

## **“Public Private Partnerships that Support Scientifically-Based Research”**

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The “No Child Left Behind Act” includes much discussed provisions for scientifically based research intended to drive educational practitioners, researchers and publishers to direct federal funds to research-proven educational interventions. While there remains much uncertainty about the scale and scope of this requirement, one point is clear: education technology stakeholders must collaborate to engage in the research necessary to better identify and demonstrate technology’s effectiveness.

To support this public-private collaboration, SIIA convened a panel of representatives from each of the stakeholder communities to share their perspectives and experiences. The focus is a case study of a partnership between United Learning and Brunswick County Schools of Virginia employing experimental design model to evaluate a web-delivered instructional content product.

Following is an edited transcript of that one-hour session.

### **Panelists:**

- Moderator – Karen Billings, Education Division VP, SIIA (KB)
- Mark Schneiderman, Director of Education Policy, SIIA (MS)
- Jim McColl, Vice President, United Learning (JM)
- Frank Boster, President, Cometrika (FB)
- Cathy Cheely, Director of Technology, Brunswick County Schools, Virginia (CC)

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**KB:** Good afternoon and thank you for joining us today for a panel presentation, “Public Private Partnerships that Support Scientifically-Based Research.” I’m Karen Billings, VP of the Education Division for the Software & Information Industry Association. SIIA is the principal trade association of the software and electronic content industry, and our members include the leading providers of educational software tools and digital curricular materials.

The panel that we convened today is going to talk about their approach to scientifically based research. And we’re sort of turning this into a case study. We found a company that has done scientifically based research, and we convinced them to bring their researcher and their key school person to Dallas for the conference to share their experience from a partnering perspective.

One purpose of the panel today is to provide some background about scientifically-based research and those provisions in the No Child Left Behind Act. And that will primarily be Mark Schneiderman’s job. And to actually walk through this case study, we have the three key team members here to present a successful public-private partnership that can help serve as a model of a win-win

collaboration, as well as help dispel apprehensions. The session will demonstrate that such a partnership is in the best interest of all when they're working together as a team -- educators, publishers, and researchers, and of course, the policy makers -- as these did, to make it happen. And it happened with the input and best interest of everyone.

I'd like to introduce the panel first, and then I'm going to ask some questions. We decided rather than have four different presentations, we're going to approach this as a case study with a series of questions for the entire panel. We will also tape, transcribe and make available this Q&A. And we'll let you know how you can get your hands on this.

So the first person that I'd like to introduce on the far right, your far left, is Mark Schneiderman, who is our director of Education Policy at SIIA. Jim McColl is here on your far right. He is vice president at United Learning. Next is Frank Boster, who's president of Cometrika, and is a researcher. Finally, we have Cathy Cheely, who is director of technology for Brunswick County schools in Virginia and an educator.

So we're going to start with a series of questions. And in some cases we'll be asking certain people to respond to them, and in some cases they each get a crack at it. So as we're going through our questions, and I believe we have about eight, begin thinking of your own questions as well.

So the first question is: What are the policy provisions for scientifically based research that are driving attention to research, and we'll start off with Mark Schneiderman, who has been spending much of his time over the last year or more on these issues.

**MS:** Thanks Karen. I think it's important to look at this issue beyond the specific scientifically based research provisions of the No Child Left Behind Act. But since that's what's driving most of the attention now toward issues of research and effectiveness, we'll start with a little bit of that context.

The No Child Left Behind Act includes about 110 references to the term scientifically based research. My understanding is that Congress intended to address their belief that too much educational practice is based on tradition and fad, and not enough is based on evidence. And that's again coming from a policy makers' perspective.

In contrast, scientifically based research provisions are intended to drive educators toward examining and adapting more research proven methods. And so the legislation then defines scientifically based research, and it's a long definition, by identifying some generally accepted principles about what constitutes high quality research. You can think of scientifically based research as essentially meaning high quality research.

The provision appears throughout the law in several different programs. In some places it suggests that educators' decisions -- whether that be what program, what practice, what policy to set and in some cases what product to purchase -- that all those decisions be based on a review of scientifically based research. There are also times where the law requires that decisions must put in place that which is proven effective by scientifically based research. In other words, that there is high quality research that demonstrates engaging in this practice or this policy is proven as effective.

Ultimately, a lot of the interpretation and enforcement of this provision in the law is left up to states and to districts. In addition, I think there's fairly broad consensus at the federal level from the U.S. Department of Education level that there isn't a large amount of scientifically based research out

there in many different areas. So they are in some ways asking educators to make decisions based on scientifically based research, and at the same time saying there isn't a lot of it out there.

So one of the things that I think is important to think through is how can we adhere to the spirit of the law and think long-term about how to more effectively accomplish the goals of conducting high quality research. And here's a case study to examine that. So I think I will leave it at that as background.

**KB:** Does anyone else have anything to comment on this particular element of the discussion? Are there are other factors then driving the attention to and need for research?

**JM:** Yes, I'll build off of what Mark was saying. United Learning -- and I personally, do agree with what you were saying as far as No Child Left Behind accelerating this process as that's what's happened, -- but I think we were going in this direction of greater accountability and use of evidence-based programs and strategies anyway.

I would be pretty surprised if anybody in this room would stand up and say there's way too much money in education right now and that we have to cut back on the funding for education. Obviously, no one here thinks that is the case. And I think due to funding issues, time issues, there really isn't enough of either of these in education to be spent on things that don't work or what Mark was alluding to, things based on tradition or latest fad. I know certainly at our company we were moving in this direction long before No Child Left Behind. And No Child Left Behind, I think, has just kind of brought it to the fore and has accelerated the process.

As in other industries, this probably will and should become the norm as far as product development. And we're definitely moving in that direction -- and I don't think that's a bad thing. In fact, I think it's a really good thing, and as we'll discuss more as we go on here, I think it provides a really good opportunity for both companies that provide a product and also for educators. I think it's a really good opportunity for us all. And not to leave you out, Frank, the research community as well. We have to all work together.

**KB:** Since we're just going down the table, for a moment, Cathy, do you have any factors that you think are relevant to these arguments?

**CC:** In Virginia, as in many states, we're standards based, and we have a great deal of pressure on us to meet those standards. That's what our teachers have to focus on. The classroom teacher cares about good content and meeting the standards and what's going to work in their classroom. I have come to see the research based requirements of No Child Left Behind as something that will help me and our school division in achieving our goals. The reason I say that is because my teachers want content that works. A lot of time when I'm going out and taking a look at what's out there in the marketplace, I don't have anything except someone's word or a sales pitch about the quality of a product. I'm looking for companies that have products that have some research behind them. I am interested in products that have been proven to help students learn.

Another thing that I personally am concerned with, and I'm sure many of the people here are also, is that we have spent hundreds of thousands of dollars on technology infrastructure. The taxpayers are saying to us, "Okay, show me what this has done. How have you improved learning?" As technology director, I'm on the hot seat. I have to turn around to my boss, to the school board, to the county board of supervisors, to the taxpayers, and ultimately, to our general assembly and to the

legislators and I have to tell them why they should continue to give me and our school division additional money for technology. I believe the research-based provisions of No Child Left Behind will help me with this.

There's not enough good research out there that tells us if all this money we're putting into technology really works. There are a lot of people who say anecdotally "I can see a difference", but there's not enough scientifically based research that I can furnish to the people I just mentioned to prove their technology funding has been well spent for student learning. So I see the implementation of research in technology education as a move in the right direction.

**KB:** Thank you, Cathy. Frank, do you have something to add?

**FB:** No, that's fine.

**KB:** Okay.

**MS:** Just to echo on a couple of points. I think the return on investments for technology is one key factor. And I think that the accountability that's been included through the No Child Left Behind Act is again driving educators to ask more questions, to be more selective about what educational interventions they're going to select. And so regardless of the scientifically based research provisions, educators probably need to be prudent, as always, but even more so in their decision making, in knowing that something is going to be effective.

One other point I do want to make is that while we're here to talk about technology, technology is not singled out in any way by the law. In fact, there is really only one or two references in the whole law where scientifically based research is connected directly to products. Rather, the law suggests that every decision you make in the classroom – how big your class size is, what instructional practice you use, what curriculum you use – all of that is supposed to be backed by research.

**KB:** Thank you. The next question is getting down to some of the nitty-gritty of scientifically based research. Now that we know that most of the people see the need for it, who should actually conduct the research? And I ask for perspectives from each of the three team members, starting with the company perspective from Jim and then the educator perspective from Cathy. So let's start with Jim.

**JM:** I think that it's an interesting question, and the bottom line is that the onus for this is on all of us. As a company, we can't do this without either existent research on staff or an independent research organization. And we can't do it without the cooperation of the schools.

So first and foremost, it's on the company. It's on us to provide some evidence or some reasonable assurance that the product, the strategy, the application, whatever it is that we'd like to have researched in the school, is going to do some good. There must be solid research behind why this product or application will benefit schools – there must be a foundation behind it.

I think that educators have every right to refuse to have a product or application tested in their school or schools. But if I am able to come in as a company and say, "Here's the basis of the program – Here is what is behind this program or the strategy or the application. Here is why we think it'll work; here's why it's going to add value to you, and here's how we're going to provide value to you through this evaluation." I think at that point if we can have that kind of a conversation, then the onus shifts to the educators to say that makes a lot of sense, we will open up our doors to you, and we will allow this

kind of evaluation to take place. But really, we all have to work together. No one entity can do this on its own.

**CC:** Well, our poor little county doesn't have the money to do a lot of research and it does take a certain amount of money. And we simply don't have the personnel. We are all wearing far too many hats already.

What we can do is partner and work with some of the companies that we have respect for in order to conduct some of this research under carefully defined parameters. But I think that it's up to school divisions to actively seek and participate in research studies that meet their needs and meet their goals within their school division.

**FB:** As a scholar, I am a little uncomfortable with "shoulds," because that is not my *métier*. But, "Who could?" is a question to which I can respond. Schools could conceivably do some of this work. The federal or state governments could, if not do it, encourage it through the use of grant programs. University professors on their own initiative for the purpose of getting tenure and salary increases could do this kind of research. Distributors could do this kind of research. Probably consultants could do this kind of research. A lot of people could.

There are a number of factors that affect how well any one of those entities can do it. For example, obtaining school cooperation is very difficult. Sufficiency of funds is an important limitation. This point is one that we shall get to in a minute. It is formidable. The ability to do the job is a substantial obstacle. And there are other factors as well.

None of the five entities I mentioned that could possibly conduct research are in a position to deal with all those factors effectively. Each of them has limitations. For it to be done cooperative effort is beneficial. And this project is one example of a cooperative effort. We could benefit from more cooperation, for example, federal funding would help. State funding would help substantially.

As for who conducts the research, consider those who benefit from it. That list would include all of the sources mentioned previously.

**MS:** Yes, just quickly. I think the onus in the law is on educators to review the research and base their decisions on research but not necessarily to conduct the research. But of course, unless there are educators in districts and in schools who are willing to participate for both their own self-interest as well as the interest of the common good of advancing the knowledge base, then the research cannot get done, whether it's product-specific research or broader types of research.

**KB:** Okay. Several of you have brought up the cost, so let's ask the questions related to that. What about the funding? What are the costs? I know it's hard to address, and it varies. So we'd like to bracket this just a little bit more for you, from zero to a million. But to talk about resources and how to figure costs. Who would like to start?

**JM:** I'll start - It's a commitment on the part of the company that undertakes this. We did commit to do this, committed to doing this in 2000 when the product was just in development. And in order to do that, and in order to undertake this kind of a project, it did mean a shift or reallocation of resources for us to the product development process.

It was something that we saw as very important. We were putting out a product that was going into

classrooms that a lot of people were going to be using and were trusting us that it would make a difference in the classroom. We really wanted to know, would it make that difference, and if not, the other benefit to research is if it didn't make a difference, well, let's find out why not. And let's find out from the teachers from asking the right questions, why didn't it make a difference? And then go back and make those changes.

But the cost is substantial, and I think that can vary, depending on the scope of the project and the product itself. But there are also hidden costs as well, as far as staff time, as far as benefits for the schools, as far as giving product away, and all that needs to be taken into consideration. But all that being said, I think it's the exact right thing for the companies to do in cooperation with school districts right now.

**FB:** From the standpoint of United Learning this project probably cost between \$150,000 and \$200,000. That does not count the cost to schools, and to be certain there are some costs to the school. The low estimate is maybe a little bit under-funded.

I did not work for minimum wage on this project, but on the other hand, I did not get rich on this project either. The labor intensive nature of the work certainly adds to the costs in significant ways.

**CC:** In terms of the schools' costs, in this case, we didn't have to put out any cash. Thank goodness, because we didn't have any cash to put out. But we did have personnel on board who could help conduct the onsite portion and we could donate their time. In addition, we donated my time and that of my secretarial staff. I have several instructional technology specialists who work for me. It took quite a commitment of their time. So we have some, I guess what you'd call "in-time cost" that went into this.

Fortunately, we didn't have to buy any new technology and we didn't have to buy any additional infrastructure. We were already equipped for that. As I said, we've put a lot of money into infrastructure. So we didn't have to add or borrow anything additional in order to participate in this particular study, so most of our costs wound up as contributions of time.

In return, however, we worked out with United Learning that we were able to receive their product for free for a couple of years. So that was a benefit to us. I would caution anyone who's entering into anything like this to negotiate with the company to make sure that if this proves to be a success, and it's something you're going to want to add you will get to continue to use it in the future.

**KB:** Let's get into some of the specifics of this study. Please describe the research model. Why was it chosen, and what were the results?

**JM:** I'll start, and then turn it over to you, Frank, to get into more detail about the project and research models. But just to put it in context, what we were evaluating was a new product from United Learning, unitedstreaming. The unitedstreaming application is a resource of 1,500 plus standards-based, video programs chaptered into over 15,000 concept clips that can be easily inserted into lesson plans. The idea is that a teacher can more easily and more flexibly bring video content into the lesson plan for everyday teaching as opposed to watching a twenty-minute video at the end of a unit or start of a unit. As a teacher I can be hitting certain concepts with the use of video content for two and three minute bits throughout the day and throughout the lesson. We were pretty confident that if teachers were to use this in the classroom, it was going to help learning. The students were going to understand the concepts better, remember it better, and learn more.

Again, it's nice to say that we had feedback on the product from the people when we were beta testing it, and the initial anecdotal response was overwhelmingly positive. But that wasn't good enough. And we needed to know scientifically, does this increase learning in the classroom? Ultimately, what the research project showed was in fact, yes, it really does, and student achievement was dramatically affected.

I'm probably not the right person to talk about that, and that's where I'll turn it over to Frank and Cathy.

**FB:** First of all, there is a lot of background work that was done by United Learning. Finding the schools is an extremely important issue from the standpoint of an investigator. Because we do not have easy access to school, had we had to obtain it the project probably could not have been done. Second, matching the clips to the standards was extremely difficult. United Learning completed that task. Without them assuming this task the project could not have been accomplished. So, executing the study required the successful accomplishment of a number of tasks that were the investigators could not perform, but that were critical to the success of the project.

In January I was provided a list of participating schools. The unit of analysis was the school. And I assigned schools randomly to either an experimental or a controlled condition by taking the white and brown beads from my three-dimensional tic-tac-toe game, throwing them in a bag, and then drawing a bead for each school. White placed a school in the control group, and brown placed them in the experimental group.

After schools were assigned randomly, United Learning trained the teachers on the use of the technology. It was a one day training session, and was conducted very effectively. I was able to observe that training, and UL trainers are truly excellent at showing people how to employ this technology.

Subsequently we gave the students a pre-test. Then for the month of February the experimental teachers were required to show 30 video clips, 10 for each of three standards of learning (SOL). They could do more, but that was the minimum. Subsequently, at the end of that month, and in some cases at the beginning of the next month, a post-test was administered to ascertain if there had been gains in learning.

Three districts were employed, and those districts provided a large sample of students. We studied third-graders and eighth graders. We assessed for two topics: science and social studies. Thus, we conducted four experiments: third-grade science, third-grade social studies, eighth-grade science, eighth-grade social studies.

We observed gains that were both statistically significant. Specifically, there were substantial gains in three of the four experiments. The one exception was eighth grade science. That experiment is the one in which I had the least confidence, because we could not match up SOL until April. Therefore, the teachers were trained January, and did not use the technology until April. Consequently, I am not confident that the technology would be ineffective had we been able to match up SOL in a more timely fashion.

**CC:** There are a lot of things that we as educators have to consider before we get involved in a study. Fortunately, our experience with this particular study was just absolutely a win-win situation. As I've said earlier, our bottom line is that we've got to have increases on our test scores. That is so critical to us. . We've got to have good content so we can get that increase in our test scores.

When our teachers went into this, (and we consulted with our teachers before we did it,) it wasn't mandated from above. We knew we had to have their full cooperation. They had to buy into it, and they did buy into it. Once they actually got involved with it and got into the study, I've never seen such enthusiasm and excitement. There were a variety of reasons for that, but mainly in this case, it was because this study was very well executed and the teachers loved the product. The bottom line was it showed positive results in student learning. So we were both pleased with that.

**KB:** These three team members worked very closely together over, and I'm not sure the number of months, but it was a pretty intense time period. What I noticed was that, when they each walked in here into the room before the session, they all seemed very happy to see each other [break in tape]. I'm sort of curious now as to how this partnership model came together. What were the factors you considered when you decided to work together in this way, how did you find each other? How did it happen? Let's start with Jim.

**JM:** United Learning really drove this process. And we knew we didn't have the competencies to be conducting this research. We don't have anyone on staff. We don't have the skill set to be doing this. So we were looking to be doing this from the outside, and having someone independent of our company to help us with this. We talked to several people that we thought would be able to help us with this research.

It was very clear to us that Frank Boster was the person to conduct this evaluation. He had the best understanding of the product that we were trying to evaluate. He had the best understanding of education and the challenges that we were going to face. He had the best model, and he just had the best grasp of what it was that we were trying to do. We didn't know what the results were going to be but we knew – we were hoping we'd get some good results – but we knew that we'd get a really good viable study. And so that's why we decided to work with Frank, and we were fortunate that Frank wanted to work with us.

We had a difficult time getting schools. A lot of people said that they were focused on test scores, that they didn't want any distractions for their teachers, that this would be a burden on their schools. We discussed the evaluation with school districts across the country and amongst those schools districts were the three in southern Virginia. As we went around and talked with the administrators and teachers in all three of those school divisions, it was very clear that they wanted to do this, and they were excited about doing this. And I think Cathy, as you can see today, she was ready to take a kind of leap of faith needed and say, I do see how this would help our teachers. We're going to support this evaluation, and I'll be there to do some of the work that's going to have to happen within my school division. Whether that's helping collect pre-tests and post-tests, sending them back to Frank, whatever that is. If Cathy were to have fallen down on her job, this whole project would not have happened. So that's really how the evaluation came together as far as bringing Cathy and her school division and Frank together to do this project.

**FB:** Jim has described how we got together. It should be added, however, that because we had done a previous evaluation for United Learning, we knew each other.

One of the interesting parts of this question is the second one, what are the factors to consider in deciding whether to work together. My most important considerations were: (1) money, and (2) the liberty to do the study to my standards. There is a selfish reason for second reason as well. I wanted to be able to publish the results, if we obtained interesting outcomes. You cannot do that unless you are



allowed to do the kind of study that meets the standards of the scientific community. You might think that such circumstances are commonplace, but in my experience they are not.

One of the tasks that I have performed in my life is to serve on a number of IRBs. On one of them I remember evaluating a medical proposal. A pharmaceutical company was funding a project at one of our medical schools. Sitting next to me is a physician. He said to me, “Well, I know how this one is going to come out.” And I said, “What is going to happen, and how do you know?” He then showed me that in the control group they are given some standard drug; whereas the experimental group receives a new drug from this company that wants to market it. But it was to be given at twice the dosage.

Circumstances like that occur in the world of evaluation. Circumstances like that did not go on in this evaluation. I never received pressure from United Learning to produce results. All they said was, “Do a good job.” From the standpoint of an investigator that is a very important consideration.

They also kept me in informed and involved in all aspects of the project. Thus, I was able to go to Virginia and meet Cathy and the people from the other participating districts. I was able to observe the training. That helped me to do a better job. So all these factors were important.

**CC:** We belong to a twenty-two county consortia that that United Learning had approached about the possibility of participating in the research study. Our team had already looked at the product, and had been very favorably impressed. I have a background in library and information science, and I am very leery of using videos as babysitters in the classroom. That was the last thing in the world that I wanted.

I was not interested in having any video babysitting in our classes, but I really liked the United Streaming products. I liked the way they were indexed by clips. I liked the way that it was aligned to the standards. I liked the way that you could take just one particular piece of the video, and use it as a key learning experience. I thought that United Streaming had done a good job with their teacher interface.

When they approached us and asked if we wanted to be part of a study, we said “well, we’ve already seen it, we’ve got some faith that you guys are on the right track. Our concern is we cannot enter into any partnership that has the potential to do any harm to our children. That’s the bottom line. We’ve got to feel comfortable with what we are doing with our children in our schools. They’re far too important to go out on a limb.”

We liked the way that the study was structured. We were adding value to the classrooms. We weren’t taking anything away; we were adding value. That was an important component for our students and for our teachers.

Also, the study was of a short enough duration that if it proved successful we were going to be able to take this and use it with all of our students within a reasonable period of time. And conversely, if for any reason we saw that there were any adverse effects, we were going to be able to get out of this study very quickly too. So we went into it with a certain amount of knowledge of the product and trust in the way the study was structured.

So there are a lot of different factors that we had to consider. We had to have the teacher buy in and the administrator buy in. We had to have the students and parents comfortable with this study. But in the final evaluation of the project, it turned out to be a really positive experience for our children and

for our schools, and hopefully for United Learning as well.

**KB:** Based on the experimental-designed model, we'd like you to talk about some of the unique consideration that these models present. And particularly the fact that we've got a controlled, experimental research model in the classroom. Some folks are arguing that it's really not feasible or ethical because not all kids are getting access to the product.

**FB:** The feasibility issue has been answered. Why do this? To respond to the first question, I had more confidence that the effect that we observed, or any effect that we might observe or might not observe, was due to the streaming application. If I can do an experiment, there are two reasons why I will do so. One has to do with the random assignment of schools to conditions, and the second has to do with the control group.

Consider, for example, what it would be like otherwise. What if we were not able to assign randomly to control or experimental groups? I do not know that other factors, such as intelligence, might be the causal factor that results in the experimental group outperforming the control group, or the reverse. It may be that schools with the smarter kids wanted to be in the experimental group. Or maybe they would have wanted to be in the control group. One could try to control for such a extraneous factor by measuring it and controlling for it statistically, but the outcome is by no means as satisfactory.

When one has a large sample and can assign randomly, one can be very confident that such extraneous factors will nearly balance out. For example, with a large sample and random assignment the probability is very high that intelligence will be distributed very similarly in both the control group and the experimental group. Consequently, any observed effects can more clearly be attributed to the experimental intervention, in this case unitedstreaming.

The second important factor is the control group. In this study the control group improved over time, as they would be expected to. If you go to school from January to the beginning of March, and you have been taught the material, you are very likely to do better than before you started. You will become more knowledgeable. What happened in this experiment, however, was that the experimental group improved at a faster rate. Their gain in knowledge was more substantial.

Observing gains in the experimental group is insufficient. The magnitude of a gain in the experimental group can only be gauged relative to the gain in a group of students who do not receive get the intervention, in this case unitedstreaming technology. Only when the gain in the experimental group exceeds that in the control does one know that the technology is working better than standard practice. So, both of those factors were important and necessary to make any kind of strong claims that would convince a savvy and critical audience, and that is as it should be.

A second comment is that I have a lot more confidence in the generalizability of the results because this particular study was not done in just one school. It was not done in just one district. It was done across numerous schools across three districts. Furthermore, there were multiple topics assessed, both science and social studies. Consequently, we became convinced of the generality of the effects when we found the same results across districts, schools, and topics.

With respect to the question about ethics and education, notice Cathy mentioned nothing was done to harm the control subjects. They received standard practice. And because we did not know a priori that the intervention would enhance examination performance, we could not be certain that we might be depriving them of some benefit.

I should also emphasize Cathy's point that it only lasted for a month. Moreover, after that month control students received the technology. Hence, they were able to use it for the remainder of the term. So, I do not think that this kind of study would have any trouble getting past an IRB. It was done to the highest ethical standards.

**CC:** Our first concern as educators is to do no harm. Hopefully we do a whole lot of good, but we certainly do no harm. So I would caution anyone who's entering into a partnership to make sure that first of all you look very carefully, make sure that the partnership is structured in such a way that your children will benefit, and no harm will be done. As we've said, the study was of a short duration.

One of the objections that I have heard about scientifically based research with our students is the issue of how can you do an intervention with one group and not do it with another group? In this particular case it was a short study and so I knew if it was a success, we would be able to apply the intervention with the whole population. Truthfully, there are always differences between what is going on in classrooms. We have always had special projects in our schools and teachers teach differently and use different materials even within the same school building. Within a division that is compounded by special grants, specialized reading programs and other projects that are part of a schools' site based decision making process.

I have an eleven-year-old and speaking as a parent, when I send him out to school every day, I trust his teachers to take care of my boy. I am aware and hold sacred that trust for the students who are sent to our schools in our school division. I and my fellow educators would never put a student in a situation where we thought they'd come to any harm. So I think it's very important that as we establish partnerships, we look at them carefully, we look at the way they're structured, and we make sure that our students are going to benefit.

**MS:** I want to add that I think it's generally accepted that the experimental model is, for questions of identifying effectiveness, a superior model. It's also generally accepted in the research, as well as in the law, that quasi-experimental models are also appropriate, provided that those models effectively control for the variables and alternative explanations. And I think that, as Frank is alluding to, I think there's been a tradition in some social science research so that hasn't happened. But the law does allow for that, so long as there are rigorous statistical controls for the various variables. Frank can probably add that it is not an easy thing to do.

And of course, the other piece is that the experimental design and the quantitative studies are important to determining if something works. But when you want to look at questions of why and how, to be able to inform practice and product development, to understand the conditions under which the product and technology are effective, that the qualitative studies are very important as well and should go hand in hand.

**KB:** Thank you, Mark. Another question is, actually, just a follow-up question for this. If they'd like you to ask something in that hasn't been said or they really want a response to a question that has been asked, here is your chance before we actually have the audience ask the questions. I know they're ready, so if you have something you'd like to add, just jump in here. Someone? Mark?

**MS:** I want to sum up by reinforcing our theme here. There is a lot of concern and question about scientifically based research, and this panel seeks to share a case study to encourage partnerships between schools, researchers, providers and publishers. To follow the spirit of the law and be able to

advance the knowledge base so that a number of years from now, complying with the letter of the law is more reasonable and practical than it really is now.

From a publisher's point of view, I several months ago put together a guide to help publishers understand the requirements for the law and how that may play out so they can better help their customers understand. And right now, SIIA is working on a guide to help publishers deal with the practical questions of conducting product evaluation research -- and to help them understand the models, options, definitions, etc. How can they, with different types of products and different circumstances, how can they work with you all in an effective way to achieve that research, or accomplish that research?

**KB:** Several people have their questions ready. Let's turn to some questions.

**Q1:** As an educator who has involved my district in research partnerships with several companies, I don't have a problem with that, except where there's some real negative findings that's not getting published. And so sometimes the funding becomes an issue, not if funded by the public, but when the private sectors funds the study. And so as an educator, I may be in the difficult position of not being able to share company-funded research findings with other districts when the company chooses not to make them public.

**CC:** May I ask you a question? Do you have an independent evaluator as part of these different studies?

**Q1:** Sure, paid for by the company.

**CC:** Okay, I think that's an issue. I think that you have to, if you're going to enter into a partnership, you've got to make sure that you have someone who's unbiased, who's not going to just say what the company wants them to say. That it's going to be an unbiased evaluation, which is exactly what it's supposed to be. If it's not that, what's the point? I mean, it doesn't really help us.

**Q1:** I'm not necessarily questioning the objectivity of the study, but instead what the company chooses to actually publish, or not publish, to the public in that marketing materials may not disclose the findings of some studies when the results were not positive.

**CC:** Just to address one other issue you brought up, and that is, I think you have to have an escape clause if you see anything negative happening with your children, with your students. I think when you go into this you have to say if this shows anything negative, then we're out of here. That's it, immediately. Not, "oh no, we're going to tweak it and we're going to mess around with it." You take it back to the drawing board, and when you get it figured out, then we'll talk to you again. I think if there's anything negative, you have an ethical obligation to get out of it.

**JM:** I would keep going with that. I think from a company's standpoint, I know nothing about what's happening there, but from our standpoint and this project, that's wrong what's happening. If it's not working or if it is having a negative effect, it's the company's responsibility to get it out of there. We need to pull it out. Before the educator comes up and says get this out of my classroom, we should be pulling it out because our goal is the same as the educator's, the classroom teacher's. We want to educate children, and we want to do it better. And if we're not doing that, then we have to take a serious look at our product and our company, and go right back to the drawing board.

And frankly, that's what we would have done on this one, had it had a negative effect, we'd have to really scratch our heads and go back to the drawing board. And if we're doing harm with our product and we're a company that's in education, that's a little contradictory.

**MS:** If the findings of the research weren't positive and the company chooses not to publish it, then that company will not be able to openly demonstrate that it is effective based on sound research. That is an incentive for the company.

As far as the first question about the obligation, I think it's very difficult for publishers to have to commit to publishing no matter the findings of their study. If we pursue a model that may create an adversarial relationship where the school partner wants to make known the results no matter the finding, then the publishers are going to be very wary about getting into these arrangements. Instead, I think it's important to look at those results as geared toward product development and product improvement. And so evaluation research must be viewed as part of the development stage, but if companies must share research that demonstrates ineffectiveness, they will likely not be around to improve their product, and that scenario is not in the best interest of educators seeking improvement.

**FB:** If I were the investigator I would not let myself be put in that position, because it would be clear from the beginning how we were going to handle the data, and it would be clear that what would be written would be what I wrote. They would have to accept those conditions, or there would be no agreement. And as investigator, if they agreed but did attempt to violate the agreement, I would go to whatever federal agencies I could and point it out.

**Q2:** Can you comment on long-term issues and longitudinal studies?

**JM:** We have, we're committed to the research and doing more research. We want to continue to test new iterations of the product, different geographic areas. What makes this kind of tough, and it gets into what Cathy was talking about, when you're talking about this experimental control design, we would love to continue to follow these kids all the way through to eighth grade. But I think if that happened, I don't think Cathy would be real happy with us. So that's kind of the challenge that you run into when you're making it more long-term. If we did this for two, three, four years it is difficult to keep the control pure. And especially when you're showing really positive results.

**FB:** We have two problems. One is that there is no longer a control group; they all have the technology. And second there is no longer random assignment. One can attempt to compare them to previous cohorts, but any differences may be attributable to cohort differences, so that strategy is not completely satisfactory. But, is it a good idea to do it? Yes.

**KB:** We are very close to our time, in fact a little bit over. So what I'd like to do is first of all thank you all for coming. I do want to thank each of the panel members for sharing their experience and perspective with us. It was a very interesting sort of approach to use a case study. Thank you.