And I really like that. If a child doesn’t get it once, they’re going to hear it again. And they hear it in different ways, and they see it applied each day. And that helps reinforce it for students. Sometimes they don’t get it right away. They need to see it over and over again. Revisit it.

Ms. Butler said, “I like…how you repeat a lot of the same concepts from day to day. And it’s got that repetition of concepts but with different things, with different numbers, with different activities. It helps to solidify their learning.” Ms. Coleman said:

I like that it’s a continuous review for the students because…they really need that. Coming back to the same concepts over and over and over again. So, any student obviously benefits from that, but especially for our ESOL students and the special
Two of the teachers also talked about the benefit of previewing concepts using EDC. Ms.
Coleman said, “[The students] were already introduced to some of the stuff [mathematics
curriculum] before we teach it in math class, which is another benefit [of the EDC program].”
She had chosen to use calendar pieces that focused on fraction concepts during the month of
March as a preview to an upcoming unit on fractions. Ms. Abbott said, “[The students] might
learn something in calendar math before they learn it in [their] regular math class.”

I was not surprised that these three teachers valued the preview and review aspects of
EDC. It is something that we emphasize in the training sessions. It is also one reason why I like
the program.

**Aligned with the standards.** Two teachers said that a benefit of the EDC program was that
it was aligned to the curriculum and standards that they were supposed to teach. Ms. Abbott said,
“It’s totally in line with everything that’s required of them for the Standards of Learning.” Ms.
Coleman said, “Another benefit of the program [is] that everything is in there. Things that
they’re supposed to know by the end of third grade.”

**Teacher choice and flexibility.** All three teachers also said they liked that that there was
teacher choice and flexibility built into the EDC program. Ms. Butler said, “I like that the [EDC]
curriculum has lots of choices of different things that you can do, and you can pick and choose
what works best for your kids.” The teachers spoke about moving components around to meet
the needs of their students.

We just did the calendar and the clip collection and the counting tape all the way
up through December. I started the depositor, and then I dropped it, and then we went
back to it….The ‘add-one’ domino was supposed to be in November, and we’re just getting to it now. And they’re having trouble with it….I can use stuff from November and December that is a little easier.

For this month, I switched my pattern pieces because I knew we would be teaching fractions coming up at the end of March and beginning of April. So March is supposed to be a different pattern and fractions were supposed to be in February, but I switched them so they would have some kind of knowledge of fractions before we’d go into it.

The Challenges of Using EDC

The teachers I interviewed did not emphasize the challenges of using EDC. Remember that these teachers were chosen because they liked the program, so I wouldn’t expect them to have many difficulties implementing EDC. Ms. Butler and Ms. Coleman talked about how they managed the 15 minute time frame. Ms. Coleman indicated that sticking to the time frame was a common concern among the teachers in her school. She said, “I think probably every time [a consultant] comes to [our school], what everyone always asks her [is], ‘How can I fit it all into that 15 minute period of time?’”

I was not surprised by that the teachers mentioned this challenge. It is something that I try to address in the support training sessions. In addition, I noticed that all of the EDC lessons that I observed were longer than 15 minutes. They ranged in duration from 18 to 25 minutes. So it seems that this is a challenging aspect of the EDC program.

Another challenging aspect of the program was mentioned by Ms. Coleman. She said, “The only thing that I see as a drawback of the calendar program is the space. Where do you put it?” She had managed this challenge by creating a tri-fold, moveable bulletin board. She slid it
out of the way when the students are not using it. She also had trouble finding room for the counting tape, saying, “I had to double it up instead of having it go all the way around the room because, well, part of it was fire regulations.” She also had difficulties reaching the counting tape during instruction. She had to stand on a chair.

I was not surprised by this challenge either. Many teachers had mentioned the problem of space in my work with EDC. The counting tape seemed to be a particularly troublesome element. What did surprise me is that only one teacher in my study mentioned the space issue. I wonder if it just didn’t come up in my conversations with the other two teachers, or if they feel the benefits of the program outweigh the space issue.

**Evidence of Student Learning**

All three of the teachers told me about students learning from the EDC program. They spoke about individual student gains, as well as the gains of their class as a whole. They believed that the students were learning mathematics concepts and vocabulary. Ms. Abbott said, “You really see their vocabulary start to develop.” She also said the EDC program is “expanding [the students’] thinking beyond the minimum requirements.” Ms. Butler noticed an increase in the students’ number sense. Ms. Coleman said, “I think [EDC] really helped when it came time for…testing…. [The students] did wonderfully last year on their SOL test….Math was their strongest area. And I contribute it, in part, to the calendar.”

**Planning for EDC**

*General planning.* The three teachers in my study planned EDC instruction in different ways and at different times. All three indicated that sometimes they planned EDC instruction and sometimes they didn’t. This doesn’t seem unusual and is about what I’d expect. When asked how she planned for EDC instruction, Ms. Abbott said, “I don’t really because it’s such a daily thing.
The basic elements you just know how to do.” She did talk about planning for EDC in other parts of the interview, however. The teachers told me they referred to the EDC Teacher’s Guide at the beginning of the month to see what calendar to put up next. They also referred to the Teacher’s Guide if they had questions about how to use certain elements.

*Planning based on student needs.* All three of the teachers in my study planned instruction around the needs of their students. I was surprised by this, but I was also amazed at my surprise. Obviously, teachers should plan their instruction around the needs of their students. I don’t know why I didn’t think of it before. There was strong evidence that the teachers thought deeply about the academic needs of their students and then planned instruction to meet those needs.

Ms. Abbott said that she deliberately didn’t teach concepts that her students already knew. She had learned an activity to teach mean, median, and mode during EDC instruction. She really liked the activity and wanted to do it with her students, but said she didn’t use the activity because her students already understood the concepts of mean, median, and mode. She said, “I need to teach them other things that they don’t know right now.”

All the teachers talked about planning EDC instruction around concepts with which the students were struggling. Ms. Abbott said, “If I see something that the kids are really having trouble with, I’ll write it down on a sticky note on my desk, and say, ‘Okay, I need to do some more exploration with the students on this.’” Ms. Coleman said, “I usually choose something that I’ve seen that they’re still having problems with….So it really depends on the needs of the students. I’ll just bring things into it that I’ve seen that they might still have trouble with.”

Ms. Butler thought deeply about her kindergarteners’ struggle with the concept of *one more* and planned EDC instruction based upon that struggle:
Ms. Butler: [The students] had a very hard time with that, “Can you find the domino that shows five and one?” And inevitably they would point to the number five domino. And I’d say, “Does that show five blue dots and one red dot?” And then they’d get confused, ‘cause it clearly showed five. So we worked on that for a while, getting that concept down before we started playing the matching game.

Researcher: What do you think was stumping them?

Ms. Butler: The fact that it was five and one. All they heard was the five. They weren’t hearing the and one. I think….When we do the clip collection … if we had 121 [clips] and we’re going to add one more [clip], they would be able to tell me we had 122. They’ve got that sequence down and it’s from adding to the counting tape and adding to the clip collection. They know the number that comes next, but I don’t think they understand that it’s one more. And I think that was sort of what was tripping them up….So that’s part of why I was trying to do the one more dominoes…to help them see that…changing the color of one [of the dots] didn’t change the number of dots….With the dominoes they have to begin to understand that we’re increasing the quantity by one.

I am very interested in the struggle Ms. Butler’s students are having with the concept of one more. I hope to work with Ms. Butler next year to explore ways to help students understand the concept.

Planning to alleviate boredom. Ms. Butler and Ms. Coleman talked about planning EDC instruction because they got bored with the program. Ms. Butler said:

If [EDC] starts to get dull…I can go right to the book….They’ve got the estimation activities and the measurement activities. [I can] add something else in there that would be a little bit more exciting….We can shift our focus to something interesting, and then
come back to the calendar in a few weeks….And then it makes [the calendar] more interesting.

Ms. Coleman said, “Sometimes I feel like it’s so mundane. I feel like I’m asking the same questions over and over….So I look in [the teacher’s guide] to give me ideas of…ways that you can ask questions.” Later in the interview, she spoke more on the topic, “Once you start doing [EDC] year after year after year, you know what’s coming up….So I just try to change it somewhat for myself, [to make it] more interesting.”

*Teaching EDC*

I found that the teachers I interviewed wanted mathematics to make sense to the students, and they used EDC to teach for conceptual understanding. Ms. Abbott talked about the concept of a square number and how building arrays during EDC instruction had helped her students understand the concept. She said that the EDC Factor Figures helped her students understand prime and composite numbers. Ms. Coleman said her students understood the idea of multiples because of their work with the EDC counting tape.

The teachers also talked about how EDC instruction connected to what they do in their regular mathematics instruction. Ms. Butler said she reminded her students of things they did during calendar math during their mathematics center time. She helped them make the connection, and sometimes they made the connection on their own. Ms. Coleman said that the questioning strategies she uses during her regular math block have changed because of EDC instruction. “I realize how I’ve changed the way that I ask [the students] questions or what I’m expecting them to do….I think it’s helped me be more open-ended with what I ask.”

All of the teachers said that they try to make sense of the students’ mathematical thinking during EDC instruction. Ms. Abbott said she was amazed at all the different strategies her
students had for solving problems. Ms. Butler struggled with her students’ ideas about the concept of one more. Ms. Coleman said that she could follow what her students were saying most of the time. Sometimes she had to ask them to repeat themselves so she could understand their thinking.

What Kinds of Support Do Teachers Find Useful?

The teachers in my study described how they had learned to teach the EDC program and the different forms of support they received to help them with implementation. All three teachers had different experiences, but similar topics emerged.

Support from school administrators. All of the teachers said their principals supported them in the use of EDC, but none of them described any interaction with their principal around the EDC program. The teachers equated support from their principal as the principal having an expectation that EDC would be used in all classrooms. The teachers found it supportive that all the teachers in the building were using the program.

Support from teammates. None of the teachers used their teammates as a support system. They didn’t talk about EDC with their teammates, and they didn’t plan together. They knew that their teammates were using the program and that knowledge seemed to be enough for them.

Support from SUM teachers. Only Ms. Abbott had used her SUM teacher as a support system. She had not attended an initial training workshop, so the SUM teacher at Ms. Abbott’s school taught her how to use EDC. The SUM teacher modeled lessons in Ms. Abbott’s class, and Ms. Abbott went to the SUM teacher whenever she had questions about the program. Ms. Butler and Ms. Coleman did not get any support from their SUM teachers. They did not feel slighted in any way, however. They said their SUM teachers were focused on other things.
Initial training workshops. Ms. Butler and Ms. Coleman had participated in a two-day initial training session and found it helpful. They both said that the overview of each element helped get them started, and they were happy that they had had time to put the materials together during the workshop. Ms. Butler said it was good that the instructor of the initial training workshop was another kindergarten teacher. “She knew the program that we were working with, and she knew our students.” Ms. Coleman said that organizing the teacher’s guide during the workshop was helpful to her. “I had things highlighted that I knew to say or to focus on.” She also thought tabbing the teacher’s guide by the month was an ingenious idea.

Support training sessions. All three teachers had participated in support training in which an EDC consultant modeled a lesson in a classroom and conducted a follow-up discussion with their grade-level team. The teachers found this helpful. Ms. Abbott said, “It really opened our eyes to different things you could do with the calendar math.” Ms. Coleman said the support training was good because she was ready for it. She had been working with EDC for a while and was ready to learn more about it. The teachers spoke of specific activities and strategies that they had learned from the consultants: the mean, median, and mode lesson; how to use the blank calendar; starting in the thousands place to add; pulling numbers off the counting tape; and how to use ten-frames. Ms. Coleman said that watching the consultant model a lesson was reassuring, “When I watch what she does, and I’m like, ‘Oh, that’s what I’m doing.’ As a teacher, you like that reassurance.” The teachers also said that they asked the consultant basic mathematics questions during the support training. These questions didn’t relate to the calendar, but helped the teachers with their mathematical knowledge and pedagogy.
Connecting the Results

As I thought about the results of this study, I tried to find connections among the categories and themes that had emerged and connections that the teachers had made themselves. I struggled with this idea for a long while. The theme, “planning for students’ needs,” emerged from the data, but I didn’t see it as a connecting theme until very late in my data analysis. At first, I just thought it was something that had surprised me. I thought that the reason it stayed in my head was because it had surprised me. Then when I was writing my paper, I noticed that the theme “planning for students’ needs” seemed to overlap some of the other categories. For example, the quotes I chose as evidence of “teacher choice and flexibility” were also about “planning for students’ needs.” Then when I was reviewing my paper with my partner from class, it hit me. “meeting students’ needs” was an overarching theme of the paper. Figure 1 shows how the theme meeting students’ needs connects across the results of this study.
Figure 1. Meeting Students’ Needs is a theme that connects to many of the research results.

As Figure 1 illustrates, Planning for EDC and Teaching EDC are part of a circular relationship. The teachers in my study based their planning on students’ needs. They saw teacher choice and flexibility as a benefit of the program because it allowed them to plan for students’ needs. They were able to move elements around and present mathematical content when the students were ready to learn it or as a review when students found the content difficult.

After planning EDC, the teachers taught EDC. They talked about teaching for conceptual understanding. They wanted mathematics to make sense to their students. I believe this is a form of meeting students’ needs. The teachers liked the preview and review aspects of EDC because
those aspects helped to meet students’ needs. The teachers said that EDC was aligned to the Standards of Learning. This was important to them because it allowed them to use EDC to teach those standards, therefore, meet students’ needs.

Based upon the results of this study, I believe that when teachers are teaching using the EDC program, they are teaching to meet the academic needs of students. I also believe that they identify student needs during the same instructional time. The teachers told me that they listened to students and tried to understand their mathematical thinking. Why? I think it was so they could identify students’ needs. The teachers also saw evidence of students’ learning during EDC instruction. This allowed them to see that they had met their goal of meeting students’ needs.

As Figure 1 shows, after Teaching EDC, the cycle flows back to Planning EDC. The teachers have listened during instruction to see what students’ learned and what they need to learn. Now the teachers use that information to start planning again.

Curriculum Standards are outside of Planning EDC and Teaching EDC in Figure 1. This is to illustrate that they are not part of the EDC planning/teaching cycle but are connected to it. Teachers identify students’ needs based upon the curriculum standards they are required to teach. The teachers in my study were pleased that EDC was aligned to the standards. The two-way arrows between Curriculum Standards and Planning/Teaching EDC represent that that there is give and take. Teachers plan and teach based upon the standards. They compare the students’ new knowledge to the standards in order to decide where to go next.

The teachers in my study talked about their regular mathematics instruction in relation to their EDC instruction. I have placed “regular math instruction” outside of Planning/Teaching EDC in Figure 1. This is to illustrate that it is not part of the EDC planning/teaching cycle but is connected to it. The two-way arrows indicate that teachers use knowledge gained during their
regular mathematics instruction when planning and teaching EDC. They also use knowledge gained during EDC to plan and teach their regular mathematics lessons.

Some of the results of my study are not represented in Figure 1. This is because they didn’t fit. The teachers said they planned EDC instruction to alleviate their own boredom. If they planned EDC instruction to alleviate students’ boredom, it would fit in my graphic, but I didn’t find evidence of this. The challenges of EDC also don’t fit in my graphic. Space and time limitations were logistical challenges to the program. I didn’t see a connection to “meeting students’ needs.”

The information about teacher support also didn’t fit into the graphic, but I do see a connection. Now that I know these teachers are concerned with meeting students’ needs, I will try to find a way to talk to teachers about how the EDC program can help them to identify and meet students’ academic needs. I think this can be done throughout all of the support systems that were identified in this paper.

Validity

In order to strengthen the descriptive validity of this study, I audio taped and transcribed the interviews and the observations. When I used quotes from the transcriptions, I tried to use the quotes in context so as not to misinterpret what the teachers were saying. I am concerned about my lack of observational power. I didn’t get much out of the observations I did. I think this may be because I’m not very observant. In the future I want to video tape my observations. I’m hesitant to rely on my powers of observation.

I did some peer checking to improve the interpretive validity of my findings. This was accomplished during the class consultations, in conversations with colleagues, and through written communication with Dr. Maxwell. I wanted to do some member checking, but time got
away from me. I plan to send a copy of this paper to each of the teachers in the study. I’m looking forward to their reactions and feedback. If I had done that during the writing process, it would have strengthened the validity of my findings.

Member checking would also have helped me deal with researcher bias. I tried to alleviate bias as a threat by keeping an open mind during the interviews and trying not to ask leading questions. While these acts may have helped eliminate researcher bias from the study, I don’t think it was totally eliminated. Nor would I want it to be. I believe that my knowledge and experiences brought much to the study. They allowed me to understand what the teachers were saying, interpret their statements, and make connections.

The graphic that I created explains my theories about the connections among the findings. While there is evidence to support the connections I made, I would like to test these theories in other ways. I could ask the teachers from the study and other teachers of EDC to tell me their thoughts on my theories. I could also look for research literature to support my theories.

I only interviewed three teachers, and they all liked EDC. Other teachers may have different perspectives. I could strengthen the validity of my study by interviewing more teachers. I would expect to get different findings if I interviewed a group of teachers who disliked the EDC program. While I speculate that the results of this study are probably valid for other EDC teachers, I cannot be sure. I cannot claim that my findings generalize to other EDC teachers, I can only claim that I believe they are true for the teachers in this study.

Reflections

I am very pleased with the results of this study, but I don’t think I’m done yet. I feel like this could be a bigger study. I had glimpses of things that I didn’t include in the results because I didn’t have enough evidence to support them. One of those ideas was that EDC challenges
teachers to test their own knowledge of mathematics. One of the teachers in the study seemed to be learning mathematics content through the acts of planning and teaching EDC. Another seemed to have learned pedagogy from her participation in the program. I also believe that teachers’ mathematical knowledge affects their EDC instruction. I played with these ideas during data analysis, but then dropped them. I knew that I had a bias. I already believed these things were true. I saw some evidence in the interviews and observations, but it wasn’t strong evidence. I would like to explore these ideas further, but at this time I don’t have clear evidence or thoughts on the topic. The data I collected in this study led me down a different path.

I was afraid of qualitative research before I took this class. Now I know that I am capable of doing qualitative research. I won’t be afraid of it in the future. I found that this type of research took a lot of time. I mulled things over in my head quite a bit. The writing process was also a time of reflection. I wish I had had more time to spend during the writing phase. I will try to remember that when writing my dissertation. The writing phase was a learning and thinking phase. It took more time than I thought it would. I also learned that it was helpful to write all through the study. The memos I wrote helped me to write the final paper. I also wrote as I was analyzing data. I found that if I wait to write down the thoughts I have during analysis, I forget them.

This project was very exciting. I’m not ready to let it go. I have plans for continuing the project next year by working with the kindergarten teacher from the study. We want to think about that idea of “one more.” I hope to explore it further with her and her students in the fall. I know I will continue thinking about the EDC program: how teachers perceive it and use it and how students learn from it. I think finishing this paper was the beginning of something, not the end.
References


Appendix A

Interview Guide (revised 3/6/06)

Teacher ________________________
School: ________________________
Grade Level: ____________________

Introduction
1. What do you like about *Every Day Counts*?

Training & Support
2. What kind of training have you had in the use of the program?
3. How did the EDC training help you?
4. How would you change the training if you could?
5. How has your administration supported you in the use of EDC?
6. How has your SUM teacher supported you in the use of EDC?
7. Do you talk with your teammates about EDC? What are those conversations like?

Implementation
8. When did you start using EDC?
9. Describe a typical EDC lesson in your classroom.
10. Which elements of EDC are you using?
11. What problems have you had with implementation?
12. What makes EDC easy (hard) to teach?

Planning
13. How do you plan for EDC instruction?
   (teachers’ guide, with teammates, how much time, gathering/creating materials)

Student Learning
14. What do you think students are learning from the program?
15. How does the program facilitate student learning?
16. What do you think is the most important part of the EDC program? (Why?)

Teacher Learning
17. What have you learned by using this program?
   (math content, pedagogy, student thinking)
18. Has your regular math instruction changed because of your work with EDC?

Conclusion
19. What advice would you give a teacher who is using EDC for the first time?
## Appendix B

### Codes and Subcodes

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<th>Teacher Knowledge</th>
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<td>• Teacher was taught differently than they teach now</td>
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<tr>
<td>• SUM Teacher</td>
<td>• Teaching techniques learned from EDC</td>
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<tr>
<td>• Team</td>
<td>• Where to go if don’t know</td>
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<tr>
<td>• Initial Training</td>
<td>• Confidence in ability to teach EDC</td>
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<tr>
<td>• Support Training</td>
<td>• Challenges</td>
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Appendix C
Conjectures

• The teachers believe that the fact that all the teachers in their school are using EDC is supportive, even though they don’t talk to the other teachers about the program. It’s supportive because the kids come to them with familiarity with the program that they can build on.

• Teacher choice is an important part of EDC; something the teachers value

• Something about a “learning curve” (my term, not theirs). The teachers start with the basics, then add more as they become comfortable with the program. They learn more every year that they’re using EDC. Expand slowly – support training helps.

• EDC challenges the teachers to test their own knowledge of math. They want to make sense of the math. They struggle to make sense of the math.

• EDC challenges the teachers to make sense of the students’ mathematical thinking. The teachers struggle to understand the students’ strategies and test them against their own mathematical understandings.

• Teachers want to know more math than the students do. They want to be one step ahead. They want to know the answer to the question before they ask it.

• Teachers change their EDC instruction when it gets boring for them. They look for new elements or new questions to ask.

• Teachers think deeply about what their students know and don’t know and then plan instruction based upon those student understandings and misconceptions.
Appendix D

Matrix

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