# Annotated Bibliography:
# Scaling Up and Distance Education

### *Prepared for the*
### National Air & Space Museum
### Washington, D.C.

# TABLE OF CONTENTS

# SUMMARY AND APPLICATION OF KEY TRENDS

## INTRODUCTION

Several key trends emerged from the *Scaling Up* and *Distance Education* literature reviews that are applicable to NASM staff's implementation of *Science in Pre-K*. This summary and application of the key trends serves two purposes: (1) highlight key trends from the two literature reviews; and (2) pose considerations and questions for NASM staff to reflect on when discussing each trend in the context of *Science in Pre-K*.

One overarching question that NASM needs to answer is: "What will a scaled-up version of *Science in Pre-K* look like?" The literature reviews suggest two likely models for scaling up *Science in Pre-K*:

- ♦ NASM continues to offer one-time professional development opportunities to preschool teachers onsite and online, as well as disseminate resources on the *Science in Pre-K* web site.

- ♦ NASM develops a "train the trainer" model where preschool teachers who participate in *Science in Pre-K* are carefully selected to champion and help implement the *Science in Pre-K* model and approaches in their school or community.

These models are not necessarily an either/or proposition but rather NASM staff need to make a decision about the point of emphasis. In other words, NASM might choose to emphasize the second ("train the trainer") model while still disseminating resources for broader use on the *Science in Pre-K* web site. However, the primary consideration for choosing this point of emphasis is, "What scaling-up approach is needed to achieve NASM staff's <u>desired impact</u>?" RK&A knows from our experience supporting museums in planning and evaluating programs that impact is quite difficult to achieve. Therefore, the point of emphasis for scaling up *Science in Pre-K* should be decided in the context of the impact staff want to achieve.

At the same time, NASM staff members need to consider the resources (staff and financial) needed to achieve their desired impact. In considering resources, staff may need to take a long-term view; that is, while current resources may not be sufficient for achieving the desired impact, it may be possible to plan for and access the resources (partnerships and financial) needed to achieve impact over time. It bears repeating that resources need not be the primary driver of decision making about scaling up *Science in Pre-K*. Rather, RK&A advocates for impact to be the primary driver of decision making and that NASM staff consider decisions and resources in the context of achieving that impact. To this end, we offer the following summary of key trends as well as considerations and questions for NASM's staff's reflection on the next five pages.

## SCALING UP

| What key trends emerged from the *Scaling Up* literature review? | What might this trend mean for *Science in Pre-K*? |
|---|---|
| Programs with a strong focus and coherence are easier to scale up. | Impact—as articulated in the Impact Planning Framework—serves as the focus and coherence for *Science in Pre-K*.  Use the Framework to guide a scaled-up version of the *Science in Pre-K* program.<br><br>*Ask: By doing X, will we achieve one or more indicator(s) in the Framework? Which one(s)?* |
| Programs with support from the board and institution, including financial support, (i.e., the necessary up-front capital to support the larger program) are good candidates for scaling up. | Determine whether your vision for a scaled-up version of *Science in Pre-K* aligns with NASM's and potential funders' visions.  Articulate and vet your plan with leadership and PNC Bank.<br><br>*Ask: What resources (staff and financial) are required to do X?  Are the resources required worth the potential impact achieved?* |
| Programs that have scaled up have staff who understand what is absolutely necessary to the mission of the program, including key components such as context, financial structure, and service recipients. | Determine which parts of the *Science in Pre-K* program are core elements (cannot be changed) and which parts are flexible (can vary by site and context).<br><br>*Ask: What Science in Pre-K elements must be in place for the program to achieve impact?* |

| What key trends emerged from the *Scaling Up* literature review? | What might this trend mean for *Science in Pre-K*? |
|---|---|
| Scaling up requires forethought about how much control staff are willing to relinquish. To prepare, develop two management plans—one for the central office level and one for the program site level.<br><br>♦ What will the scaled-up network look like?<br><br>♦ Will the program be a web-based model and take advantage of recent developments in social media?<br><br>♦ To the extent that you are able, select strong candidates to take ownership of the program at each affiliate location.<br><br>♦ Clarify the type(s) of support offered by the central organization (e.g., materials, curriculum, financial support, etc.). | Consider the best network format to grow *Science in Pre-K*. Will NASM control all *Science in Pre-K* experiences and access to resources? Or, will NASM develop a "train the trainer" model, overseeing a group of program ambassadors (e.g., teachers) who support implementation of the *Science in Pre-K* model in the classroom?<br><br>*Ask*: *How much control should remain with NASM staff in order to achieve impact?* |
| | Determine how to integrate prominent online platforms and social media in the *Science in Pre-K* model. Will online interactions, including sharing through social media, be central to the network NASM staff create? Or, will online interactions be more tangential to the experience, supporting but not at the core of sustaining the network?<br><br>*Ask*: *How important is in-person interaction to achieving impact?* |
| | If the *Science in Pre-K* program relies on program ambassadors, determine how many are needed at each location to successfully implement the program.<br><br>*Ask*: *What are the criteria for potential program ambassadors?* |
| | Regardless of the type of network developed, clearly outline the types and methods of support that NASM staff will provide to program ambassadors, teachers, and schools.<br><br>*Ask*: *What support must NASM staff provide to help achieve impact? If NASM staff do not have the capacity to provide that support, who will provide it and how?* |

| What key trends emerged from the *Scaling Up* literature review? | What might this trend mean for *Science in Pre-K*? |
|---|---|
| Base the site for the program on need. Be sure the program does not duplicate something that is already happening. | Consider whether *Science in Pre-K* aligns with the curricular needs of preschool teachers in different locations.<br><br>*Ask: Will the Science in Pre-K program fill a gap and/or enhance existing preschool curriculum or available programs?* |
| Select sites where there is great interest in the program. | Investigate whether the administration and/or leadership are open to adopting or integrating the *Science in Pre-K* model.<br><br>*Ask: Are there barriers that might create difficulties for preschool teachers to use the Science in Pre-K model?* |
| Select organizations that have goals similar to the base organization. Consider partnering with strong, well-connected organizations. | If *Science in Pre-K* fills a gap in and/or enhances existing preschool curriculum, consider partnering with local organizations to implement the program.<br><br>*Ask: Which organizations have a similar vision for impact? Which organizations have pre-existing relationships with preschool teachers?* |
| Maintain high levels of accountability through ongoing evaluation. Ensure the program performs satisfactorily over time. | Utilize the instruments in the Evaluation Plan to continually evaluate the *Science in Pre-K* program to ensure it is achieving the desired impact.<br><br>*Ask: What evidence do we have that the program is achieving the outcomes and indicators outlined in the Impact Planning Framework? How can we do better?* |

## DISTANCE EDUCATION

| What key trends emerged from the *Distance Education* literature review? | What might this trend mean for *Science in Pre-K*? |
|---|---|
| Distance education programs can take many forms.  Programs can be entirely online, using social media, or involve a mix of online and in-person communication.  Distance education programs can also be based around one-way communication or create environments that promote interactivity in learning. | Determine whether an online version of *Science in Pre-K* will achieve the desired impact, or whether the program will need to maintain an in-person component to do so.<br><br>*Ask: If Science in Pre-K evolves to a primarily online or distance learning platform, which program elements can remain static and which might need to happen in real time?* |
| Online programs can be designed to be asynchronous (e.g., can be completed at any time) or synchronous (e.g., happen at a specific time).  Consider which format will most benefit learning, given the content presented.  Although asynchronous programs are often seen as the ideal way to present online education programs, synchronous programs can be helpful when:<br><br>♦ Lessons benefit from group discussion<br><br>♦ Real-time experiences would inspire/deepen interest<br><br>♦ Information is complex and may require real-time guidance; and,<br><br>♦ Information is fast changing and published materials might benefit from explanation and updates in a synchronous environment. | Determine whether discussion among teachers as well as NASM instructors is essential to achieving impact.<br><br>*Ask:  Which indicators (if any) are primarily achieved through participant dialogue?* |
| | Determine whether real-time practice and/or experiments will deepen impact.<br><br>*Ask:  Which indicators (if any) are primarily achieved through real-time experiences?* |
| | Consider how challenging the *Science in Pre-K* content is and whether teachers will be able to implement skills without guidance.<br><br>*Ask:  Which indicators (if any) are primarily achieved through mentoring and guidance?* |
| | Determine whether the content and approach used in *Science in Pre-K* changes frequently enough that online materials and resources may become outdated and require explanation.<br><br>*Ask: How often will NASM staff need (or be able to) update Science in Pre-K approaches and materials to achieve impact?* |

| What key trends emerged from the *Distance Education* literature review? | What might this trend mean for *Science in Pre-K*? |
|---|---|
| Online program designs require innovative teaching strategies that may be different from in-classroom strategies and can highlight the unique qualities of an organization or program. | Consider whether online platforms and resources available to NASM are sufficiently innovative or up-to-date.<br><br>*Ask: What does NASM's Science in Pre-K do better than any other program (i.e., distinct qualities)? Which online platforms and resources can enhance these qualities?* |
| Distance learning programs require time to develop and maintain, so staff need adequate time and technological training. | Determine whether NASM staff has the capacity to maintain a primarily online and/or distance learning version of *Science in Pre-K*.<br><br>*Ask: What resources (staff and financial) are required for Science in Pre-K to achieve impact online? Are the resources needed worth the potential impact achieved?* |
| Determine whether schools will offer teachers credit for online professional development programs. | Consider whether credit can be offered for participating in *Science in Pre-K* and implementing *Science in Pre-K* in the classroom after program participation.<br><br>*Ask: How will NASM staff motivate teachers to implement Science in Pre-K beyond their initial participation?* |
| Presenting content online often requires more time than on-site presentations. | If *Science in Pre-K* uses a "train the trainer" model, consider the time commitment required of teachers at different levels of program involvement.<br><br>*Ask: How much time would be required of program ambassadors in order for them to help NASM achieve impact? Is the commitment level realistic?* |

# INTRODUCTION

The National Air and Space Museum (NASM) contracted with Randi Korn & Associates, Inc. (RK&A) to help determine realistic strategies and next steps for scaling up its *Science in Pre-K* program, a PNC Bank-funded teacher professional development program that supports District of Columbia Public Schools (DCPS) preschool teachers in teaching science through exploration and problem solving. In addition to preparing the two literature reviews that follow, RK&A staff conducted 21 interviews with teachers who participated in the *Science in Pre-K* program through DCPS or through the one-time live webinar offered in summer 2012. A discussion group with DCPS instructional coaches about the *Science in Pre-K* website was also conducted. The findings from the interviews and discussion group are presented in an assessment report, which serves as a companion piece to the literature reviews.

Two guiding questions framed the research:

♦ What are current trends and best practices in taking a professional development program to a national scale? How can they inform the development of a national version of NASM's *Science in Pre-K*?

♦ What are best practices in online learning and distance learning programs in school and museum settings? When and how can online learning opportunities best be incorporated into professional development programs?

The twenty annotations are organized under two headings – "Section 1: Current Trends and Best Practices for Taking a Program to Scale," and "Section 2: Best Practices for Distance Education."

# ANNOTATIONS

## SECTION 1: CURRENT TRENDS AND BEST PRACTICES FOR TAKING A PROGRAM TO SCALE

**Harris, E. 2010. Six Steps to Successfully Scale Impact in the Nonprofit Sector.** *The Evaluation Exchange*, 15(1) : 4-6.

**TYPE OF RESOURCE**    Journal article

**METHODOLOGY**    Literature review

**CENTRAL IDEA**    Six steps nonprofit organizations should follow when taking a program to scale, to help ensure success.

**SUMMARY**

- Many programs fail to successfully go to scale. Successfully taking a program to scale "requires stakeholder support and buy-in, careful planning and assessment, and sufficient resources to maintain quality." These ideas are fleshed out below.

- Before taking a program to scale, an organization should "determine whether the intervention is ready to go to scale." This step includes ensuring that the program personnel understand which components are essential for success and which components are flexible and can adapt to local needs and resources. Additionally, organizations must have support from key stakeholders for the scaling process. Key resources must also be available at additional sites to ensure that a strong program can be continued.

- When considering taking a program to scale, an organization must "select the best approach," of which there are several. For example, non-profits often take ideas rather than programs to scale. While this approach "allows for greater adaptability to different settings and contexts," maintaining focus on impact is paramount. Another approach looks at the process of taking a program to scale as having multiple facets. Depending upon the program or project, certain facets may become more critical than others.

- It is important to "select sites that are best suited to the intervention," which can be identified once organizations have an understanding of essential components versus flexible ones. It is also important to ensure that there is local capacity to support the program, and that a community is not already addressing the need.

- As a program grows, it is important to "develop the capacity and infrastructure to manage multiple sites." Once there is a clear management and communication structure in place, organizations will need to identify tasks that can be handled across sites and those that must be handled at individual sites. Additionally, the organization should ensure that local sites have the resources necessary to maintain quality, while also taking advantage of "resources and strengths in the local community that can benefit the intervention."

- Organizations should "evaluate the scaling process" to identify necessary adjustments moving forward. Reporting outcomes may also be helpful in securing additional funding to continue the scaling process.

- Finally, "share promising practices and lessons . . . with other nonprofits." "Although some of the frameworks and lessons from [scaling up] can be adapted from the business world, the nonprofit world has its own set of opportunities and challenges that affect the scaling process."

**Coburn, C.  2003.  Rethinking Scale: Moving Beyond Numbers to Deep and Lasting Change.**
**   *Educational Researcher,* 32 (6): 3-12.**

**TYPE OF RESOURCE**     Journal article

**METHODOLOGY**     Literature review

**CENTRAL IDEA**     A literature and research review focused on developing a multi-dimensional
conception of scale, with four interrelated dimensions: depth, sustainability,
spread, and shift in reform ownership.  The article focuses on scaling up in a
school setting.

**SUMMARY**

♦   Previous studies have focused solely on the need for obtaining large numbers.  However, when
scaling school reform, it is important to consider the complexity of the endeavor and define
scale in broader terms.  A broader definition allows teachers and school reformers to "engage
with a reform effort in ways that make a difference for teaching and learning."

♦   The author proposes "a conceptualization of scale comprised of four interrelated dimensions:
depth, sustainability, spread, and shift in reform ownership."

♦   The author argues that most scale changes focus mainly on "surface structures or procedures,"
rather than "alter[ing] teachers' beliefs, norms of social interaction, and pedagogical principles as
enacted in the curriculum."  In order to enact lasting reform, it is important to look beyond the
surface structures to "the ways teachers engage with students in using [the] materials and tasks."

♦   Sustainability looks at the life-span of the reform with the understanding that meaningful change
can only happen if the reform can be sustained over time and in multiple places.  Such reform
efforts must be sustained "in the face of competing priorities, changing demands, and teacher
and administrator turnover."

♦   With regard to sustainability, the author issues the following warning: "Externally developed
school reforms may be especially vulnerable to [sustainability]because implementation typically
involves a short-term influx of resources, professional development, and other forms of
assistance  . . . that dissipate over time as external developers turn their attention to other sites."

♦   When discussing spread, "the spreading of a reform to greater numbers of classrooms and
schools," the author argues that it involves more than the spread of materials, ideas and
activities; it also encompasses "underlying beliefs, norms, and principles to additional classrooms
and schools."  Additionally, the author writes that "emphasizing the normative highlights the
potential to spread reform-related norms and pedagogical principles *within* a classroom, school,
and district."

♦   When considering external reforms, the author suggests, "External reformers might focus on
threading reform ideas throughout the district office, creating knowledgeable leaders who can
influence policy, procedures, and value."

♦   The final dimension to consider when thinking about scale is the shift in reform ownership from
external to internal, where the "authority for reform [is] held by districts, schools, and teachers
who have the capacity to sustain, spread and deepen reform principles themselves."
Professional development and other support structures, including continued funding, are
instrumental in shifting from external to internal ownership.

**Roob, N., and Bradach, J.L. 2009.  *Scaling What Works: Implications for Philanthropists, Policymakers, and Nonprofit Leaders.*  The Edna McConnell Clark Foundation and The Bridgespan Group.**

**TYPE OF RESOURCE**    Publication

**METHODOLOGY**    Case study

**CENTRAL IDEA**    This publication from The Edna McConnell Clark Foundation and The Bridgespan Group draws on a decade of consulting with nonprofit organizations as they expand their programs, offering "real-world insights" into best practices.

**SUMMARY**

- The authors offer four insights about scaling impact and two insights about the relationship between philanthropy and government.  Their insights stem from real-world case studies.

- The authors argue for concrete evidence that programs work, saying, "A compelling anecdote about impact is not the same as rigorous data and analysis that provide evidence of impact." That being said, government and philanthropic organizations often allow favoritism to influence funding decisions, rather than fact.  In order to adequately address important problems, it is essential that government and philanthropic organizations begin to support "fewer organizations with larger sums of money."  Enhanced funding will allow organizations to target programs that produce proven results and for programs to receive sufficient funding to achieve results.

- Organizations need more than money to bring a program to scale.  They need strategies, systems, and the right people doing the right jobs.  Once a program has been brought to scale, continued evaluation is key.

- When considering the relationship between government and philanthropy, the authors suggest that the partnership hold both parties to higher standards of accountability.

- Philanthropic organizations must "place a higher priority on funding research and evaluation" to prove a program's results, while government must enforce "rigorous standards for proven results and make them prerequisites for public funding."  Funding for continued monitoring must be included when considering the cost of bringing a program to scale.

- "Government and philanthropy must clarify their different and complementary roles in funding nonprofits."  Philanthropic organizations must dedicate more time and funding to the organizations and programs they support, setting them up for public investment.  This will allow for a strong alliance between public and private funding.

**Bradach, J. L. 2003. *Going to Scale: The challenge of replicating social programs.* Stanford Social Innovation Review. Spring 2003.**

**TYPE OF RESOURCE**     Journal article

**METHODOLOGY**     Case study

**CENTRAL IDEA**     A case study of several nonprofits going to scale with a focus on the challenges of taking social impact programs to scale.

**SUMMARY**

- Overall, nonprofit organizations in the United States are seen as a "cottage industry" comprised of many different programs, each serving a specific neighborhood, city, or town. There are many reasons for this, including:

    - "Prevailing bias among funders to support innovative, 'breakthrough' ideas."

    - "For many people, the concept [of replication] conjures up images of bureaucracy and centralized control."

    - "For many social entrepreneurs, autonomy is an important form of psychic income."

- There is value in a proven program that "can increase the speed of implementation and the odds of obtaining the desired outcomes." Additionally, a proven program can make it easier to attract funders and other necessary resources. Finally, as part of a larger system, local chapters of a program gain access to resources that may be unattainable for a single unit.

- Before deciding whether to replicate a program, determine whether there is "enough substantive evidence of success to justify replication." Demonstrable results will make it easier to attract investors and will allow organizations to specifically define their "theory of change," understanding what procedures and resources must be in place to deliver the program successfully.

- "Without a strong theory of change, replication becomes extremely difficult, because it is impossible to determine what is working and why."

- Once a decision has been made to take a program to scale, identify "which key activities and key components of [the] operating model can be articulated and standardized." In general, the more elements that can be standardized, the greater the chance of success in replication.

- Key elements of program replication include:

    - **People:** "The skills of local site managers are often a crucial ingredient in making replication work."

    - **Context:** "The effectiveness of [the program's] operating model is often context dependent. . . . Effective replication often depends on holding constant—standardizing—the context within which a program will operate."

    - **Financial structure:** "A critical aspect of standardizing a program is making its underlying economics—costs as well as revenues—transparent. . . . Establishing a reliable source of funding—standardizing the flow of money—increases the odds of success."

    - **Service recipients:** "Most theories of change are designed to affect a specific set of recipients. . . . The consequent tight alignment between the organization's operating

model and these intended beneficiaries makes it difficult to serve other groups unless the model is modified at the same time."

♦ "Replication requires answers to three critical questions: (1) where and how to grow; (2) what kind of network to build; and (3) what the role of the 'center' needs to be."

♦ It is imperative to identify whether there is demand for the program and determine where the necessary ingredients for success can be found. By leveraging existing partnerships or network contacts, growth may happen more quickly.

♦ When taking a program to scale, it is important to think about the role of the national organization, and the amount of freedom the network will have.

**Farole Jr., D. J. 2006.** *The Challenges of Going to Scale: Lessons from Other Disciplines for Problem-Solving Courts.* **State Justice Institute Center for Court Innovation.**

**TYPE OF RESOURCE**      Publication

**METHODOLOGY**      Case studies

**CENTRAL IDEA**      A review of the Community-Based Problem-Solving Court initiative and lessons that can be learned from other disciplines, including those learned when taking programs to scale.

**SUMMARY**

- Community-based problem-solving courts exist for a variety of court-related issues (e.g., drug court, family treatment court, etc.) and while the specifics of the courts may differ, all problem-solving courts share a common goal: "To encourage courts to address the underlying problems of victims, offenders and citizens rather than simply to process cases." However, many of these courts remain under-staffed and unable to sufficiently handle the requisite population.

- In order to best scale these community-based problem-solving courts, the Bureau of Justice Assistance of the U.S. Department of Justice awarded ten demonstration projects in hopes of discovering best practices for scaling these types of courts. The lessons learned from this study also can be applied to other disciplines.

- Researchers discovered a preference among funders to support ideas considered innovative. While this often leads to successful projects that achieve results, rather than continuing to fund a proven entity, funders instead stop funding the initiative "exactly at the time they need the support to scale up and reach larger numbers."

- The author outlines six elements of successful scaling up: program design, buy-in at the local level, support during implementation, leadership, quality assurance, and building constituencies for change, all of which are discussed below.

- Regarding program design, the author identifies four elements of successful long-term programs:

    - **Focus**: programs with clear missions that are easy to understand and explain are more likely to scale up.

    - **Coherence**: programs with elements that work together to meet goals fare better.

    - **Speed**: it is easier to build support for change when the reforms achieve short-term results that support long-term objectives.

    - **Comprehensiveness**: programs with ambitious goals have been more successful than less-ambitious programs that do not seek to alter the core of teaching and learning, in part because, with the former, teachers feel like they are part of a larger movement.

- Buy-in at the local level suggests that "the most successful reforms follow a "mutual adaptation" process where local actors adopt specific elements of the reform to suit their local circumstances within constraints dictated by the need for fidelity to the program model."

- Support during implementation can include a variety of forms, such as materials, training, opportunities for collaboration, and reflection with others.

- Quality assurance requires that reformers take the following steps:

    - Developing effective methods for data collection

- ❖ Communicating evaluation results to the community
- ❖ Modifying training and support as needed

♦ The author also identifies two challenges to scaling up: changing practice and achieving buy-in; and limited resources.

♦ When changing practice, it is often necessary for reformers to "unlearn the beliefs, values and assumptions that underlie their work." Such an undertaking can require a commitment of time and energy that is difficult to enforce and sustain over time.

♦ Limited resources include the need for additional upfront capital to begin to scale the program, and the reallocation of funds from less successful or vital programs to more vital programs. Difficulties with staffing key positions can also challenge resources.

**Bradach, J. 2010. *Scaling Impact: How to get 100x the results with 2x the organization.* Stanford Social Innovation Review, Summer 2010.**

**TYPE OF RESOURCE**    Journal article

**METHODOLOGY**    Case study

**CENTRAL IDEA**    There are steps nonprofits can take to scale programs and organizations "beyond what their size would seem capable of generating."

**SUMMARY**

- Nonprofit leaders and philanthropists are looking for methods of scaling impact beyond adding new sites. There are a number of strategies that social entrepreneurs have discovered for scaling impact.

- The Web can play an important role in increasing the size of an organization's volunteer force. "In these so-called 'bricks-to-clicks' models, [the organizations] create toolkits and platforms that users can readily adopt." Social media can also play a role in sharing knowledge, building community, collaboration between people and organizations, and publicizing campaigns.

- There are several different ways to build networks, including networks of local organizations (e.g., Boys & Girls Clubs of America, the American Red Cross), local implementation of a common idea or model without a central organization (e.g., the hospice movement, Alcoholics Anonymous), and, more recently, an entirely Web-based model using Web sites and social media technology.

- "Intermediaries play an important role in many fields by increasing the performance of constituent organizations and serving needs that extend beyond the capacity or interest of any one provider."

- Developing promising talent allows organizations to educate and motivate leaders who "can then go on to pollinate the field" (e.g., Teach for America). This type of talent development can take many forms, including recruiting young students who are just completing college, or reaching out to professionals who are established in their careers.

- The blending of service and advocacy can provide organizations with the opportunity to "extend their impact through policy change," which can allow organizations with influence over where government funds are spent, achieve dramatic scaling of impact.

- Another way nonprofit organizations can scale impact is by altering attitudes and behaviors. Organizations such as Mothers Against Drunk Driving can establish local chapters while also "using social marketing techniques to alter people's perceptions of what's acceptable."

- Some nonprofit organizations are scaling impact by "changing people's notions of what's possible." One such example is the Charter school movement, which has demonstrated that change is possible "even in schools that people had all but given up on."

**Emerson, J. 2009.** *But Does it Work?: How best to assess program performance.* **Stanford Social Innovation Review, Winter 2009: 29-30.**

**TYPE OF RESOURCE**     Journal article

**METHODOLOGY**     Case study

**CENTRAL IDEA**     A review of three stages of program effectiveness, defined by the Edna McConnell Clark Foundation.

**SUMMARY**

- In the current funding climate, it has become increasingly important to document impact and track impact over time. However, as the author argues, "many funds today are not allocated strictly for impact, but rather for an attempt at 'doing good.'" For this reason, it has become imperative to develop evaluation methods that allow "funders and nonprofit managers [to] best assess program performance so that they can fund interventions that truly work."

- The Edna McConnell Clark Foundation has created three stages of program effectiveness: apparent effectiveness, demonstrated effectiveness, and proven effectiveness. The higher the level of effectiveness, "the more confidence we have that the program is indeed effective."

- Organizations at the "apparent effectiveness" stage systematically collected baseline data on their program, which allows them to answer simple questions such as:

    - Who is accessing services?

    - What programs do they participate in?

    - What outcomes have they achieved?

- It is important to note that at this point, "the vast majority of nonprofits active today still would not meet this most basic level of documenting performance."

- Organizations at the "demonstrated effectiveness" stage "systematically collect data that compare program participants with a similar population not receiving the same services." Comparisons of this sort allow organizations to substantially conclude what benefit participants are deriving from the program. Organizations demonstrating effectiveness at this level will use an external evaluator to review the program and complete the evaluation.

- Organizations at the "proven effectiveness" stage present programs whose impact has been "scientifically confirmed through experimental research such as a randomized controlled trial." Again, an external evaluator will be hired to determine a program's effectiveness through the use of control and treatment groups.

- The author is quick to point out that not all organizations should be aiming to achieve the highest level of program effectiveness. The level of effectiveness required will be determined by the program type and goals. While there are still shortcomings to the evidence-based approach of program effectiveness, the author believes that further research will allow for a more developed framework for future use.

**Gillespie, J. 2013. *Scale Readiness: A checklist.* Stanford Social Innovation Review. May 2013.**

**TYPE OF RESOURCE**      Journal article

**METHODOLOGY**      Review of a recent study

**CENTRAL IDEA**      Five questions nonprofits should ask themselves as they prepare to scale.

**SUMMARY**

- Before beginning the process of scaling impact, the author argues that organizations should address these five questions:
    - Are you raising capital beyond your operating budget?  "Many nonprofits underestimate what it takes to scale.  It requires strategic alignment with the mission, thorough due diligence, a detailed fundraising plan and the right resources."
    - Have you tested your model and conducted due diligence?  In order to raise the capital needed to scale and receive the support necessary for the process, it is becoming increasingly important to provide potential funders and partners with proof of results.
    - Is your board enthusiastic and willing to be hands-on?  Your board will play an important role in the process of scaling up, and it is crucial that the board has an understanding of the time and resources required for the process.
    - Have you surrounded yourself with scaling expertise?  Knowledgeable consultants with experience in scaling programs can "inform your business plan development, financial model, forecasting, and fundraising."  Some of this expertise might also be found among your current staff; however, in some cases outside consultants may be required.
    - Are you "managing risk" for your donors?  In this increasingly transparent era when detailed information about your organization can be found online, it is important to ensure that "you have your financial house in order—reliable and healthy numbers provide donors with a high degree of confidence."

**McPhedran Waitzer, J., and Paul, R. 2011.  Scaling Social Impact: When Everybody Contributes, Everybody Wins.  *Innovations* 6(2): 143-154.**

**TYPE OF RESOURCE**     Journal article

**CENTRAL IDEA**     In recent years, there has been a trend that encourages the scaling of impact, rather than scaling the size of the organization.

**SUMMARY**

♦   Nonprofit organizations have relied too heavily on "the conventional wisdom of the business sector, where efforts at scaling up typically focus on increasing the size of organizations." However, in recent years, more focus has been placed on scaling impact while keeping the size of the original organization small.

♦   Nonprofit organizations interpret scale as simply growing the size of the organization, often "as you serve increasing numbers, the complexity of your work increases faster than your organization's ability to manage it."  Growing the size of an organization rarely leads to increased impact.

♦   In thinking about scaling impact, nonprofit organizations must remain focused on the key components of their work, "isolating the key values at the absolute core of [the] mission and actively seeking out other actors who could integrate these values into their own activities."  By connecting with others, organizations will be able to "refine and supplement their programming with the best practices of others, collaborate on shared projects, and tap into investors they could not access individually."

♦   Collaboration efforts also allow sometimes isolated nonprofit organizations to talk to others and "learn firsthand from the struggles and triumphs of their peers who have already walked the path."

♦   The authors identify a central tenet for scaling for impact: "let loose a well-defined idea to create a movement or mission aligned ecosystem, rather than only growing the organization behind it." A mission-aligned ecosystem can happen in one of two ways: *liberate the core* and *become a magnet*. These imperatives can work independently or together.

♦   The authors explain the imperative of *liberate the core* as follows: "To really help an idea travel, social entrepreneurs must return to the essence of why they started their work."  In order for this to happen, founders must relinquish some control over their product, choosing instead to focus on spreading the vision.  However, before this happens, it is important to take time to "test and refine a core operational model before attempting further expansion."

♦   The authors explain *become a magnet* as follows: "To become a real magnet for growth, social entrepreneurs must transition their business model from one where they are at the center to one where they have a network of actors (funders included) who all revolve around a common mission."  For this to happen, they will need to know when to pursue a single organization at the expense of all others and when it might be more beneficial to work with a wider variety of smaller organizations.

♦   It is important to remember that when scaling for impact, nonprofit organizations do not have to choose a single method or combination of methods.  In fact, the authors learned that many organizations use a variety of models, "which may be necessary, given the complexity of the systems they're trying to change."

- In order to create meaningful social change, it is important to open the doors to many people, recognizing that "the job description of the leader has officially changed from 'smartest guy in the room' to chief promoter of the idea that 'nobody' is as smart as 'everybody.'" This style of open-source development allows people to relate to a problem or program through their own experiential lens. Additionally, it allows organizations to recognize contributors for their unique talents.

- The authors outline five principles of the open-source approach:

    - **Ensure trust and transparency:** "People are more likely to contribute their ideas if they are confident that others won't exploit their contribution."

    - **Foster a culture of meritocracy:** "Because all contributions are transparent and open to discussion, usually the best idea wins."

    - **Open up to possibility:** "It is a fact of our world that we do not know where the next innovation will come from."

    - **Seek rapid diffusion:** "Because the frameworks you use to communicate can be opened up to everyone for feedback, innovation happens quicker and ideas spread faster."

    - **Encourage mutability:** "Because the world is so vastly diverse, the same idea looks different in different places. These differences can be harnessed as innovations across the community."

- The authors also suggest the idea of smart networks is built on the idea that "it is no longer either feasible or perhaps even desirable for a single person, organization, or group to achieve large-scale complex social change alone." In order to achieve success, organizations must leverage their ideas and collaborate with other organizations to create greater impact.

- The authors outline five principles of smart networks:

    - **Ensure diversity at the core:** "The core or center of the network is better when it is more diverse because that makes it possible to reach out to new ideas and resources from multiple avenues."

    - **Expand virally:** "This happens by engaging groups beyond the current membership. By helping people explore many collaborative projects that together give rise to rich insights and creative breakthroughs; smart networks open new pathways for success."

    - **Be "glocal:"** "Smart networks must operate on many levels to be transformative. Learning and breakthroughs flow from local practice and are re-mixed through analysis and comparison with other projects."

    - **Give to get:** "Smart networks require generous sharing to provide value to others, which makes these networks powerful, cost-effective tools to increase access to information, financing, and other resources."

    - **Foster network leadership:** "Smart network leadership requires a readiness to develop a common agenda, agree on mutually reinforcing activities, and commit to continuous follow-up."

# SECTION 2: BEST PRACTICES IN DISTANCE EDUCATION

**Bontempi, E., and Nash, S. 2012. Effective Strategies in Museum Distance Education. *Proceedings of Informing Science & IT Education Conference (InSITE) 2012*.**

**TYPE OF RESOURCE**     Conference paper

**METHODOLOGY**     Literature review

**CENTRAL IDEA**     An article analyzes best practices of museums utilizing distance learning and suggests successful strategies for distance education that promote interactive learning.

**SUMMARY**

- The study investigated distance learning approaches used by museums.  Findings suggest that there are twelve elements that contribute to the design of effective distance learning programs for museums.  Of these elements, three are essential to creating distance education programs:
    - Motivational strategies;
    - Cognitive learning theories; and
    - Appropriate selections of mediums or methods of delivery.

- Currently, due to budget and time constraints, the education websites of many museums only offer lesson plans that may be used in conjunction with visits to the museums, and few lessons encourage interaction; instead they follow a narrative structure.

- A significant challenge of designing and implementing distance education programs is motivating the user.  An example of a common motivational strategy is to incorporate virtual worlds, such as Second Life, which is believed to encourage social interaction and productive learning.

- An understanding of cognitive learning theories is essential for creating an effective distance learning program.  These theories include:
    - **Information Transmission Model:** Transmitting lessons from teacher to student through one-way communication.  This teaching strategy does not promote interaction or active learning.
    - **Shift to Interactive Strategies:** Creating environments that promote interactivity, reflection, and inquiry.  It is essential to utilize interactive strategies when developing online distance education programs.

- The authors note that it is important to present information in an organized manner, using familiar structures such as cause-effect relationships.  Students need to see interconnections among other subjects and information that they are learning.

- Although many museums are turning to virtual sites such as Second Life, the authors caution that there are challenges when creating and utilizing these environments.  For instance, many users have trouble learning how to negotiate these environments, and much of the available instructional information is narrative, not interactive.

**Crow, W.B., and Wei-Hsin Din, H. 2011.** *All Together Now: Museums and Online Collaborative Learning.* **Washington, D.C.: The AAM Press.**

**CENTRAL IDEA**      An exploration of online collaborative learning through case studies and in-depth analysis of best practices currently used in museums.

**SUMMARY**

- This book is framed around chapters that define and describe online collaborative learning in relationship to museums, and the elements that contribute to the success of museums' efforts in digital learning. To emphasize and illuminate these points, numerous case studies of online collaborative efforts are included.

- The authors define online collaborative learning as "the process through which teachers and learners—collaborators—work together through a networked environment towards a shared purpose or goal." Additionally, the authors distinguish among different forms of online collaborative learning:

    - Online only, in which the collaborators have never met in person.

    - Online enhanced, in which online experiences augment in-person communication.

    - Blended learning, in which in-person and online experiences are complementary. This form is noted as potentially having the most impact in the classroom.

    - User-generated websites, in which content is driven by visitors' comments and contributions, rather than the museum.

    - Social media for collaboration, in which social networks can be used to aid educational and professional development projects.

- The authors maintain that museums are in a unique position to take advantage of the benefits of online collaborative learning. Museums care for collections and resources that can be made available to the public through digital media. Additionally, physical museums are already social spaces; therefore, online experiences can mimic these social spaces and expand on their potential.

- Although the benefits of online collaborative learning are numerous, the authors note that there are also significant challenges. All collaborative learning projects should support the museum's mission and goals. Further, such projects require a considerable investment in time, which museums also should consider before embarking on any collaborative learning project online or in-person.

- Both asynchronous and synchronous tools can be used in online collaborative learning projects. Asynchronous tools, such as blogs and wikis, allow users access without time restrictions. Synchronous tools, such as webinars and chats, require meeting at a specific date and time online.

- The authors employ numerous case studies, written by representatives from the participating museums, to explore in-depth the practical applications of online collaborative learning. These case studies include:

    - Smithsonian Commons, an online platform that allows users access to Smithsonian resources. The author discusses the elements of a commons and the process that the Smithsonian is undertaking to advance its digital and new media initiatives.

- ❖ Balboa Park Cultural Partnership, a partnership among 26 arts, science, and cultural institutions in San Diego. The Partnership sponsors the Learning Institute as well as an annual symposium that utilizes blended learning. The symposium combines webinars, synchronous two-way webcasts, and in-person interactions for staff, volunteers, and trustees in museums.

- ❖ Teach with O'Keefe at The Phillips Collection, a program organized around a traveling exhibition that involves partnering with other museum education departments and schools. The exchange of ideas includes both in-person and online interactions.

- ♦ Although initiating and sustaining online collaborative learning efforts is often difficult, the rewards are innumerable. Online collaborative learning allows museums to share information in effective and innovative ways. Moreover, online collaborative learning encourages museums to operate in communities, rather than isolated institutions, forging partnerships with fellow museums and allowing public access to digital resources.

**O'Leary, L. 2011. Insights on a Museum's Distance Learning Program. *Journal of Museum Education*, 36(3): 241-247.**

TYPE OF RESOURCE    Journal article

CENTRAL IDEA    The article details the growth of the Philadelphia Museum of Art's distance education program, describing over fifteen years of experimentation that proved critical to the successful development of the museum's distance learning initiatives.

SUMMARY

♦ The author describes the beginning of the Philadelphia Museum of Art's distance education programs in 1995. The programs began as a result of collaboration between Bellcore, a provider of Integrated Services Digital Network (ISDN) technology, and the museum's curator of education.

♦ The initial trial experimenting with ISDN technology, a digital telephone network system that transmits voice and video data, began with the intent to create interactive programs with K-12 classrooms that would explore the museum's art collections.

♦ Although the initial experiment revealed numerous limitations, including technology glitches, the trial emphasized students' desire for more interactivity and more exploration of the museum. Additionally, the trial established that although students were initially impressed with the then cutting-edge technology, this awe quickly evaporated if the content was not sufficiently engaging or interactive.

♦ Over the last fifteen years, the museum has experimented with numerous partnerships, both with for-profit and non-profit organizations, in order to create more engaging and rewarding experiences for students. These numerous partnerships are essential to the nuanced development of the distance learning program.

♦ The museum has abandoned ISDN technology in favor of IP lines, which are more cost effective for both the museum and the schools. Schools either use the same equipment or use a service that the museum provides that links to classroom computers.

♦ Lesson plans align with National Curriculum standards using inquiry-based methods.

♦ Teacher professional development is now incorporated into the distance learning department, including lessons on how to include art in classroom learning. Additionally, the museum offers introductory demonstrations of all the distance learning programs it provides, which has proved essential as it incites teachers' interest.

♦ The author notes that the goal to "extend the reach of the museum's collection" is uniquely achieved with a distance education program. Moreover, experiencing the museum virtually encourages students to visit the museum, contrary to initial worries that virtual experiences would eventually discourage visitation.

**Miele, E., Shanley, D., and Steiner, R. 2010. Online Teacher Education: A Formal-Informal Partnership Between Brooklyn College and the American Museum of Natural History. *The New Educator*, 6: 247-264.**

Journal article

**CENTRAL IDEA**    The article describes the partnership between Brooklyn College (BC) of the City University of New York (CUNY) and the American Museum of Natural History (AMNH). The institutions formed the collaboration to incorporate museum online programs in the graduate offerings at Brooklyn College.

**SUMMARY**

♦ A partnership between the Brooklyn College (BC) and the American Museum of Natural History (AMNH) began in 2003. AMNH offers Seminars on Science (SoS), asynchronous professional-development courses designed to increase teachers' science knowledge. The collaboration between BC and AMNH was designed to offer these existing online courses for graduate credit.

♦ SoS classes adhere to the developing standards that suggest that professional development for both mathematics and science teachers should be "sustained and intensive," lasting for 60 hours or more.

♦ The partnership between BC and AMNH proved mutually beneficial, as the SoS classes increased the number of science classes that BC is able to offer. Additionally, BC's endorsement of AMNH courses legitimized the content and effectiveness of the SoS programs.

♦ Initially, some BC faculty were concerned that SoS classes would not live up to the college's high academic standards. However, initial informal feedback from students showed that students felt the classes were academically rigorous and rewarding.

♦ A formal evaluation revealed that the courses were effective and had direct applications in the classroom.

♦ Students who completed the courses reported that they were extremely satisfied with the online curriculum. However, enrollment records reveal that a high percentage of students withdraw from or fail these online courses, in contrast to on-campus offerings.

♦ The collaboration proved extremely rewarding for both institutions; however, the partnership experienced difficulties. Different institutional cultures, including different planning calendars, had to be reconciled in order to create a partnership that benefitted both institutions.

**Finkelstein, J. 2006. *Learning in Real Time*. San Francisco, CA: Jossey-Bass.**

**CENTRAL IDEA**    A practical guide to online synchronous learning, including recommendations and plans for successfully facilitating live online experiences.

**SUMMARY**

- The author strives to correct the assumption that online learning experiences are defined by asynchronous learning, or "anytime, anywhere." The author argues that synchronous learning provides "real-time learning" that is essential to many online learning experiences.

- Despite the potential value of synchronous learning, the author cautions that educators must carefully decide if lessons require synchronous learning. Reasons for including synchronous learning include:

  - Lessons can benefit from group discussion;
  - A real-time experience would inspire and deepen interest;
  - Information is complex, requiring real-time guidance; and
  - Information is so fast-changing that relatively static, published material would benefit from being explained and updated in a synchronous learning environment.

- Although live video and audio best simulate offline experiences, the author notes that educators should endeavor to ensure that these online experiences do not merely replicate the "status quo." Rather than reproducing a classroom lecture, the value of online learning experiences lies in the potential for innovation.

- The author offers numerous practical strategies for facilitating online synchronous learning experiences. The common link among many of these strategies is maintaining sufficient control of an online experience. For instance, facilitators should set ground rules, maintain focus, and manage potentially distracting conversations and interactions.

- The author notes the benefits of co-facilitation in a live online learning experience. Teaching teams have the potential to pool resources and combine strengths, overall creating a more effective lesson.

- Preparation is of the utmost importance in online learning. Although scripts should be avoided, talking points should be prepared ahead of time and designed to steer conversation and learning in an appropriate direction. Moreover, educators should always have more content on hand than deemed strictly necessary for any online interaction.

- The author concludes with a chapter of suggestions for real-time online learning activities. Recommended activities include brainstorms, partner activities, and guest appearances and co-hosts.

**Silverman, S., et al. 2006.** *EEZ Book.* **NYIT: Educational Enterprise Zone.**

TYPE OF RESOURCE    Publication

CENTRAL IDEA    A publication from the New York Institute of Technology's (NYIT) Educational Enterprise Zone (EEZ) discusses best practices in videoconferencing in the classroom, including advice on tools, teaching strategies, and scheduling policies.

SUMMARY

♦ The Educational Enterprise Zone (EEZ) developed recommendations for videoconferencing in the classroom using a set of principles and beliefs established during a planning session. These underlying principles include the belief that it does not make sense for new technology to copy "traditional" classroom instruction, and also acknowledges that new media and technology has created new learners.

♦ The publication discusses best practices in a chapter dedicated to analyzing the different aspects of videoconferencing in teaching and learning. Topics include: practical tools for videoconferences, standards for successful videoconferencing, evaluation of the impact of videoconferencing in the classroom, collaborative efforts, and recommendations for scheduling sessions.

♦ Communication technology can be separated into two categories: synchronous and asynchronous. EEZ now records live sessions and continues to stream sessions; however, the asynchronous, recorded live sessions have been proven to effectively increase the quality of students' responses, allowing them sufficient time to reflect and process information. Demos of all the tools that EEZ utilizes are available on their web site.

♦ The EEZ consortium developed a set of rubrics to guide both producers and receivers through videoconferencing experiences in the classroom. Rubric subject areas include capacity, policies and procedures, content, presentation skills, and evaluation.

♦ The authors devote a section of the publication to an analysis of the pros and cons of Integrated Service Data Networks (ISDN) and Internet Protocol (IP) videoconferencing. Although faults with IP systems include increased occurrences of freezing and dropped calls and firewall troubleshooting, it is the more inexpensive option. Thus, most schools obtain IP-based units, which providers should consider.

♦ In the section "Evidence of Impact," Dianna L. Newman analyzes the impact of videoconferences supported by EEZ and/or NYIT, as shown through evaluations of the programs.

   ❖ Using observations, questionnaires, self-reporting and interviews, studies showed that videoconferencing within regular classroom use had a positive impact on both teachers and students.

   ❖ Open communication between providers and teachers, as well as alignment of curriculum standards to the programs, contributed to the most successful videoconferences.

   ❖ Compared to classroom discussions, videoconferencing in the classroom elicited higher-level questions from students.

♦ In a section detailing what receivers want from producers of videoconferences, the author notes a few key points that receivers should ask such as clear descriptions, including information about the number of students allowed, the price structure, refund policies and connection options.

**Dede, C., and Ketelhut, D. 2003. Designing for Motivation and Usability in a Museum-Based Multi-User Environment.** *American Educational Research Association Conference 2003.*

**TYPE OF RESOURCE**    Conference paper

**METHODOLOGY**    Program observations, pre- and post-program questionnaires, testing

**CENTRAL IDEA**    This paper analyzed the impact of Multi-User Virtual Environment Simulators (MUVEES), a NSF-funded research project that created multi-user virtual environments (MUVEs) that utilize digital museum resources to impact student learning in science.

**SUMMARY**

- Multi-user virtual environments (MUVEs) were originally based on textual descriptions, but the research project aimed to utilize graphics. The designed environments allowed students to access virtual spaces "synchronously," and also allowed them to explore and interact with digital artifacts from the Smithsonian's online collection.

- The study examined the impact of the designed MUVEs on middle school students and evaluated the effectiveness of MUVEs; specifically, "the extent to which guided inquiry and mentoring using digitized museum artifacts in virtual contexts can aid pupils' performance on both classroom assessments and on high-stakes tests related to national science standards."

- With input from teachers, the MUVEs were designed to focus on scientific experimental design, a subject that teachers highlighted as one of the most difficult concepts for middle school students to comprehend.

- The authors developed two curriculum units that aligned with national curriculum standards for science. The MUVEs allowed students to use avatars to explore virtual environments and interact with other students' avatars within these environments. Students also interacted with non-player characters (NCPs), such as the Smithsonian digital objects.

- In the MUVEs, the students are asked to solve problems, which they can do by investigating and sharing data within the environment.

- The evaluation of the test program collected both qualitative and quantitative data, gathered from both students and teachers over a three-week period.

- In the analysis of the results, the group that scored the lowest on the pretest improved the most after using the MUVEs.

- As MUVEs are relatively new technology, professional development for the teachers utilizing the technology is required. A combination of an intensive workshop and an in-depth training manual allowed teachers to feel prepared to integrate the technology into their curriculum.

- Although the findings were not conclusive, the study showed that MUVEs have the potential to significantly impact student learning. The study emphasized the potential of "immersive simulations" and "interactive virtual museum exhibits" to positively affect student learning, especially for low-performing students.

**Cavanaugh, C. S. 2001. The Effectiveness of Interactive Distance Education Technologies in K-12 Learning: A Meta-Analysis.** *International Journal of Educational Telecommunications* **, vol. 7, issue 1, pp. 73-88.**

**TYPE OF RESOURCE**  Journal article

**METHODOLOGY**  Meta-analysis of quantitative studies involving distance education in K-12 classrooms.

**CENTRAL IDEA**  Through an analysis of recent studies on distance education in primary and secondary schools, the article assesses the efficacy of videoconferencing in K-12 classrooms as compared to traditional teaching methods.

**SUMMARY**

- An initial review of the available literature reveals that although there is a significant amount of literature on distance education for adult learners, there are fewer studies on the effectiveness of distance education in K-12 classrooms.

- The methodology for the meta-analysis included assembling a wide variety of studies that analyzed K-12 distance learning experiences and attempted to measure achievement. Both quasi-experimental and experimental studies were included, as quasi-experiments tend to quantify more authentic experiences.

- Inclusion criteria for the studies:

    - Focus on distance education for K-12 learners;

    - Studies published between 1990 and 1998;

    - Experiments or quasi-experiments producing quantitative results; and

    - Free from obvious flaws.

- Statistical findings included:

    - The mean grade level of the experiments was 8.3.

    - 68% of the studies observed experiments that used two-way audio-videoconferencing; 26% used email only, and one used the Internet.

    - A majority of the studies (32%) focused on science as the academic subject.

- Findings from the meta-analysis showed that achievements in K-12 distance education are comparable to traditional teaching methods. Thus, educators including distance education technologies in their lessons should anticipate the same results as with traditional, face-to-face interactions.

- The relative lack of studies in 2001 about distance education as it pertains to K-12 education speaks to the fact that distance education is still "less proven" and certainly less evaluated than traditional teaching.

**Siraj-Blatchford, J., and Siraj-Blatchford, I. 2001. Developmentally Appropriate Technology in Early Childhood: 'Videoconferencing' - A Limit Case?** *AERA (American Educational Research Association) 2001 Annual Meeting.*

**TYPE OF RESOURCE**    Conference paper

**METHODOLOGY**    Program observations

**CENTRAL IDEA**    A manuscript explores the inclusion of videoconferencing technology in an early childhood classroom and the impact on development of Theory of Mind (ToM).

**SUMMARY**

- The authors designed the study to test the limits of videoconferencing technology on childhood development, as there is a great deal of literature touting the positive impact of technology on early childhood learning.

- The study tested 4 year-olds using free-play activities over short distances (5-10 meters) using simple cameras and microphones. The authors observed free play as well as structured-play activities.

- The experiment tested the development of Theory of Mind (ToM). The authors define ToM:

    - "A child with ToM is able to understand that other people have minds of their own, that they have their own understandings and motivations, and that they usually act according to their own beliefs even when their own beliefs are mistaken."

- Children typically develop ToM around 4 ½ years of age, and at this age children begin to engage in reciprocal play. Studies have shown that when children interact more with others, they can potentially achieve ToM earlier.

- The authors note that if teachers wish to include videoconferencing in early childhood classrooms, substantial interaction and collaboration must be included and encouraged.

- In the observed play and activities, the collaborations and interactions were often too short. Thus, these activities tended to frustrate the children, causing them to cease play.

- The videoconferencing technology succeeded in encouraging interaction between and among the children, as they often played in groups ranging from 2 to 5 children.

- The authors found that children who already possessed ToM played longer, demonstrating an increased aptitude for sustained play.

- The authors found that the mere existence of videoconferencing technology in an early childhood classroom does not promote the development of ToM in and of itself.

- Numerous studies have proven the importance of play in childhood development and learning, and the authors do not discard the potential of videoconferencing to encourage and sustain play. Future studies should be designed to test the possibilities and limits of videoconferencing technology for early childhood learners.

**Yost, N. (2001). Lights, Camera, Action: Videoconferencing in Kindergarten. In J. Price et al. (Eds.),** *Proceedings of Society for Information Technology & Teacher Education International Conference 2001* **(pp. 3173-3175). Chesapeake, VA: AACE.**

TYPE OF RESOURCE      Conference paper

CENTRAL IDEA      The article discusses integrating videoconferences in daily programs for a kindergarten class and explains the unique challenges of utilizing distance education technology with young children.

SUMMARY

- The available literature on the use of technology in early childhood classrooms suggests that there is currently a debate as to whether technology should be utilized. Some suggest that since many classrooms already struggle financially, computers may not be the best use of resources.

- The author chose to collaborate with another teacher to create a videoconferencing program in which the two classes would interact, and the program focused around weather reporting, a familiar activity for the classrooms.

- Kindergarteners, as early childhood learners, often struggle with understanding the concepts of time and distance. For instance, the author found that it is often difficult for them to understand how the weather may be different in another region, and where exactly that region is located.

- To assist with difficult concepts such as time and distance, the program utilized live webcams for different regions in the country. The classroom was able to access the live webcam that showed a different location every day, throughout the morning, viewing different conditions in various geographic areas. These views significantly helped with the students' understanding of time and distance.

- The program utilized daily videoconferences between classrooms, lasting about 15 to 20 minutes every day. The teachers directed the conversation as needed, often letting the children guide the short programs, asking questions of each other.

- A potential drawback of the daily programs, and a concern of the teachers, was if the time invested daily in the program was worth the time taken away from regular lessons. However, the teachers discovered that the daily videoconferences greatly enhanced learning and prompted valuable interactions between the classrooms.

**Gerstein, R. 2000. Videoconferencing in the Classroom: Special Projects Toward Cultural Understanding. *Computers in the Schools* (*The Haworth Press, Inc.*), 16(3/4): 177-186.**

TYPE OF RESOURCE        Journal article

METHODOLOGY        Case study

CENTRAL IDEA        An article describes a cultural exchange between fourth graders in Taipei and San Francisco.  The program used videoconferencing technology to connect the classrooms and centered on analysis of a travelling art exhibition, *The Splendors of Imperial China.*

SUMMARY

- The travelling exhibition, *The Splendors of Imperial China*, inspired two San Francisco arts organizations to create an exchange program that explored the exhibition.  Two fourth-grade groups, one in San Francisco and one in Taipei, participated in the program.

- Although the program itself featured only one face-to-face interaction through videoconferencing technology at the end of the program, the preparations extended numerous months.  Each group recorded videos of their preparations to visit the exhibition.  In addition, each group prepared a "Treasure Box" filled with objects inspired by the exhibition.  These boxes were exchanged prior to the final, one-hour live session at the end of the program.

- One of the most important elements contributing to the success of the program was sufficient planning.  Contact between the two groups took place over email or fax, due to obvious geographical limitations.  Thus, the considerable time difference between Taipei and San Francisco proved to be a challenge, as there was often an extreme delay in response time.

- The author highly recommends at least one test call before planned videoconference sessions.  This allows organizations to test the technology and ensure more productive live sessions.

- Preparation for programs also includes sufficient preparation of the students prior to a videoconferencing session.  Students should be made aware of the logistics of the technology that will be used, and should be advised about manners, and when applicable, potential language barriers.

- When designing a distance education program, the author cautions that providers should endeavor to ensure that an interaction is taking place in the live session.  Passive programs, in which students solely watch presentations rather than interact with each other, should be avoided, as this defeats the point of interactive videoconferencing sessions.

- Among the numerous benefits of videoconferencing technology in the classroom, the author notes that distance learning programs have the potential to increase student motivation and improve presentation skills.