

# **Blended Learning in a Supplementary Education Program for Severely Disturbed Adolescents: An Ethnographically-Oriented Case Study**

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## Abstract

The “South-Side Home for Trouble Youth” established a research and demonstration project to evaluate use of a blended implementation of a computer-based Integrated Learning System (ILS) in a residential treatment facility for severely emotionally disturbed pre-adolescents and adolescents.

During the late 1980’s, the remedial instructional intervention described in this case study provided math and literacy instruction for a supplementary summer education project undertaken supported by the local Private Industry Council (P.I.C.) and funding made available through the Federal Job Training Partnership Act (J.T.P.A.). After completion of the project, a program evaluation was prepared and delivered to funding agencies as per standard contractual requirements binding on all federally supported grants and contracts. (Blomeyer, 1989) The report and its findings were at the time not published or publicly disseminated to assure the privacy and anonymity of all participants and their community.

Researchers on-site conducted an investigation to evaluate the project's impact on the sponsored participants’ grade level achievement in math and language arts (literacy). Impact was assessed and reported based on two data sources: (1) detailed student-level data documenting participants’ daily and cumulative progress toward mastery of assigned mathematics and language arts content, and (2) a pre-post test comparison of sponsored participants’ scores on a contractually required standardized test assessing math and language arts achievement.

An analysis of the participant’s scores on pre- and post- standardized achievement tests failed to show any evidence of achievement gains, but data from the Integrated Learning System provided evidence that major gains were made toward grade-level mastery of math and language arts content by nearly all of the participating students. The project’s apparent positive impact, supporting significant mastery gains and reduction of participants’ pronounced achievement gaps, suggests that online instructional delivery systems, when accompanied by on-site mentoring and personalized learning support, may be very beneficial when used with similar academically and emotionally challenged student populations that are served by today’s schools and social services agencies.

## Introduction

It is common for educational researchers and educational practitioners who are interested in discovering new tools and instructional strategies for improving students' academic performance to dismiss findings from educational technology research when the technologies employed include possibly "obsolete" hardware, operating systems, software, or connectivity infrastructure. Conventional wisdom suggests that increasing probabilities of hardware failure increase as components approach their "mean time to failure," and technology systems more than three to five years old should ideally be replaced before they fail and contribute to increasing "total cost of ownership" (TCO). (Gartner Inc., 2003)

Conclusions or inferences about the usability or relevance of technology systems based entirely on the technical qualities or characteristics of hardware systems is supported by early, traditional definitions of instructional technology. The earliest origins of instructional technology reach as far back as the earliest use of audio-visual and media technologies in the K-12 public schools. In the seminal work entitled *Instructional Technology Foundations* by Robert Gagné, we find the following:

"The pieces that make up instructional technology [include]: television, films, overhead projectors, computers and other items of 'hardware' and 'software'" (Reiser, 1987, p. 11)

In this "technology centered" definition, teachers are not part of the picture. In this definition, "instructional technologies" are material objects or "artifacts" that exist independently from any practical application or socially imbedded use. Although definitions of instructional technology have evolved considerably since then, the view that computers in schools are primarily "boxes and wires" persists today.

Consistent with the "technology-centered" definition quoted above, the instructional technology system used to provide fully online instruction during the nine-week remedial education program illuminated by this chapter might be described like this:

*The computer-based instructional intervention in this chapter occurred during the late 1980's, before the development and diffusion of the "Internet" as we know it today. The computers were Tandy 1000's using Intel 8086 microprocessors and installed with 640K of memory. The DOS microcomputers were all installed with "Archnet" networking cards connecting them over the local area network to a shared Novell file-server and a spooled dot-matrix printer.*

*The computer-based instructional materials and an instructional management and progress reporting system were installed on the file server and accessible from every microcomputer on the network. There was no internet access to or from the network, but the Novell file server had a modem-linked "back door" that was used system technicians to provide technical support and make software upgrades.*

There is no mention in the italicized section above of students or teachers, and there is little background to suggest or even hint that these apparently “obsolete” technologies might have supported a instructional intervention illustrating “best practices” with potential for informing contemporary online learning policy and. We ask our readers to look beyond the “boxes and wires” to ascertain both how those instructional technologies were used and what the consequences were for all the participants; including students; their teachers, the institutional staff, researchers and for the therapeutic learning community where these events occurred.

The online instructional project described here examines both the academic “effects” and practical consequences of a blended, online teaching and learning project on academic achievement by participants in a summer, academic enrichment program.<sup>1</sup> It offers a compelling illustration of a blended online teaching and learning project that supported significant improvements in the performance of students whose achievement lagged far behind their age and grade level.

The chapter addresses three questions. The first two were previously addressed by the projects’ original, contractually required program evaluation examining the intervention’s impact on the academic performance of sponsored participants. A third question addresses whether or not there was any subsequent evidence of impact within or beyond the program and its immediate community.

Those questions and the constituencies they represent are:

1. Does the intervention result in achievement gains by participants that meet the sponsor’s definition of “acceptable evidence” for making determinations about the “success or failure” of the project? (Constituency is the funding agency; i.e., the local Private Industry Council or PIC)
2. Did the intervention show other acceptable evidence of increasing participants’ math and language arts achievement? If yes, did the participants interpret other available evidence as confirming their success? (Constituencies are the direct participants; i.e., the students and teachers.)
3. Did the intervention show evidence of contributing to lasting improvements or changes in the program studied? To related programs within their community, or to related educational programs situated regionally or nationally? (Constituency includes all the program's residents and staff members and extends to related programs in their immediate community and beyond )

For this chapter the names of all the participants, the residential treatment facility and its managing agency, and the community where the actual events occurred are changed to protect the privacy of everyone concerned. The people and events described in this case study are faithfully adapted from the project’s summative evaluation report; as written by the author pursuant to his responsibilities as program evaluator<sup>2</sup>.

## Southside's Facility and Community

The Southside Home for Troubled Youth, a residential treatment center, is one of two sites managed by a not-for-profit company named Rehabilitative Services and Educational Care for Adolescents (RSECA). A larger, residential facility is located in North City and the company headquarters and Southside Home are both in Central City.

Southside Home is located on Brickyard Road in a leased county building that is also the home to County Children's Protective Service, Juvenile Probation, and Community Mental Health Mental Services for Central City and its surrounding county. The building had once been a Shriners retirement home. Southside consisted of ten dorm rooms, twelve offices, and two day-rooms. It was usually home for about 20 residents; 24 hours-per-day and 7 days-per-week.

The summer remedial education project was funded by a grant from the local Private Industry Council (PIC) to provide supplementary educational services in language arts and mathematics. When the Southside residents were given the Test of Adult Basic Education (TABE) "locator exam" by staff members from the PIC (a contractually required standardized achievement test), the residents scored lower on the locator exam than young persons of similar age ever tested before by the PIC in their county. This diagnostic "snap-shot" effectively documented the extremely low levels of academic performance that had previously characterized this particular group of students.

The residents at Southside did not participate in remedial educational programs sponsored during the summers by the local school district. The district ruled that because these particular students resided in a private "in-patient" mental-health treatment facility, the managing agency had sole responsibility for any educational programs provided during summers. The district's ruling was based on similar rulings made against providing summer remedial services to "private," for-profit hospitals and in-patient treatment facilities in the same community. Because Southside Home received only basic, per-capita support (public assistance) for housing the residents (minimal custodial care), no internal resources were available to support summer educational programming.

A proposal was made by Southside's Managing Director, to the local PIC, requesting support for running a summer remedial program for "at risk" high school students. His proposal successfully secured JTPA funding for a summer program offering the residents an opportunity to make progress toward narrowing large, persistent gaps between their respective age and assessed levels of achievement in math and language arts. Only 12 out of the 20 residents present when the proposal was submitted were technically qualified for sponsorship under the program's federal guidelines. The PIC permitted a "limited exception" to the guidelines and agreed to allow all the residents to participate but financial support was provided only for the qualifying residents.

The Southside project started after last regular district-sponsored high school class, spring semester in early June. By the time the project started, Southside received two more residents, bringing the total to 22.

Support for the project enabled hiring (1) a certified special education teacher (who was also their assigned, certified “emotional disabilities” specialist during the academic year), (2) a teacher's aide (also employed during the school year by the local district), and (3) an instructional technology specialist & program evaluator. The grant also leveraged beneficial arrangements with both Tandy Inc. (the hardware installation) and Wasatch Learning Systems Inc. (computer-based materials) enabling the use of fully online, computer-assisted instruction to be delivered over networked microcomputer workstations deployed in the Southside facility.

Both the hardware and ILS vendors entered into agreements with Southside enabling no-cost, trial use of the hardware and courseware systems under a business arrangement commonly referred to as a “Try and Buy.” Southside got the instructional systems to try (at no cost) and evaluate the results for a period of six months. The agreement stipulated that if the system performed up to the expectations of Southside’s Director and managing agencies, Southside would make a “good faith” effort to purchase all the systems components at a contractually stipulated price. The “Try and Buy” period provided ample time to support the Southside Summer Remedial Project.

The Wasatch integrated learning system (ILS) provided online learning activities supporting accountable, fully managed math, reading, writing, natural sciences and social sciences curriculum materials paralleling instructional content used in the public schools for supporting the same subjects; from kindergarten through approximately the tenth grade. Although some instructional objectives required under State curriculum standards were absent from the Wasatch online materials, the coverage was judged as being acceptable for remediation of low assessed achievement in language arts and mathematics.

The Wasatch online materials automatically provided each student with individualized and differentiated online learning activities for each class or subject for which they were enrolled in the management system. Curriculum management decisions for individual participants were based on the principles of “Mastery Learning.” The Wasatch learning system was entirely self-pacing and include imbedded “mastery criteria” used to evaluate the scores from each student’s completed daily work. The instructional management system automatically evaluated all incorrect items and repeated “un-mastered content” until students’ cumulative scores reached the mastery level required before the student was permitted to proceed to the next logical unit (content module) in the instructional sequence.

According to curriculum research conducted by Wasatch Instructional Systems, the correlation between the Wasatch online math and the State’s mathematics curriculum was better than 80% for Fundamentals of Mathematics and for first year Algebra. The teacher's task was to integrate the available computer-based, online learning activities into individualized programs tailored to the academic levels of each student. In curricular areas where the Wasatch materials did not provide coverage, the teacher used textbooks, supplementary readings, research and other instructional strategies to fill in the curricular gaps.

The original “summative evaluation” was organized and written to address the contractually stated requirements for assessing the intervention’s contribution toward remediation of the participants’ assessed deficiencies in math and language arts. The evaluation report for the PIC included standardized achievement testing scores (pre-post) and detailed individualized reports detailing the math and language-arts content mastered by each participant, at (or surpassing) the 70% level for the nine-week project period. Mastery scores from mathematics and language arts content mastery were compared with pre-post- testing scores on the Test of Adult Basic Education or TABE.<sup>3</sup>

TABE was the standardized assessment required by the Federal sponsors for evaluating whether or not contractors attained required levels of grade- level achievement in math and language arts, as stipulated in contracts with the sponsored educational service providers. The TABE was at that time the only standardized assessment required for “Summer Remedial Education Projects” sponsored under the federal Job Training Partnership Act. (JTPA)

### Southside’s Residents

To the casual observer, the young men and women at Southside appeared to be normal teen-agers, ranging in age from twelve to seventeen. They came in a variety of sizes and shapes: Some of the young men appeared to be *quite young*, appearing immature in both stature and vocal tone<sup>4</sup>. Other residents were by all appearances grown men who shaved daily and whose voices were well into the bass range. Most of the female residents appeared to be physically mature and seemed conscious both of their own appearance and its impact on some of the young men.

The residents’ ethnic constituency was about 1/3 African-American, 1/3 Hispanic and 1/3 Caucasian. There were no American Indian or “Asian” residents. They wore the traditional uniforms of their age group, tee shirts extolling the virtues of rock bands, beer brands, or ball teams. Male and female residents alike wore sneakers (loosely laced, if at all) and, the “layered look” was *in*. Earrings were common among the young men and women alike. A few had acne and seemed predictably self-conscious accordingly.

In general, they looked much like average mall-crawling adolescents. Appearances can be deceiving. These twenty teen agers were not your average high school students. They were “residents” in an in-patient mental health facility specializing in the treatment of seriously emotionally disturbed youth.

The longer that any adult “outsider” lingered at Southside, and gradually gained more opportunities to observe interactions among the residents, the more significant that distinction became. The first thing an outside observer probably noticed was that the distribution of males and females was disproportionate: roughly two thirds were young men and one third were young women. If an adult outsider had opportunities to observe verbal or non-verbal interactions between the two sexes, they were markedly briefer and more “strained” (i.e.; formally courteous; even “polite”) than the usually entertaining

banter between the traditional adolescent “warring camps” in the battle between the sexes.

If an observer stayed around enough to get opportunities to overhear residents conversations with one another, it was clear that many (or most) of the residents had limited vocabularies and their speech patterns were often irregular or hesitant, signaling the speaker’s probable lack of confidence and self-esteem. Eventually, every adult visiting at Southside noticed that the residents seldom spoke to adults. It seemed apparent to many outsiders that some of the residents were intellectually and/or socially “challenged.” About one third of the residents had IQ’s that tested below 90.

The residents were “admitted” to Southside for “treatment.” Nearly all residents’ case files contained a court order stating: "The child (name) is with out support and dependent upon society for protection." Their bulky folders were rarely less than three inches and frequently six or more inches thick, containing not only legal documents but also case histories on each resident. Most described dysfunctional families and there were often references to deplorable living conditions and physical abuse. Terms like “neglected, hyperactive, aggressive with peers, uncooperative, demands attention, selfish, poor impulse control” appeared in many of the residents’ folders. Folders of both male and female residents had references to repeated sexual abuse by their parents or stepparents, and by their *friends*.

Most residents’ cases had been before authorities in multiple social service agencies and the juvenile justice system. One group of residents had all been in some form of family counseling or therapy. Although these residents were not generally delinquent, they all came from deeply troubled family situations. A second group of residents had long histories of delinquency and incarceration. They had generally all been in repeated scrapes with the juvenile authorities and the courts. A few of the residents’ folders showed evidence of handling both by social service agencies and by the juvenile authorities.

Nearly all residents had had troubles in and with the schools. Typically, they were behind grade-level, lacked skills in reading, writing and mathematics, and had been retained in one or more grades or expelled from school. Expulsions were generally associated with fights, both with peers and with teachers. Most residents lacked complete school records because they moved frequently.

In short, their placements at Southside were a reliable indicator the residents had histories of violent episodes and that community social-service agencies had been unable to achieve successful placements or demonstrate sustained therapeutic progress. The Southside Home for Troubled Youth was a placement of “last resort” for severely disturbed youths from low-income families; with nowhere else to go in the system.

## Implementation

Not all of the Southside residents qualified for sponsorship under Title IIB of the Job Training Partnership Act. Guidelines governing qualifications for summer “enrichment” programs were clear that eight of Southside’s residents were either too old or too young to qualify. Since it would have been nearly impossible for Southside to offer a summer remedial program for only about half of its residents,

The Program Director negotiated an arrangement with the PIC that allowed residents who were not fully qualified under the program’s guidelines to receive services; but at reduced levels of support. The sponsors required Southside to divide the computers and equipment between two rooms and install twice as many computers in the room designated for use by the sponsored participants. Their rationale was this arrangement would assure that most of the technology resources would be used supporting instructional programming with sponsored residents.

The following day, the relevant details were communicated to both the networking consultant and the electrician. Afterwards, the network installation was completed relatively quickly. Room 1 was fitted with eight computers for use by the project’s 12 fully sponsored residents; along with a file server, and a spooled dot-matrix printer<sup>5</sup>. Room 1 connected to Room 2 by a data cable that passed through a conduit into Room 2. Four computers were installed in Room 2 for the use of Southside residents who were not fully qualified for JTPA sponsorship<sup>6</sup>.

During installation of the microcomputers and network, but before the start of the Southside summer project, the Facility Director and the evaluation specialist frequently scheduled meetings together and collaborated during much of the planning and preparation required before beginning the Southside summer project. During that period, the Facility Director tried to support the program evaluator to share a better understanding of the his goals for the summer project and some of the “real needs” of the Southside Residents.

Early in the afternoon on the day, the hardware installers finished their work, at about 3:00 PM the facility director approached the evaluator and began a conversation:

Director:

Come on Blomeyer, we’ve both worked enough for today. It’s time for you and me to take a break. We’re going shopping.

Evaluator:

Shopping?

Director:

Yesterday afternoon was the opening of that big new computer store over on the west side of town. *Computer Mecca*. Since this is only the second afternoon they've been open, the crowds shouldn't be too bad this time of the afternoon. We're going to buy some *computer games*.

Evaluator:

Computer games? What would the Private Industry Council think if they ever found out they're paying for your residents to use this system to play computer games?

Director:

First off, our residents won't ever get the chance to play the games we're about to buy during designated working hours (summer school). We're only going to use them as reinforcement for the kids who finish their assigned work and have the mastery scores to show for it. There could conceivably be a little "slippage" every once in a while; **but so what?**

Look Blomeyer these kids need to have some fun this summer, or they're liable to get so wigged out and wound up that they'll be wantin' to tear this place apart?! If getting an opportunity to play a few computer games after their works' done gives the kids enough to look forward to so they've motivated to finish some of their math or language arts assignments, we might just be able to get this project to work!

This isn't optional. We're doing it. Come get in the car, I'm driving. You were telling me about some of those computer games you bought for your sons to use at home. So you know more about this stuff than I do. You're the *computer consultant* so get in the car, stop arguing with me about whether we're doing this or not, and give me some good advice about which ones to buy.

The Facility Director and I went to *Computer Mecca*. We bought a variety of the first generation of Intel 8086 computer games; including *Street Fighter*®, *Microsoft Flight Simulator*®, *Pac Man*®, *Ms. Pac Man*®, *Ultima IV*®, *Oregon Trail*®, *Where in the World is Carmen San Diego?*® and others. When we returned to Southside, there was a group of residents waiting at the outside door, watching for us literally "wide-eyed;" and being watched by a wary child-care worker.

It was clear from the questions they asked as they followed us into the building that we had their attention and they wanted what we brought back. The computer games proved to be an initially effective extrinsic motivator. The games offered the residents a "recreational opportunity" they wanted badly enough to initially try completing their online assignments.

### *Professional Development for Teachers and Staff*

The following day (mid-June) hardware installation was completed. That same morning, Wasatch system technicians arrived to install the courseware and management system on the Novell file-server and an accompanying Wasatch professional development specialist started working with the two summer teachers and evaluation consultant on learning how to use the courseware and instructional management system. The two summer teachers were employed by the local school district as the Southside's regular special education teacher and teacher's aide during the regular school year.

The Wasatch trainer finished working with the both summer teachers at about 3:00 on the first day. Afterwards, the trainer, consultant and teachers conferred and a schedule was devised that divided each instructional day into 9, 30-minute online sessions, per computer.

The "usual and customary" professional development support "budgeted" for new clients by Wasatch was a maximum three days from a full-time professional development specialist. In our case, the Wasatch professional development specialist left after receiving a phone call early the following morning. However, professional development for the teachers and Southside staff didn't end when the Wasatch professional developer *left the building*.

During the single day the Wasatch PD specialist spent at Southside, about four hours were spent on training activities with the teachers, and about two hours more were spent showing the Director and evaluation consultant how to use the courseware and instructional management/ performance reporting system. The implementation plan called for the Director and evaluation consultant to provide up to two weeks of intensive, situated "just in time" support and ongoing professional development for both teachers.

Sponsored students were each assigned six of the nine daily online sessions available (Site 1) and un-sponsored students were each assigned five daily online sessions using the Wasatch materials (Site 2). Schedules also accommodated collaborative pairs of students at the same grade/reading level working together, when and if such collaborations were feasible.

Individualize study plans were developed for each resident that included content in math, reading, writing, natural science and social studies. Science and social studies materials were assigned "in addition to" the language arts and mathematics instruction strictly required under the contract with JTPA "Content-based" reading assignments in history and natural science units were see as good practice for building vocabulary and reading comprehension.

The mastery tests that would assess "successful completion" of each history and natural science unit also provided evidence documenting residents' progress toward completing high school graduation requirements. The students' regular, special education teacher was

the lead teacher during the Southside summer project. The lead teacher was authorized by the Community Services division the school district to evaluate all work completed by Southside residents during the summer project to determine whether or not credits could be granted toward high school graduation.

Some of Southside's residents were registered as "at large" high school students through the district's Community Services division. Several of the residents lacked history or science credits required for graduation. They were encouraged to use all the resources available during the summer toward completion of those courses. Evidence documenting content mastery over materials equivalent to required history and science courses enabled the teacher to recommend granting high school graduation credits for several participating residents.

### *TABE Pre-Testing*

On June 15<sup>th</sup>, the evaluation consultant administered the T.A.B.E pre-test to the sponsored participants while the Wasatch trainer demonstrating the ILS curriculum materials to the two teachers. Administering the TABE took most of the day and proved to be a challenge for the program evaluator and unexpectedly became a nearly "traumatic experience" for most of the residents.

Administering the TABE precipitated generalized "acting out" and disruptive behaviors by the majority of residents. Their high levels of testing anxiety and generalized hostility toward one another (and the adults responsible) became obvious just as soon as they were asked to sit down in rows (every other seat apart) and the test booklets, response forms, and number 10 pencils were passed around. The change in their mood was nearly instantaneous and things got ugly fast.

After break, the facility director and two child-care specialists appeared as "reinforcements," just in case one or more of the residents needed to be removed or "restrained" because of potentially violent outbursts. A few residents refused to return after a break and were subsequently "physically encouraged" to return to the room, sit down, and complete the second half of the test. Several residents finished the second half by randomly marking the forms.

After completing administration of the TABE, the evaluation consultant and the teachers made final revisions in the work schedule. The teachers made plans for the first hands-on use of the Wasatch ILS by residents to begin on the following morning. Later that afternoon, the evaluation consultant and the Wasatch trainer created student sign-on's, instructor sign-on's and set up the individualized instructional programs (including math, natural science, language arts and social studies) for each of the 22 residents who were all participants in the Southside summer remedial project. <sup>7</sup>

The starting levels for residents' initial placements in the managed curriculum materials were at levels of difficulty set intentionally one full grade level below their assessed performance levels for math and literacy. The teachers, Southside staff and consultants all

consulted on the initial placement decision, in hopes of giving all the residents a better chance to experience some easy initial success using the automated online instructional system.<sup>8</sup>

### *Managed Online Instruction Begins*

On the morning of Friday June 16th, The Wasatch sign-on procedures were demonstrated to residents in both sites and the Southside summer remedial education project finally started. At first, the residents appeared to be tentative and were seemingly unsure what to expect from lessons assigned online for completion using a microcomputer. Only a few of the residents had taken a "computer literacy" class during the school year. That "introductory unit" only included keyboarding skills and limited use of instructional software on Apple IIe microcomputers. None of the residents had background preparing them to understand how a network with shared resources worked and most expressed surprise when they began to realize the full extent of the online on-line instructional materials available for their use.

The first day was devoted to assisting residents with "basic's" everyone needed to use the Wasatch integrated learning system for the first time. Both teachers worked individually with their assigned residents; under the supervision of the Wasatch professional developer. The first day's schedule used the previously planned 30-minute, rotating schedule for the first time. It worked generally worked as planned, but by the end of the first day the sponsored residents' schedules got a few minor changes.

Both teachers provided assistance signing-on for the first time and directing the residents to locate initial practice exercises. Teachers divided the residents into pairs that worked together on the same computers completing the typing tutorials and games. This assured the students all got some initial practice and hands-on experience using simple online courseware. By the end of the first day the residents had tested their individual sign-on's and were ready to continue their work online the following Monday morning.

At some point during that first day, it seemed apparent to everyone that things "felt right" and the project seemed to be working as planned. There was a moment sometime during the afternoon when everyone sensed the other participants (support staff, teachers, and residents) were "engaged" and learning together harmoniously, but each participant was learning something *different*. The residents learned how to use and navigate their individualized instructional programs. Both teachers started learning how to engage with their "students" to support residents differentiated instructional programs. Finally, the Wasatch trainer, program evaluator and facility director stepped back to observe and learn first hand what a blended online learning project looked like in operation.

Debriefing with the teachers after the first scheduled instructional day revealed considerable enthusiasm overall for using the Wasatch materials and general satisfaction with the rotational schedule. The teacher in Room 2 discovered that having only 4 out of 10 students working on-line during any scheduled rotation made things predictably uncomfortable because everyone wanted to use the computers all the time on the first

day. The lead teacher in Room 1 also experienced some “keyboard envy” during rotations off the computers, but the situation was easier to manage overall because a majority of sponsored participants was using the computers all the time.

The teacher in Room 1 decided that the 30-minute activity periods were not sufficiently long for the students to work effectively. The sponsored participants’ schedules were modified to provide them all with six 45-minute instructional periods daily. Four daily rotations were scheduled online and two rotations were scheduled off-line. That gave participants in the sponsored group 3 out of a possible 4.5 hours per-day online; or about 15 hours per week on-line out of 22.5 total instructional hours available per participant.

### Managing Curriculum and Behavior

Initial enthusiasm for using the Wasatch Instructional System carried the project through the first week without major disruptions or incidents. The two teachers and most of the students remained strongly motivated and engaged.

#### *Initial Success*

During the first week, both the residents and their teachers saw steady evidence of success on all fronts. Residents were initially delighted to read the automated messages praising their progress toward mastery from the instructional management system. These automated affirmations of initial success, along with praise from their teachers and all the other adults supporting the implementation were seemingly enough to propel most of the residents into virtually zipping through their online assignments. Subsequently, they all qualified for the anticipated rewards, which were use of the computer games during their free time after work and on weekends.

For a week, both computer labs were in nearly constant use during all the scheduled recreational periods; both after class in the afternoon and in the evening before lights out. Near the end of every “work day” during the first week, it became a standard practice for both teachers to some spend time with each individual resident reviewing the day’s accomplishments. The student record management and performance reporting system enabled the teachers to view daily performance summaries for each resident. Summaries were reviewed onscreen first by residents and teachers, and afterwards teachers requested summaries be printed on the network’s shared printer.

The residents were given daily printouts that verified they had mastered their quota of math and language arts content. After class, they took their “evidence of success” to staff-members assigned to be the “guardians” of Southside’s computer games. The Southside Director himself assumed initial responsibility for this new “hazardous duty” assignment. He seemingly enjoyed passing out the floppy disks himself at first; but he only did so for the first few days. Those responsibilities were delegated to other Southside staff-members.

The Director's plans called for gradual changes toward establishing both the recreational and instructional use of the computers as another part of Southside's institutional therapeutic programming. For him, first steps included leveraging his child-care staff to start supporting the educational programming in the same ways they were already supporting Southside's recreational programming. During the regular school year, the child-care workers and the teachers hardly spoke. His initial change strategy seemed to be the same for teachers, residents and the staff-members alike: *computer fun for everyone!*

However, as residents' online assignments over content below their actual achievement levels were all finished, and the difficulty levels for their assigned work began to float up to their actual tested levels of achievement, *things changed*. By the end of the first project week, easy progress toward mastery was quickly becoming hard work. As the project's second week began, it became increasingly obvious to everyone that the "virtual honeymoon" was over.

### *First Plateaus in Resident's Learning Curves*

Residents began to receive assignments over content that was no longer familiar and easy. All the residents were eventually assigned reading and math lessons they could not master and this effectively stopped their progress through the progressively more difficult managed content and mastery assessments.

Automated completion messages from the Wasatch management system changed from:

Very good! Now, let's go on the next unit.

to:

You had too many missed items on the mastery test. We should go back over that material again before going on.

Each resident's automated daily progress report eventually confirmed that they'd "plateaued-out." Mastering the online assignments became progressively harder and harder and residents couldn't show evidence of the progress required to use computer games during the recreational periods after class and on weekends. By Tuesday of the second week, most of the residents were starting to show signs of escalating frustration, increased irritability, and mounting hostility. Teachers and staff-members began to notice increasingly aggressive exchanges between residents in the classrooms and increasing hostility toward both teachers during instructional periods.

During the first week, there were only a few "behavioral incidents." Those predictably involved only the most chronically unstable Southside residents. There were two incidents during the first week when individual residents became unexpectedly agitated and escalated until fights occurred involving one or more residents. These random outbursts occurred for seemingly trivial, probably irrational reasons. Those few incidents

that occurred during the first project week precipitated swift and efficient removal of the residents involved.<sup>9</sup>

Toward the middle of week two, the residents as a group were on the brink of a *management meltdown*. By the end of class Wednesday, it seemed clear to all the adults that something needed to be done soon. Behavioral outbursts and removals had been all too common in the regular classrooms during the school year. Aggressive and violent behavior had been the rule rather than the exception at Southside.

### *Rules for Managing the Computer Classroom*

Despite resident's frequent violent outbursts during the regular year, class at Southside always regrouped and continued. Because the norm was reportedly having half or less of the residents attending class on any given day during the regular school year, a behavior management system was developed and implemented to do everything possible to restore order in Southside's classroom and quickly return to the business of teaching and learning.

Southside's classroom management during the regular school year was based on a simple and consistent system of rules defining appropriate resident participation. The regular Southside classroom rules were well understood and acknowledged by all the residents.<sup>10</sup> The regular classroom rules included explicit enforcement contingencies crucial for managing residents' behavior and maintaining a safe and productive classroom environment for residents during the school year.

By the second week, it was apparent the residents hadn't generalized the old classroom rules to the newly remodeled computer classrooms.<sup>11</sup> Both classrooms now included double rows of computer desks occupying most of the available floor-space. As the residents' frustration and tensions rose, the teachers and staff became increasingly aware, the computers and monitors could become a danger to the health and safety of everyone if some random violent outburst was not contained quickly enough.

*Different* rules seemed to be required for effectively managing residents' behavior in the computer classrooms. Revised rules needed to be developed, presented to residents and staff, and made effective as soon as possible. After class on Thursday during the second week, when residents returned to their rooms for "quiet time" before dinner, the Director and author met. The old familiar classroom rules became new "computer classroom rules" that were hopefully more suitable for managing residents' behavior during the ensuing weeks.

The "new rules" incorporated all the established expectations for appropriate classroom behavior and defined consequences that followed violating those expectations. Only a few additional words were added about the presence and importance (high value) of the computer system. Those stressed the importance of calm, deliberate and "safe" classroom behavior necessary to insure the safety of everyone; and the instructional system's hardware and software too. Importantly, the revised rules explicitly extended all the

customary “rights, responsibilities and expectations” so that they applied explicitly to both residents and staff members during daily assignments working in the computer classrooms.

The next morning (Thursday, Week 2) the “new rules” were communicated orally and in writing to every resident, posted prominently on the wall on the wall in both computer rooms, and provided in writing to all the child-care staff members who were responsible for supporting the summer instructional project. The child-care workers were crucial for the successful implementation of the revised, computer classroom rules.

Before, the child-care workers’ summer jobs had been considerably easier. The Southside residents were usually less anxious and aggressive when they weren’t attending school. Before the new classroom rules were made “official”, it probably wasn’t perfectly clear to either the child-care workers or the residents that managing the summer school classroom included “business as usual.”

In effect, the “new classroom rules” changed the child-care workers’ job descriptions and explicitly made it the child-care workers’ responsibility to intervene in the computer classrooms in the same ways required during the school year. By design, everything that occurred in Southside’s “therapeutic community” was rule governed and all the adults in the community had crucial roles maintaining the institutional stability and consistent treatment required to support all the residents’ therapeutic plans.

As was the standard for all the “official” rules defining Southside’s expectations for resident’s conduct in all institutional settings, violators of rules were warned first, then the residents involved were “asked to leave the room” (or removed, as needed) for the remainder of the scheduled activity period. Removals were the job of the child-care staff. Additionally, residents’ earnings were to be “garnished” for any “work time” lost,<sup>12</sup> and all the involved residents’ privileges were to be suspended for the duration of the removal period.<sup>13</sup>

The residents’ response to the introduction of the new “computer classroom rules” was telling. Their response as a group was summarized by one of the most intelligent (and often most *oppositional*) residents. He politely looked them over while the Director read them aloud for the first time. Just as soon as the Director finished, he said loudly:

OK. Rules. *We all know the deal*. Now can we please get back to work?

Things eventually turned around again, but not without an interesting psychological battle between the residents and responsible adults. Residents apparently were somehow compelled to try “testing the system” to see if they could manipulate staff-members and somehow gain the use the games without achieving the required progress toward mastery.

When privileges to use the games were subsequently lost, and resident’s creative pleading and other manipulations didn’t win back their use of the computer games, a few residents returned on a subsequent day, acted out, and were quickly “asked to leave” the

computer classroom. The rules held and the teachers and child-care workers all played their respective parts.

Despite initial “resistance,” both teachers continued perfecting their “learning support” strategies and learning curves eventually turned up again. By the beginning of Week 4, the plateaus in residents’ mastery curves were changing to ascending “saw tooth” slopes, and the majority of residents were once again sharing the use of their favorite games during designated recreational periods and on weekends.

### *Creating a Therapeutic Learning Community*

One of the factors contributing to effective behavior management in the computer classrooms involved teachers and staff members using what became a routine procedure for microcomputer lab management that can be simply described as “circulation.” It required the adult caregivers or teachers responsible to deliberately walk around behind the residents, observing and providing periodic support while they completed their assignments.

The following brief observation of Teacher 1, Staff Member 1 and various sponsored residents in Classroom 1 is a typical example illustrating how “circulation” supported and encouraged students’ success:

(Classroom 1, positioned near Novell server and printer; out of the residents’ and teachers’ way.)

Resident 1 (in front of me) is using WordPerfect to complete a history book report assigned by Teacher 1. Teacher 1 is working intensely with Resident 4; seated at desks away from the computers on the other side of the room. Staff Member 1 is circulating around the room, providing support and encouragement to residents working on the computers.

Somewhere between the word processor and the Wasatch management system Resident 1’s computer has locked up – *crashed*. Staff Member 1 stops behind Resident 1 and coaches him/her to restart the Tandy 1000 and log back into the learning system.

Staff Member 1 addresses the Teacher (across the room) noting that this has been happening some recently. Then Staff Member 1 turns to joke with Resident 1 that it *never* happens twice in the same period. Teacher 1 nods and goes back to tutoring Resident 4.

Staff Member 1 starts circulating again after it looks like Resident 1 has things figured out. Resident 1 restarts the Tandy and signs back into the Wasatch ILS. The document Resident 1 was working on is gone!

Resident 1 grumbles:

Stupid computer. Where'd my work go?

I reply:

You didn't have much to save yet. Start over. This time, remember to save your work.

(It was common for me to give pointers to Residents, particularly to encourage good work habits. Even after staff members became more proficient at circulating to support the computer classrooms, they couldn't possibly be everywhere at once.)

Staff Member 1 is circulating around the room and stops to listen to Resident 3, who has a question about their assignment. The question is easily answered by giving a synonym for an unfamiliar word on-screen, and circulation resumes again. The residents in the room are all working steadily on their assignments; on and off the computers.

On my side of the computer classroom, where I can see computer screens, Resident 2 crashed another Tandy. The cursor disappears and Resident 2 calls across the room to Teacher 1 for help. (Teacher 1 winces...) Staff Member 1 swings around the room, points to Resident 2's power button, and reminds Resident 2 how to do a hot-restart. Staff Member 2 circulates on as sure as it seems certain that Resident 2 knows what to do next.

Resident 2 turns around and asks me if it is OK to restart the computer. I say yes and remind Resident 2 about periodically saving work. Resident 2 asks if I know how to save. I say no... *ironically*. Teacher 1 observes my interaction with Resident 2, nods approvingly, then continues working intensely with Resident 4.

(Resident 2 knows how to save. I'm limiting support interventions so the residents' get accustomed to depending on their teachers and staff members for support.)

The residents sense they're coming to the end of an activity period and know that they'll be switching to other assignments on and off the computers soon. Before schedule transition, the room gets noisier and more animated, so both teachers generally move faster and become more vigilant. Transitions, even with "normal" Residents are always the hardest parts of any instructional day to manage.

Teacher 1 looks up at the clock and announces:

OK! Everybody save your work! You have about two minutes to get saved, check your schedules, and rotate to your next activity. I'll say again: **DON'T FORGET TO SAVE YOUR WORK!**

I move deliberately toward the door. The computer classrooms feels pretty crowded during transitions and I've found that it's better to avoid being part of "the crush" whenever possible.

Next period, I'll circulate myself, over to Classroom 2 and the un-sponsored residents' group. Teacher 2 has been doing some interesting collaborative work recently, with multiple residents working together collaboratively. I want to be sure to get some observations documenting how that works.

When teachers and staff observed deliberate and meaningful participation by residents, they learned to acknowledge this with positive or encouraging comments, made with the intention of encouraging and supporting their progress toward content mastery. The instructional system included enough interactive and engaging online content for each resident to have individualized, self-pacing instructional programs that included continual assessment of each resident's progress toward content mastery.

Daily reports from imbedded instructional assessments provided daily feedback to both the participants and to the teachers. When residents couldn't successfully master assigned materials they received immediate automated prompts from the management system, urging them to go back over the material they'd missed and try again. More importantly, the management system kept records on how many tries individual students needed to complete any single item successfully. Individual management records were reviewed by the teachers on a regular basis to determine when individuals needed direct support. Visual observation of residents' screens and in-depth analysis of the management system's automated progress reports supported both teachers to plan and execute timely and effective support interventions that helped keep residents from getting "stuck" and becoming frustrated by slow (or no) progress through assignments.

When circulating teachers observed a resident apparently "stuck" in an un-mastered learning activity or unit, they employed a variety of short-term interventions. Interventions made while circulating were generally brief and commonly involved simple clarification of misunderstood onscreen language (terms and concepts) or misunderstood directions. Spending too much time on casually observed misconceptions or content "bugs" effectively stopped the teacher's circulation and often precipitated other residents' "acting out."

Casual daily observations, combined with more systematic analysis of progress reports from the management system helped teachers to identify serious gaps in residents' knowledge, skills or predispositions. When these were identified, it was often more effective to tutor residents during their next scheduled block of time away from using the

computers. Strategic use of “just in time” tutorials supported the teachers and residents to use their time more effectively and encouraged steady progress toward curriculum mastery and narrowing residents’ achievement gaps.

Tutoring required to remediate an individual resident’s instructional deficiencies was not always available from Wasatch online instructional modules (i.e. U.S. history, etc.). When important gaps in the residents’ background knowledge were diagnosed, teachers assigned readings in textbooks and standard reference books available onsite for the residents’ use during the school year. After completion of reading assignments or independent research, residents were instructed to draft notes documenting their research or prepare drafts using an on-line idea organizer (outlining program) and WordPerfect. Both were bundled with the online courseware.

When completing written assignments that weren’t part of the managed instruction, residents’ drafted and printed draft documents for the teachers to mark-up before revision. Experience doing subject-matter research, synthesis, drafting, and revision of documentary products proved extremely valuable for several of the residents. Individualized tutoring and work with the teachers on writing assignments during the two off-line periods per day was apparently one of the most beneficial strategies that emerged for some of the residents who were more “academically accelerated.”

Both teachers were eventually able to increase the amounts of time they devoted to more labor-intensive individual assignments and tutorials. They were enabled to devote more time to labor-intensive tutorials with individual residents in the fourth week, after a few of the non-instructional, child-care staff began taking an interest in devoting part of their on-the-job time during dayshift to “circulating” in the two computer classrooms. Before the end of the nine-week project, almost every adult working at the Southside facility tried circulating to support residents’ instructional progress in the computer classrooms.

### *One Resident’s Story: Learning to Fly*

During the Southside project, a large body of observational and anecdotal evidence was collected, detailing improvements in individual resident’s academic achievement and also their attitudes about themselves, school, their families and their futures. Some of the stories were about using WordPerfect for self-expression, informal communications, and even about completing “project-based” assignments; and how that all contributed to individuals’ reading comprehension and emergent written literacy.<sup>14</sup>

There are also stories about how some residents’ use of particular computer games apparently had academic and possibly “therapeutic” benefits for some residents. One resident’s story began with what was apparently a life-long dream about flying a Piper Cub,

Resident 2 began the Southside project with a tested reading level somewhere near the beginning of the first grade year. It was generally assumed by teachers and staff members that Resident 2 was functionally illiterate and could neither read nor write.

When interviewed during the first week of the project, Resident 2 was asked if he/she could read or write. The reply was simply:

*I cain't.*

From the first day the computer games were brought into Southside, Resident 2 was totally focused on accomplishing one objective. That objective was to take off and land the Piper Cub in Microsoft Flight Simulator; without crashing.

Resident 2 progressed slowly through managed assignments on the Wasatch instructional system. Language arts assignments made during the first week were placed at the Pre-Kindergarten level. Even with the most basic letter and pattern recognition exercises, progress and content mastery were painfully slow.

During the first week of the Southside project, Resident 1's evident lack of mastery progress and high levels of frustration signaled Teacher 1 to intervene early and begin providing intensive 1 on 1 support. All the other residents got off to much easier starts. So pausing to tutor Resident 1 for as much as 3-8 minutes at a stretch was actually possible. Subsequently, Teacher 1 got plenty of "coaching practice" during the first week of the summer project.

One of Teacher 1's earliest "coaching" sessions with Resident 2 went something like this:

Teacher 1 is sitting along side Resident 2. Teacher 1 is encouraging Resident 2 to try completing a simple letter - pattern recognition exercise. The exercise onscreen looks like this:

A B C D E \_ G

The "right" answer requires Student 2 simply press the "F" key on the computer keyboard, and then press the RETURN key.

Student 2 apparently doesn't know how to respond correctly and is unwilling to respond at all. Teacher 1 is coaching Student 2 to try.

Teacher 1: Alright now... let's look at the pattern of the letters up here on the computer's screen (Points to the first letter.) Which letter is this?

Student 2: *I cain't.*

Teacher 1: Sure you can! This is old stuff for you. We've done ABC's together lots of times over this last year. I know that you know what letter this is.

Student 2: *Cain't. I cain't!*

Teacher 1: Come on... you know what the first letter of the alphabet is. What's this first letter I'm pointing to onscreen?

(Pointing to "A")

Student 2: I *cain't*. I really cain't?!?

Teacher 1: Sure you can. This is easy! Don't I remember hearing you say that you wanted to fly that Piper Cub? All you have to do is finish up a few of these exercise to make some progress. Then you'll get to use Flight Simulator during your recreational period tonight after dinner.

Student 2: Wellllllllll... *Maybe*.

Teacher 1: Give it a try! What letter am I pointing to onscreen?

Student 2: That's un "A."

Teacher 1: Next?

Student 2: B. Then C, D, E. Then it skips and there's a G.

Teacher 1: What letter is missing between the E and the G?

Student 2: It's sposed t' be a F. Ain't it?

Teacher 1: That's right. *I told you that you could do this!* Now, where's the F on the keyboard?

Student 2: It's this un o'r here.

(Presses F key. Screen prompt responds with "Good! Press RETURN to continue!")

Student 2: **Whazzat?** What duz it want me t' do now teacher??

Teacher 1: Now I think you already know most of those words. That first word is what people always say when you get something right.

(Points to "Good.")

Student 2: (Looks at teacher, not at screen.) Good??

Teacher 1: **Right!** Now let's sound these other words out one at a time and read them together...

(Teacher 1 went on to sound the words out phonetically and pronounce them with Student 2. When they got to the term “RETURN,” it took some discussion to get Student 2 to learn about pressing return after every correct answer, to turn the page and display the next item. Student 2 persevered because “flying the Piper Cub” was seemingly an achievable objective. At least it was achievable today.)

Resident 1 tried time and again to fly the Piper Cub, which was one of the planes that users could choose to fly on Version 1 of Microsoft Flight Simulator<sup>®</sup>. During every recreational period when there was enough progress for Resident 2 to have “privileges,” and during every free period on weekends when the Residents’ were given recreational computer access, you could always find Resident 2 doing about the same thing: *taking off and crashing the Piper Cub*.

Landing the simulated Piper Cub without crashing was hard. It required users read simulated instruments on the control panel and messages that appeared onscreen from an “air traffic controller” in a simulated “control tower” at the field where the “pilot was landing.”

Something even more difficult than reading the onscreen information was reading the “documentation” for Flight Simulator Version 1. It was a difficult simulation to master and the “Instruction Manual” was probably written for a college-level reader. It was easy enough to get “off the ground” on a wing and a prayer, but landing in one piece required reading ability and lots of time and patience.

Resident 2 was incredibly determined. He crashed and crashed, but he kept working on his mathematics and language arts, and he kept trying. In the next few weeks, “*I cain’t*.” became “**I did it!**”

Other Southside residents helped Resident 2 initially learn to take off and land by reading the software documentation and onscreen prompts out-loud until Resident 2 memorized the words and was able to recite/read them alone; without any assistance. Eventually, Resident 2 flew solo and landed the Piper Cub without crashing.<sup>15</sup>

During Week 9, after completion of the 8 week project Resident 2 used WordPerfect to write a two-paragraph letter to an Aunt and Uncle, print it out, and arranged for it to be mailed it to his/her family members. According to the Southside Director, and Resident 2’s older sibling (also a resident), Resident 2 had never written a letter anyone in his/her family before. He was no longer an “illiterate” and he was overjoyed to be able to share the news with his family in this particular way.<sup>16</sup>

### *Curriculum Mastery*

Assessment scores and tracking data documenting the residents’ online activity was saved automatically by the instructional system’s management and progress reporting system. When residents scored lower than the required 70% mastery level on any managed online activity, the system blocked Residents for proceeding to more difficult assignments. Whenever this occurred, residents were automatically required to repeat the

learning activities and re-do assessments until the mastery criteria was reached. Teachers could theoretically over-ride the management system to either by-pass un-mastered or repeat previously mastered work. Neither teacher used the option to over-ride the management system, but they both tried the feature to be sure they were controlling the instructional management system; as opposed to being controlled by it.

Evidence indicating low Resident mastery of assigned content became the cue for teachers to observe, review and analyze the mastery data, diagnose knowledge deficiencies, and intervene to remediate gaps in either subject-specific knowledge or procedural knowledge crucial for successful mastery of managed learning activities. Residents (and teachers) eventually recognized that non-mastery of any particular learning activity did not necessarily mean “failure,” or that the material was too difficult for the resident to succeed. They learned that assignments could be repeated without penalty, both teachers were there to support their success, and that by trying they were able to complete any and all of their assigned work.

The online curriculum contained generally the same math, language arts, social studies, and natural sciences content that residents studied during their traditional or “face to face” school year. However, in the computer classroom, the residents’ all mastered and progressed through online learning activities much faster that anyone would have predicted was possible. The Southside project lasted about eight weeks, approximately 4.5 hours per day during five-day weeks between June and August. During that period, the twelve sponsored residents mastered an average of 130.25 math and 57.28 language arts on-line activity modules and each module signified mastery of one Wasatch Learning Objective or LEO. (See Tables 1 and 2)

**Table 1.**  
**Math Learning Objectives Mastered**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
130.25	80.59	23.264	6494.75	61.873	12
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
16	278	262	1563	275023	1

**Table 2.**  
**Language Learning Objectives Mastered**

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
57.282	31.588	9.119	997.825	55.146	12
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
16	138	122	687.38	50350.344	0

Wasatch Learning Systems Inc. made written claims that their mathematics and language arts curriculum was nearly equivalent to the State’s required content and performance objectives for mathematics and language arts curriculum. Wasatch claims were supported by their published analysis of their curriculum materials by internal curriculum

specialists. The basic content unit for organizing and assessing instructional content deployment with their integrated learning system were LEO's. Wasatch LEO's were assumed to be uniform units of curriculum content equivalent to content units often referred to in most state's educational standards as "instructional objectives."

According to Wasatch curriculum researchers, teachers in most conventional classroom settings commonly covered only three or four instructional objectives per week in each different subject area. Given the curriculum designers assumptions about equivalency between LEO's and the State's instructional objectives for traditional math and language arts curriculum, data documenting the residents' progress during the eight week project indicated an average mastery of sixteen LEO's in math and seven LEO's in language arts per week. See Table 3 (below) for a more detailed analysis of sponsored residents' total, weekly and daily content mastery.

#### *Evidence of Engaged Learning and Achievement*

The number of activities or objectives mastered or passed per week for individual residents varied within the maximum and minimum ranges indicated above. The numbers above roughly describe the amounts of math and language arts materials the 12 sponsored residents covered during a nine-week period. Understanding how much instructional time was actually invested by each resident during the eight-week period required an analysis of management data documenting time on task.

Table 4 (below) shows the total average time used for the various categories of major curricular activities. On average, 30 % of the weekly time using the computer was devoted to math, 24% to language arts and 41% was spend on other activities (i.e., science and social studies). This was particularly important in individual cases where Residents enrolled in high school programs needed science or history credit to advance to the next class rank (sophomore, junior or senior).

**Table 3.**  
**Mastery: Math and Language Arts Instruction - Eight Weeks**

Sponsored Residents	Math LEO's Mastered / 8 Weeks	Equivalent School Year Progress in Weeks/ 8 Weeks	Language LEO's Mastered / 8 weeks	Equivalent School Year Progress in Weeks/ 8 Weeks
1	118	29.5	59	14.75
2	16	4	33	8.25
3	25	6.25	25	6.25
4	141	35.25	16	4
5	147	36.75	70.38	17.595
6	223	55.75	138	34.5
7	49	12.25	32	8
8	176	44	72	18
9	200	50	65	16.25
10	83	20.75	56	14
11	107	26.75	58	14.5
12	278	69.5	63	15.75
Average	130.25	32.56	57.28	7.16

**Table 4.**  
**Average Total Times for Learning Activities**

Math	Language	Word Processing	Other	Ave. Time /Resident
13.44 hrs.	10.81 hrs.	1.12.hrs	18.11hrs.	43.48 hours /8 weeks @ 5.42/hrs. per week

Sponsored residents participated in the summer project's instructional activities for about four and one-half hours per day and had the use of the microcomputers for about three hours per day. Individual resident used about five out of fifteen hours of available microcomputer time per week for computer-aided learning activities in math, language arts, social sciences and natural sciences. Additional unaccounted blocks of time were devoted to keyboarding practice, word processing, and recreational games (used as reinforcement for timely completion of assigned activities). Based on this analysis, it seems safe to assume that on average, individual Residents spent between five hours and fifteen hours per week on completing managed instructional activities online.

Averages time spent on the managed, online learning activities were lower than the amount of available computer time primarily because of instructional time lost because of various individual's confinement after violent episodes. One particular resident missed class for two full weeks because of restriction in timeout (Special Care Unit or SCU) after a series of violent outbursts. Other residents were confined to quarters or SCU for shorter periods during the eight weeks of summer educational programming.

Accountable online time was lost on a number of authorized and unauthorized activities including typing exercises and word processing activities. Residents also devised clever, “subterranean” ways to pass electronic “notes” to one another through the network. These written communications were unrelated to assignments and assumed by teachers to be an unproductive use of class time<sup>17</sup>.

Time was also occasionally lost when teachers sometimes authorized using computer games during instructional periods as a reward for extraordinary productivity during class. Despite these various unaccountable and “off-task” uses of computers, the total amount of math and literacy content materials successfully completed by residents during the eight-week period was far greater than anyone would have ever foreseen based on expectations about curricular progress during an equivalent period of traditional classroom instruction.

Interviews were conducted with both teachers on a regular basis from week three until data collection ceased; after week eight. During semi-structured interviews, both teachers were asked what they believed were major factors influencing the resident’s apparent increases in mastery of math and language arts curriculum. The four factors mentioned most frequently by teachers during their interviews were:

1. Clear, daily evidence (mastery data) was available documenting the residents’ curriculum mastery and improved academic performance,
2. Residents were informed by the evidence and made aware of their own success,
3. Their (both teachers) increased proficiency using the instructional management and performance reporting system made daily performance reviews and instructional planning possible with more residents, more of the time, and
4. Child-care staff members had begun to support their classrooms, thereby freeing up more of their time to plan and execute individualized programs for each resident.

Both teachers assumed responsibility for supporting and guiding the residents through the automated layers of differentiated online instructional programming that was there to meet the differentiated needs of every resident.

Over the weeks better, cooperative relationships evolved between teachers and child-care workers. Changes in the behavior and attitudes of the child-care staff were heavily encouraged by ongoing staff development activities supported by the Southside Director. Child-care staff members were strongly encouraged to “circulate” in the computer classrooms and even to stand in as “substitutes” when the teachers needed to concentrate on intensive one-to-one tutorials or needed occasionally to leave the computer classrooms.<sup>18</sup>

### *Post-Testing Using the TABE*

After the last scheduled instructional day on August 11<sup>th</sup>, the residents were scheduled to be retested using an alternate form of the TABE. The re-test was a requirement of

Southside’s contract with the Private Industry Council. Pre-test and post-test scores were to be used to calculate each sponsored resident’s grade-equivalent gains in math and language arts made during the eight-week summer remedial program.

Average raw scores for the TABE pre- and post-tests for math and reading, and average pre-/post-test grade equivalent scores for the sponsored residents is below in Table 5. Pre/post-test Grade Equivalent scores and each resident’s computed grade-level gain or loss for the 12 sponsored residents is below in Table 6. The resident represented by Case 12 went on “run away” status the evening before the post-test. The same resident had refused to take the second half of the pre-test administered in June.

**Table 5.  
Pre and Post-Test Average Raw Scores and  
Average Grade Equivalent Scores**

Pre-Reading Ave. Raw Score	Pre-Reading Grade. Equivalent Ave. Score	Pre-Math Ave. Raw Score	Pre-Math Grade Equivalent Ave Score
637.83	4.125	664.75	4.51

**Table 6.  
Pre-Post Grade-Equivalent Scores and Net Gain or Loss for the  
TABE Math and Language Arts Assessments**

Resident	Pre-Test Math TABE	Post-Test Math TABE	Math Grade Equiv. Gain/Loss	Pre-Test Reading TABE	Pos-Test Reading TABE	Reading Grade Equiv. Gain/Loss
1	5.4	6.2	0.80	4.6	3.5	-1.1
2	3.9	4.1	0.20	2.4	4.9	2.5
3	10.4	12.9	2.50	12.9	10.9	-2
4	2.5	3.9	1.40	3.3	3.2	-0.1
5	2.5	1.8	-0.70	1.9	2.1	0.2
6	2.2	2.3	0.10	2.2	2.9	0.7
7	3.8	2.5	-1.30	3.3	2.6	-0.7
8	7.1	7.1	0.00	6.5	8.1	1.6
9	2.8	2.3	-0.50	2.2	2.1	-0.1
10	5.1	3.3	-1.80	3.7	3.4	-0.3
11	6.7	5.4	-1.30	4.9	6	1.1
12	1.8	0	-1.80	1.6	0	-1.6

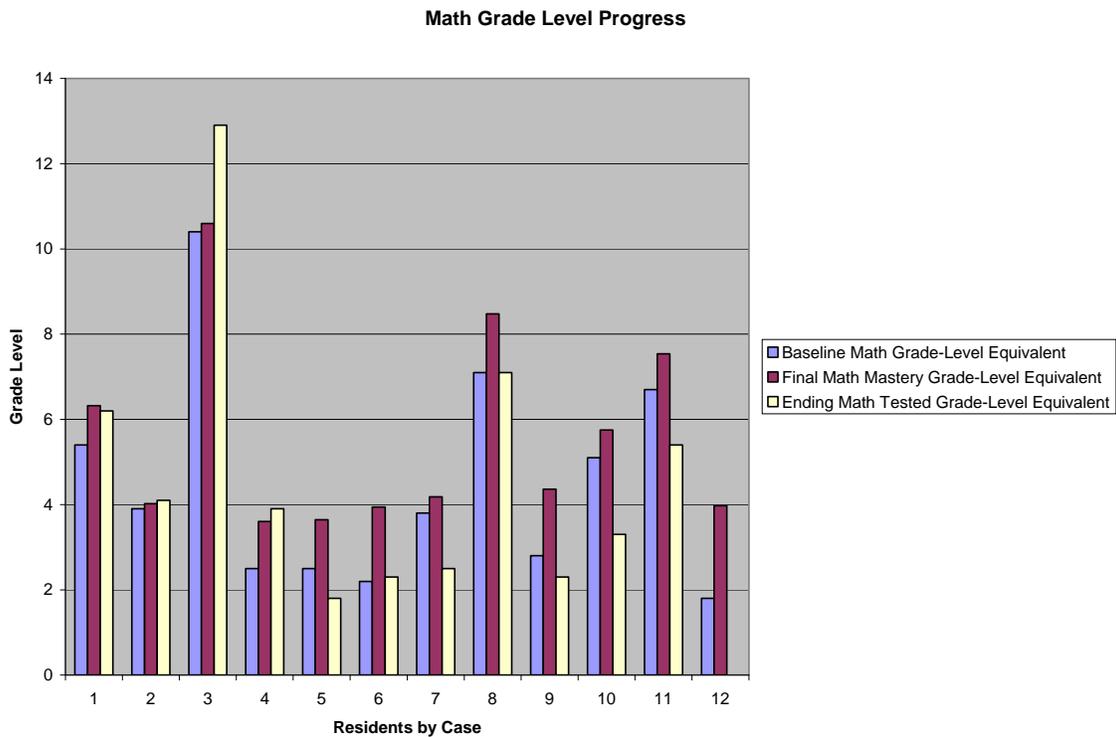
*Test Interpretation*

There was an apparent discrepancy between Residents’ standardized math and language arts testing scores on the TABE and the Wasatch instructional management system’s records indicating an average of seven Language Arts LEO's and 16 Math LEO's

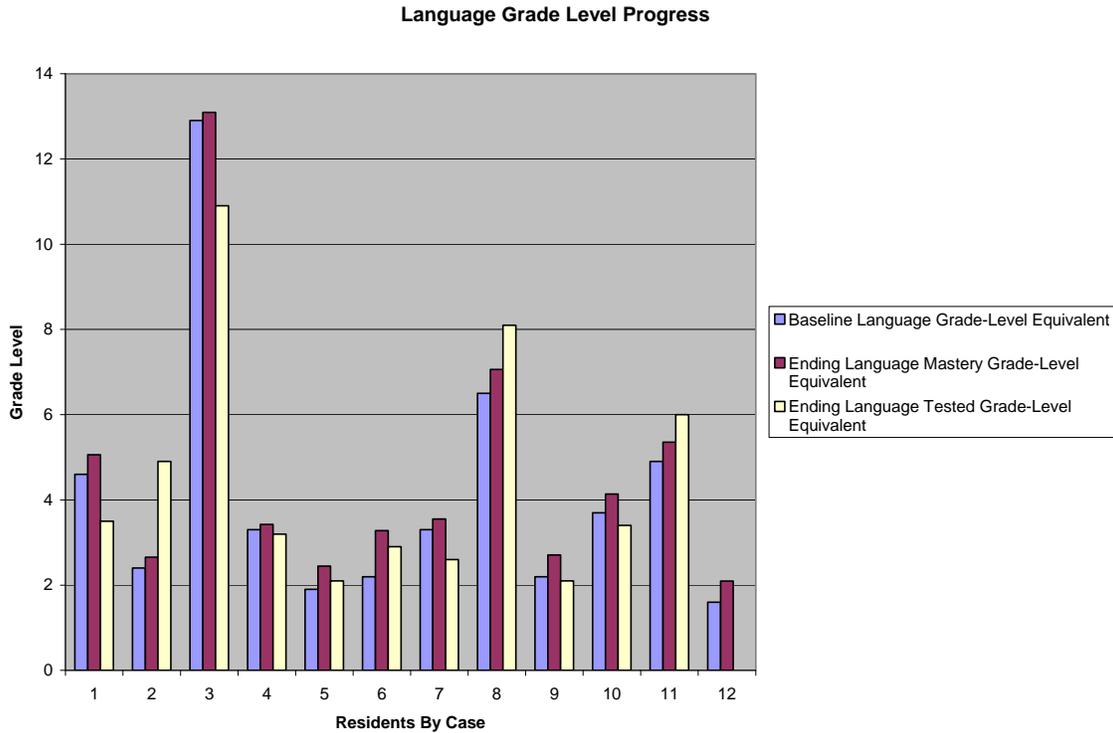
mastered per week. Evidence from the TABE indicated that at best only three residents showed evidence of improved performance in both math and language arts. But according to the mastery data from the Wasatch record management and performance reporting system, every single resident made progress toward narrowing their achievement gaps in math and language arts curriculum.

Discrepancies between gains indicated by content mastery (Wasatch mastery data) and gains indicated by achievement testing (TABE) are evident below in Charts 1 and 2. The blue bar indicates the baseline math or language arts grade-equivalent score for each sponsored resident (TABE pre-test scores), the red bar indicates the final grade-equivalent score indicated by the Wasatch mastery data, and the white bar provides the ending grade-equivalent score from each residents' TABE post-tests.<sup>19</sup> Charts 1 and 2 show clearly that according to the Wasatch mastery data, every resident made progress toward closing achievement gaps in math and language arts curriculum.

**Chart 1.**  
**Grade-Equivalent Progress Comparison: Wasatch LEO's and TABE**

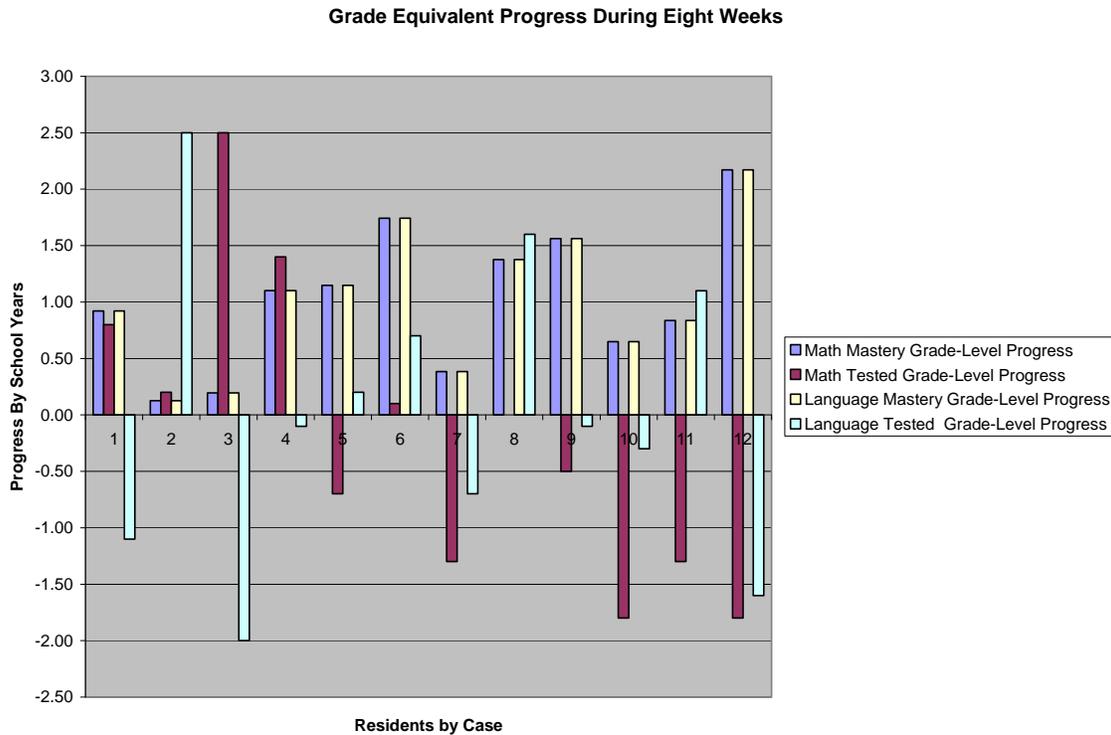


**Chart 2.**  
**Grade-Equivalent Progress Comparison: Wasatch LEO's and TABE**



Discrepancies between grade-equivalent gains or losses, computed based on residents’ grade-equivalent mastery scores (Wasatch) and grade-equivalent gain-scores (TABE) are made more apparent by Chart 3 (below). Based on the Wasatch mastery data, all residents demonstrated grade-equivalent gains in both math and language arts. Based on TABE comparisons, only cases 2, 6, and 8 demonstrated consistent grade-equivalent gains for both math and language arts. Cases 1, 3, 4, 5, and 11 demonstrated gains on the TABE in only one subject and losses in the other. Finally, TABE comparisons showed grade-equivalent losses for cases 7, 9, and 10 in both math and language arts achievement.

**Chart 3.  
Grade Equivalent Progress Illustrated by Mastery and Testing  
Data**



*The Director’s Leadership*

The Director’s contribution before, during and after the Southside project was a crucial influence on the development, management and ultimately outcomes from the Southside summer project. He knew what he wanted to accomplish, located and secured the resources required to implement and manage the project, made sure instructional outcomes were appropriately evaluated, and was finally responsible for the decision removing the managed instructional system from Southside’s school.

The Directors’ influence on the Southside project’s conduct and outcomes included the following six competencies. :

- (1) Developing an institutional “vision” detailing how the project could work and nurturing an organizational culture in which that vision could be realized,
- (2) Making sure that the ILS installation was used primarily for maximizing learning and teaching at Southside,
- (3) Personally modeling how use of technologies supported his leadership in the organization (i.e. he took over supporting the ILS installation himself after Week 2),

- (4) Personally monitoring and managing the project before, during, and afterwards (even though it eventually meant that he was responsible for the decision to finally remove the installation because it was not affordable at that time),
- (5) Serving as a vocal and effective advocate for using technology during the planning implementation of the Southside project; particularly for supporting evaluation of the technology intervention's impact, and
- (6) He was aware of the full range of social, ethical and legal issues that effected the Southside project (at multiple levels) and he took responsibility to assure that all actions taken and decisions made relating to those issues during the project were consistent with his priority for Southside to become an effective "therapeutic community."

Note that the six competencies attributed to the Director's performance as Southside's technology leader correlate to the six Curriculum and Content Area Standards from *Technology Standards for School Administrators* (TSSA/NETS\*A), from the International Society for Technology in Education or ISTE. (See: <http://cnets.iste.org/tssa/>; also see TSSA Collaborative, 2001)

Despite the loss of the integrated learning system, the Director successfully engineered changes in his organizational culture that improved both educational and therapeutic services for his residents. According to the Director, the most important and lasting contribution from the Southside summer project was that the "school" finally became part of Southside's "therapeutic community."

Residential mental health treatment centers are managed following models and administrative practices based on building and operating "therapeutic communities" (See: <http://www.laingsociety.org/colloquia/thercommuns/index.htm>) Therapeutic communities are commonly defined as settings in which individuals with similar problems meet (or reside) and provide mutual support to help one another overcome their problems. They are characterized as having routines that include structured guidelines, or and rules governing individual and group conduct (Jones, 1953).

From the Director's point of view, every aspect of Southside's program was crucial for the success of his therapeutic community. Before the summer project the two teachers weren't considered to be part of Southside's community. Interviews with the teachers and Southside's staff-members made it apparent that during the school year, relationships between the two teachers, child-care staff members and Southside's director were strained. The Director's short-term goal for the summer project was to provide remedial educational services for his residents, but his long-term objective for Southside was for both teachers and the school to become part of the therapeutic community.

By the end of the 8 Week summer project at Southside, improvements in the residents' academic performance and positive therapeutic developments were perceived by everyone in the community as being outcomes from the summer educational project. Summarizing the project's achievements from the Director's perspective: the teachers operationally became community members, the educational program started contributing

to the therapeutic goals for each resident (and visa versa), and Southside arguably became a more effective therapeutic community.

### Discussion

Conflicting interpretations of data from the Wasatch mastery data and the TABE gain-score comparisons had major implications for determining the relative success or failure of the Southside project. Summary conclusions are organized (below) to address the three study questions that guided the project evaluation and anchored revision of the original evaluation report into this chapter.

#### *Study Question 1*

Does the intervention result in achievement gains by participants that meet the sponsor's definition of "acceptable evidence" for making determinations about the "success or failure" of the project?

Strict interpretation of JTPA guidelines for evaluating Title IIB summer enrichment projects for "youths" supported concluding that the Southside project only demonstrated achievement gains for 3 out of 12 sponsored participants. Accordingly, the project would have been administratively determined to be more of a failure than a success.

Contractual penalties required projects to return a pro-rated percentage of the funding to the sponsors; based on the percentage of participants failing to demonstrate gains in tested achievement. The consequences of a negative administrative evaluation of the summer program's success by sponsors might have been financially disastrous for Southside's management and detrimental to the self-esteem of residents.

#### *Study Question 2*

Did the intervention show other acceptable evidence of increasing participants' math and language arts achievement? If yes, did the participants (Residents and teachers) interpret other available evidence as confirming their success?

Mastery data from the Wasatch curriculum management and performance reporting system provided convincing evidence supporting conclusions that all 12 of Southside's sponsored residents made progress toward decreasing residents' "achievement gaps" in mathematics and in language arts. That evidence is graphically summarized in Charts 1-3 (above).

The residents' apparent success mastering Wasatch math and language arts curriculum wasn't lost on their teachers. Teachers and residents reviewed the individual mastery summaries together on a daily basis. Both teachers printed out the performance summaries and gave copies to residents at the end of every "work day."

About one year after the project ended, the author learned from the Southside Facilities' Director that during the following school, year most of the participating residents were released from court-directed placements in the school district's Community Services program at Southside. By then, most residents had been placed in a specialized transitional program for "high-risk exceptional students," located in the nearest qualifying public High School. According to the Director's account, residents were adjusting to classes in the public high school and most were making C's and occasional B's.

The Southside Director reported residents' who were attending the local high school were passing their courses and earning credits toward high school graduation. The Director also reported no residents had been expelled for fighting or other disruptive behaviors. He expressed his opinion that they all had long roads ahead before working through their psycho-emotional and academic deficits and successfully making the progress required for them each to become truly "self-reliant" before their 18<sup>th</sup> birthdays'<sup>20</sup>.

Despite individual and collective obstacles, the residents who participated in the Southside summer project apparently gained enough self-confidence that they "took risks" and gave placements in the public high schools a chance. By the Southside Director's account, a year later those placements appeared to be working.

### *Study Question 3*

Did the intervention show evidence of contributing to lasting improvements or changes in the program studied? To related programs within their community, or to related educational programs situated regionally or nationally?

In the Summative Program Evaluation prepared by the author for the Southside Director to present to the local Private industry Council, results from both the TABE, and summaries of the mastery testing data were provided for the sponsor's consideration. Along with those data, the author offered three summary recommendations. Those are quoted below, along with commentaries summarizing subsequent developments

1. Investigate other tests besides the TABE as an appropriate measure of achievement for remedial education programs with adolescent and pre-adolescent youths. In particular, use of the TABE with emotionally disturbed youth not fitting the profile of "juvenile offenders" seems inappropriate. (...)

According to McGraw Hill, TABE is an acronym for Tests of Adult Basic Education. The TABE was normed on a population drawn primarily from adult prisoners and a smaller group of secondary school-age juvenile offenders. Based on our analysis of clear discrepancies between mastery and testing data, and on the information published by McGraw Hill describing validation of TABE on incarcerated adult prisoners and juvenile offenders, the local Private Industry Council reversed their preliminary determination that only three residents showed acceptable academic gains from participation in the

Southside project. (See current Department of Labor regulations:  
[http://www.dol.gov/dol/allcfr/ETA/Title\\_20/Part\\_628/20CFR628.515.htm](http://www.dol.gov/dol/allcfr/ETA/Title_20/Part_628/20CFR628.515.htm))

2. The Private Industry Council, County Child Protective Association, Southside Home for Troubled Youth,, the the local state-supported University, and other involved community institutions should consider doing a follow-up study on the 12 sponsored participants to determine if there are any long range effects from the remedial intervention program. Evidence presented here in this report indicates some marked changes in the academic achievement patterns and self esteem of the participants. In the event that these apparent short term changes have long range consequences, serious thought should be given to providing similar interventions to "at risk" youth in this and in other communities. (...)

To our knowledge, no formal follow-up study was subsequently done examining long range impact on the academic performance or lives of the 12 sponsored residents. However, there were subsequently other benefits for Southside and all it's residents that were an apparent consequence of the Private Industry Council's administrative ruling regarding the success of the original Southside project.

3. I strongly urge the Private Industry Council and other community-based organizations concerned with the fate of "at risk" youth and with educational improvement to consider extending continued sponsorship to the remaining participants during the school year and to other qualified Residents and residents at Southside as the present residents are replaced. The Southside intervention is unique in many respects. (...)

During the following year, the Private Industry Council investigated alternative evaluation instruments for use with non-adult populations and liberalized their position on evaluation information that would be considered to substantiate gains in achievement on JTPA sponsored projects. Southside's director wrote a proposal for a second JTPA funded summer intervention program for more standard On the Job Training (OJT) with supplementary classroom instruction. The proposal was funded and that project began in June of the following summer.

Most of the Residents who participated in the first JTPA project participated in subsequent "Summer Enrichment Program for Disadvantaged Youths" until those residents' turned 18 and finally left Southside. Importantly, the TABE was never administered again to residents as an assessment required for evaluating the impact of Southside's subsequent JTPA sponsored summer programs.

In a follow-up phone interview conducted with the Director one year after completion of the Southside project, he said that the two local school district special education teachers who participated in the original Southside summer project were retained to staff the next

summer's OJT project. He confirmed both teachers are still working at the Southside facility on assignment from the Office of Community Educational Services in the local schools district.

Teacher 1 was still the senior behavior disorder specialist assigned to Southside by the school district. Teacher 2, previously a teacher's aide, was finishing coursework the beginning of the next calendar year to become a fully credentialed special education teacher. They worked together as a team, supported by Southside's child-care workers.

During our follow-up interview, the director informed me that the Wasatch software and Tandy hardware installation continued to be used at Southside for Youth through December of the following year. Negotiations continued between Southside management and the hardware and software vendors to secure the financial support necessary to purchase the system. Negotiations finally broke off early the following year, the hardware installation was removed and all copyrighted Wasatch software and printed materials were either erased or returned to the company.

He summarized his views on the success Southside project by affirming his belief that the quality of the educational program remained substantially improved one full year later. He told me he attributed the lasting positive changes in the quality in their educational program primarily to improved professional and working relationships between his non-educational child-care staff and the two special education teachers. He said that in his opinion, these improved working relationships began during the summer project and had since become a stable feature of life and work at Southside.

#### Final Caveats on Challenges, Costs, and Case Boundaries

The title of the *book* in which this particular chapter is situated is simply *What Works in K-12 Online Learning*. This chapter's form (an ethnographically-oriented case study) and the nature of the online instructional intervention offers the author an opportunity to illuminate the ideas and instructional practices discussed by some of our other authors. The Southside case also challenges readers to question assumptions about the instructional systems, activities and participants that shape contemporary definitions of K-12 online learning, including:

1. Instructional systems and technologies used to deliver and support online teaching and learning,
2. How online teaching and learning is optimally managed and supported, and
3. Psychological, emotional and academic characteristics of students for whom participation (inclusion) in a fully online or "blended" online learning environment may be an appropriate choice.

The needs of the Southside residents were compelling and the adult educators and caregivers were highly motivated to support the residents' educational and therapeutic programs. When teachers and staff-members saw new evidence of success, where so little

had been before, everyone rose to the occasion and surpassed all prior expectations for therapeutic and educational outcomes. That particular motivational dynamic could be difficult to recreate and might limit the case's "naturalistic generalizability" (Stake & Trumbull, 1982) or transferability as a model suitable for guiding development of interventions intended for use in other settings.

The relatively small size of the Southside project suggests that another factor potentially limiting the transferability of the Southside project for possible adaptations in other settings. The Southside evaluation reports on the performance of only a very small total number of participants. The population at Southside during the project included a total of 22 young men and young women, but the results reported here are based on data from only 12 residents.<sup>21</sup> Based on the small number of qualifying residents who participated in this study, generalizations concerning the academic gains reported should only be generalized and the instructional approach should probably only be seriously considered for informing the development of interventions for other settings after serious deliberation and with great caution.

Despite the relatively small total number of participants in the Southside project, the time and resources required to support their improved academic success were formidable. It might therefore be easy to misjudge the *scalability* of the complex instructional system supporting the Southside project. Accordingly, readers are cautioned against *incautiously* applying conclusions, ideas, or strategies used with apparent "success" at Southside to substantially bigger groups or in larger organizational settings.

However with careful and deliberate consideration to the lessons learned during the Southside project, and also by understanding its limitations, the success evident from the mastery gains of Southside's residents suggests there are ideas here with important potential for improving the academic performance of student's participating in full online or "blended" online learning in today's virtual courses, classrooms and schools.

### Findings and Recommendations for Improving Educational Policy and Practice

#### **Finding 1:**

The academic and therapeutic gains attributed to Southside's residents suggests there is a sub-group within the larger national population of "exceptional learners" that has so much to gain from participation in fully online or blended online learning. The prospect of applying the technologies and support strategies detailed in our chapter to provide powerful "managed instructional systems" for use with similar groups of seriously "behavior disordered" youths in today's schools and communities is compelling indeed!

The qualitative and quantitative evidence offered by the Southside case-study, and the literature summarized by Keeler, et al in this book, suggest that fully online or "blended" online learning may be beneficial for meeting the educational needs of individual students qualifying as "exceptional learners," under the Americans with Disabilities Education Act or IDEA. (Keeler, Richter, Anderson-Inman, Horney & Ditson; 2007)

### **Recommendations:**

- Comprehensive, *managed instructional systems*, with robust online support for imbedded instructional assessment should be investigated for use with qualifying high-needs students with behavior disorders like those attributed to the Southside residents.
- In addition to the obvious *motivational effects*, computer games and simulations apparently had some beneficial therapeutic and instructional consequences for Southside residents. Games and simulations should be considered along with conventional instructional strategies as recommendations on Individualized Instructional Plans or IEP's developed for qualifying exceptional learners.

### **Finding 2:**

Keeler et al's inclusive definition of "exceptional learners" includes students with special needs ranging from "gifted students," all types of learning disabilities and students with limited English proficiency or "... students who are struggling in school due to non-traditional learning styles of poor preparation for learning." (Keeler et. al, this book; pg. 2)

Their definition is broad enough, and mastery gains attributed to Southside residents' during only eight weeks were *substantial enough* to justify deploying powerful online, managed instructional systems in our nation's most chronically under-performing schools.

### **Recommendations:**

- Investigate deploying powerful web-based, "managed instructional systems" in our nations most chronically under performing schools and school districts, wherever they are located.
- Providers of internet-based managed instructional systems should revisit the "try and buy" marketing strategy. If trial projects (pilots) employing internet-based instructional systems demonstrate they can truly deliver improved academic performance, the price of continuing failure is greater than any possible cost for technology systems and professional development. For students and schools where nothing else works, high costs should not eliminate any viable options.

### **Finding 3:**

There are specific design and technology features of the managed instructional system described in this chapter that were apparently crucial for improving the academic performance of the Southside residents' and for supporting the teachers to share and contribute to their students' success. Salient design and technology features included:

- (1) Automated, online curricular assessments imbedded with each “unit” of content,
- (2) A robust and comprehensive “managed” curriculum built from tightly sequenced, self-pacing and interactive online learning activities,
- (3) A powerful student data management and performance reporting system that supported assessment of *daily* instructional progress by individual students, and

In another instructional setting, these same “automated” instructional features (e.g., self-pacing mastery curriculum, self-scoring computer delivered assessments, “behaviorist” instructional designs, and a generally “prescriptive” approach to teaching and learning) would probably have supported a “teacher-less” implementation of the same instructional system that would probably have been *virtually numbing* for students.

### **Recommendations:**

- At Southside, imbedded curricular assessments supported increased instructional differentiation by freeing up teachers’ time that would have been spent checking assigned work and recording grades. Imbedded curricular assessments should be developed and implemented for new online courses and whenever possible they should be implemented using automated online administration and scoring.
- Nearly every learner management or course management system now used to support online courses includes features for implementing and administering online tests and assessments and a student record management and performance reporting system. Whenever possible, these features should be employed to add automated curricular assessments to enhance existing online courses so online teachers can repurpose their time for increasing instructional differentiation and students’ academic success.

### **Finding 4:**

The Southside residents learned to see their success by receiving immediate feedback from imbedded, curricular assessments and their teachers learned how they could more effectively support and shape that success. Based on the contribution of “imbedded,” online curricular assessments and teacher-developed authentic assessments supporting the academic growth of Southside’s residents, online assessment item banks and online authentic assessment tools should be employed to support formative curricular assessments that are imbedded routinely along with online instructional content and learning activities. Online administered formative testing should be highly correlated to the states’ curriculum and content standards and employ professionally developed, valid, and reliable items. Authentic assessment developed and deployed for online use should also be carefully correlated to states’ curriculum and content standards and employ designs for authentic assessments that conform to the highest professional standards.

In Susan Lowes' chapter in this book, she discusses *virtual resources* as ranging from "... small web-based simulations to large document archives to elaborate virtual textbooks...". Lowes discusses a possible "convergence" between online and face-to-face classrooms; wherein teachers would begin sharing powerful virtual resources across all types of learning environments. (Lowes's Chapter, Pg. 2) As such, online assessment item banks and authentic assessment resources should be among the "virtual resources" that are available to support face-to-face, online and blended s teachers and students in all our nation's public and private schools.

### **Recommendations:**

- Professionally developed and tested online assessment item banks are already available from various educational publishers and service providers. These item banks and their management and performance reporting systems should be employed for improving the instructional delivery and performance assessment systems in all of our nations K-12 learning environments.<sup>22</sup>
- Writing assignments, problem-based activities and other project-based assignments are generally assessed using scoring guides or authentic assessment rubrics. Powerful web-based assessment resources are available and should be employed by online teachers and online instructional designers to support carefully designed, highly correlated authentic assessments; to be routinely imbedded along with authentic online learning activities<sup>23</sup>

### **Finding 5:**

At Southside, the teachers were probably the single most important "interactive" feature supporting Southside's implementation of the Wasatch ILS. Direct involvement of both teachers in the day-to-day management of the learning systems and management of the Southside residents' differentiated programs apparently made a big difference.

ILS installations were conceptualized and designed by their original developers as being "centralized" resources, to be shared large among large numbers of students; often drawn from multiple schools within a single school district. The per-pupil licensing fees for these systems was generally high and schedules were tight to make sure that individual computers were in use continuously; to insure maximum "return on investment." Integrated learning systems were originally designed to be "teacher-proof" and became nearly *teacher-less* instructional systems. Classroom teachers were at best, passive recipients of diagnostic printouts from ILS performance reporting systems. Classroom teachers had literally no instructional or support role using most integrated learning systems. In other words, what happened in the computer labs *stayed in the computer labs*. The apparently high mastery gains by participants in the Southside project and high levels of involvement by both teachers in managing and supporting the residents' instructional programs was probably not coincidental. This suggests that larger academic effects may be achievable by employing integrated learning systems or related online systems by investing in professional development and turning the management and support of students working on these systems back over to their teachers.<sup>24</sup>

## Recommendations:

- One of the most important lessons from the Southside project is that for technology-intensive instructional systems to provide optimal educational benefits for participating students, managed instructional systems should be installed in classrooms and managed by teachers. When complex, technology-intensive online educational systems are deployed in schools or other learning environments, qualified teachers should have central roles managing and supporting their students' use of those systems.
- For optimal instructional and therapeutic benefits, instructional projects employing managed instructional systems or “blended” online learning projects should consider decentralized deployments of networked microcomputers in self-contained classrooms. Ideally, these classroom-level installations would be managed and supported by fully qualified classroom teachers or categorical “exceptional education” specialists. Based on the relatively small size of the groups assigned to the two computer classrooms during the Southside project, limiting the size of groups assigned to computer-equipped may be an important consideration.<sup>25</sup>
- Teachers and child-care aids who participated in the Southside project learned circulation behavior by observing one another and modeling on instructional behaviors that clearly worked. Circulation should be part of the professional development provided for all teachers supporting technology intensive online learning environments, and for paraprofessionals or “mentors” working on-site to support students in fully online courses. Although imbedding professional development may be more obviously applicable to teachers in “blended” online learning environments, imbedded “on the job” support might be provided by online mentors or coaches to new teachers in fully online courses. (See Lowes, “Ongoing professional Development,” this book.)

## Finding 6:

The Director had a pivotal role guiding the development, execution, and direction of the Southside project. From his viewpoint, the most important outcome of the project was probably supporting the two teachers and Southside's school to become a fully integrated component of the social system that he referred to as being a therapeutic community. At Southside, therapeutic and educational growth synergized, resulting in both therapeutic and educational benefits for the residents that probably no one would have predicted before the Southside project.

A combination of both educational and therapeutic progress brought about powerful changes in Southside's identity that supported Southside to become a *therapeutic learning community*. The possible distinction between “therapeutic communities” and *therapeutic learning communities* could be important. It combines ideas and

organizational strategies from mental health and social services, (therapeutic communities), educational administration and governance (learning communities)<sup>26</sup>, and from systems theory (communities of practice)<sup>27</sup>. Combining educational, therapeutic and systemic elements, to explore replicating Southside’s apparent synergy between educational and therapeutic goals may have considerable potential for supporting new and innovative administrative practices, management models and instructional systems.

### **Recommendations:**

- Program administrators and educational leaders assuming leadership roles in technology intensive instructional interventions employing managed instructional systems, fully online or “supplementary” online courses, or “blended” online courses should model their technology leadership practice on the Technology Standards for School Administrators or NETS\*A standards from the International Society for Technology in Education. (See: <http://cnets.iste.org/administrators/>.)
- The idea of *therapeutic learning communities* may be an important one for supporting technology intensive managed instructional projects, for fully online courses and schools, and for blended online instructional projects. It could also have important implications for supporting teaching and learning in traditional classrooms and schools where students and teachers struggle because they can see little clear evidence affirming instructional progress or improvement.

### Conclusion

Since 2002, the author has written much concerning online learning policy and practice. Today there is still too little quantitative educational research available examining K-12 online learning outcomes, only a few professional program evaluations, and to my knowledge there has previously been no published qualitative research from K-12 online teaching and learning projects during the recent past.

In our first publications on K-12 online learning was entitled “Online Learning for K-12 Students: What Do We know Now?” (Blomeyer, 2002a) The answer to that question at the time truthfully was: “Not much!” (<http://www.ncrel.org/tech/elearn/synthesis.pdf>)

Although we couldn’t find much research upon which to base findings and recommendations, John Bailey provided us with some quotes from a keynote speech he gave at the 2001 Virtual School Symposium. In October, 2001 John made five recommendations I believe foreshadowed to growth and development of K-12 online teaching and learning as we know it today. (<http://www.ncrel.org/tech/elearn/milieu.htm>)

In retrospect, one of his recommendations has much to do with this chapter and the content of this case study:

Online assessment, particularly online assessment with e-learning technologies, is one of the next generation “killer applications” that is waiting for us out there. When online assessment results are tied into e-learning systems, the potential benefits

become very significant. The result should be more effective use of class time and a system of education that isn't based on mass production, but is instead based on mass customization. (Bailey, 2001; as quoted in Blomeyer, 2002a)

The following year, our search for online learning research continued; with improved success. With only modest “evidence-based” support from a single educational program evaluation, a meta-analysis on K-12 distance learning, and a single educational case study on instructional computer use<sup>28</sup>; we offered findings and recommendations for policy and practice that seemingly have “weathered” well over the last five years. (Blomeyer, 2002b)

There is a finding in NCREL Policy Issues #11 foreshadowing this chapter:

Hybrid courses (combining face-to-face and online instruction) with smaller enrollments and clear linkages to approved curriculum practice seem to offer higher completion rates and arguably better quality learning outcomes than online courses alone (Cavanaugh, 2001). *This finding suggests that online learning optimally should be used in some combination with face-to-face instruction, primarily from qualified and experienced teachers who are in physical proximity to enrolled online students.*

(Finding 3: <http://www.ncrel.org/policy/pubs/html/pivol11/apr2002d.htm>)

I included only a single recommendation after Finding 3 in NCREL Policy Issues #11. It recommended support for “scientific” research comparing outcomes from fully online learning and blended (or hybrid) online courses. I intended that the research proposed would help determine which resources and designs for online teaching and learning environments might optimally support both students’ achievement and authentic learning outcomes.

My assumption at the time was that carefully designed, controlled educational “experiments” would provide clear findings for practitioners and policy makers that would support the timely development and implementation of more effective online teaching and learning environments. Over the last five years, I have recognized that my recommendation calling for “educational experiments” was *well meaning*; but probably naïve and probably misguided.

I’m not suggesting that there’s anything wrong with well designed, rigorous quasi-experimental or fully experimental (randomized) educational research. However, it seems unlikely that most existing quantitative research programs examining online teaching and learning can or will provide many “actionable answers” for online learning policy and practice for several more years.

Empirical educational research can and should be used by practitioners to inform instructional improvement and school reform. Two challenges that make dependence on quantitative educational research as the sole source guiding K-12 online learning policy and practice problematic:

1. **Time:** K-12 online learning in the United States is growing *very rapidly*, “Research” takes time, and OLL practitioners need guidance now.
2. **Underlying cultural assumptions:** Quantitative researchers and practitioners understand “Research” from nearly incompatible points of view.

About **time:** Since 2001, educational leadership from State Educational Agencies, intermediate agencies, school districts and school (traditional and online) have asked:

*When will you find us some research on online learning in K-12 settings that we can use to support developing and implementing quality online programs for our schools?*

Online teaching and learning in our public and private schools, online charter school programs, and in a variety of other online ventures (public and private) is growing at a *phenomenal* rate. According to information and projections released by the online District Administrator Magazine, there are nearly 500,000 online courses in session across the United States and the projected growth rate for online programs is about 30% annually. Leaders in all our online learning programs and “virtual schools” need clear, actionable research based guidance to support and improve K-12 online learning now.

Professionally executed qualitative research can provide methodologically sound, objective, contextually sensitive, and *actionable* guidance for online learning policy and practice on timelines that are considerably shorter than those required to support “definitive,” large-scale randomized controlled trials. Inferring that qualitative research is “weak,” and (as inferred by the *What Works Clearinghouse*) that policy and practice should wait for “definitive” findings from randomized-controlled trials is simply unacceptable. (Freeman, deMarrais, Preissle, Roulston & St. Pierre; 2007)

About **underlying cultural assumptions:** The second “challenge” I see preventing online learning practitioners from using quantitative research to improve policy and practice is many online learning practitioners don’t or can’t read quantitative educational research and infrequently apply its’ findings to improving practice. Researchers ask “why” practitioners are not using results from educational studies in their classrooms, while the practitioners are asking “how” they are supposed to incorporate research findings into their everyday practice (Warby et al., 1999).

The question scientists ask about research is: “Why should I believe this?” (Wallace and Ray, 2006, Pg. 28) The questions most practitioners ask about research may be “*Does this fit and will it work my classroom?*” Educational researchers’ understandable methodological concern about rigorous external verification of “truth” and practitioners’ practical concern about “fit” shouldn’t be incompatible, but work is needed to bring the two groups closer before the two apparently conflicting viewpoints can be unified.

The obvious solution is for researchers to attend more to fit and context and for practitioners to make a good-faith attempt to support educational practitioners to learn

more about the “research craft” and become more fluent with the working vocabulary of “dialect” that researchers use when they write about their work. Both educational researchers and teacher educators have tried a variety of strategies to accomplish this over a period of years and there continues to be progress on both fronts.<sup>29</sup> Even so, asking teachers to think like researchers and researchers to think more like classroom teacher amounts to asking members of two distinct cultural groups to change, and cultural change proceeds very slowly.

The one possibly useful recommendation I can make to online learning practitioners and leaders is to locate the very best graduate-level introduction to research course offered by an accredited education program in a college or university, enroll, and give learning more about the research craft a try. Sometimes educational problems require *educational solutions*.

In summary, there are two points that online teaching and learning practitioners everywhere should seriously consider, based on this chapter’s account of Southside’s blended, managed online learning project. First, more can be done to improve online learning environments for supporting more effective and efficient online teaching and learning. High on the list of desirable options for future development are “imbedded” and automated curricular assessments and more powerful performance tracking and reporting systems to empower both teachers and students to see their successes and improve students’ academic performance.

The second and final point is one that online learning or e-learning truly isn’t about digital technologies any more than classroom teaching is about blackboards and chalk. In the Southside case, E-learning was about creating and deploying technology systems that enabled the teachers and residents to engage, engage meaningfully, and work together in a *therapeutic learning community* that supported both the residents’ academic gains and therapeutic development.

Computers and other information and communications technologies (ICT<sup>30</sup>) can and should make an increasing contribution to improving teaching and learning for all K-12 students everywhere. A desirable goal might be for every student to have and routinely use his or her own laptop or notebook computer to complete assignments for their regularly assigned online course, either from inside a physical building called “school,” from home or from anywhere else they may be where a wireless network connection is within range. As more and more instructional content is deployed for online delivery, blended learning environments will become a seamless part of life in increasingly “digital” communities for learners of all ages. Tomorrow’s powerful and transformative instructional innovations and technology systems, like John Bailey’s (2001) unrealized dream about “killer” online curricular assessments, are *becoming* tomorrows managed instruction and imbedded support systems that can assure every child and teacher *see’s their success* and is never again left behind.

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## End Notes

<sup>1</sup> Sponsored under Title II B of the Federal Job Training Partnership Act (JTPA).

<sup>2</sup> A summary of the evaluation's approach and methods follows the chapter narrative and references; labeled as Appendix A.

<sup>3</sup> The TABE is owned and still published by CTB/McGraw Hill.

<sup>4</sup> Some of the younger-looking male residents had apparently suffered from serious malnutrition as children and were, as a result, *developmentally delayed*. For that reason, some male residents appeared to be much younger than their actual age.

<sup>5</sup> The file server was a Tandy 1000 equipped with extra installed memory and 40 MB of unused space on an internal hard drive. A dot-matrix printer was attached to the file server

<sup>6</sup> In the end, the nominally higher ratio of computers to students in Room 1 made little apparent difference in mastery gains recorded by the two groups.

<sup>7</sup> Two additional non-qualified residents became participants after transfers into the Southside facility, literally on the same day that the pre-test was administered. That brought the size of the un-sponsored group up to 10 residents and required the teacher's aide responsible managing their program to make last minute scheduling adjustments.

<sup>8</sup> An independent assessment of participants "achievement gaps" was required to establish eligibility before submitting an application for support under guidelines for Federal JTPA sponsorship.

<sup>9</sup> Resident removals were triggered by an adult caregiver (or teacher) responsible simply putting their head outside the classroom door and calmly (but audibly) called for "Backup!" Childcare workers were always waiting just down the hall and the average time required for removing the most violent residents was about 15-20 seconds until arrival and 45 seconds tops until the affected resident was escorted out the door. The staff was well disciplined and practiced at restraining violent residents to protect them from doing damage to others and to themselves.

<sup>10</sup> Most residents could recite the old classroom rules from memory, particularly the ones who challenged the most often.

<sup>11</sup> Ironically, the primary computer classroom installed for Southside's sponsored residents (Room 1) had been their "regular classroom" only two weeks before.

<sup>12</sup> JTPA contracts from summer "remedial" programs paid an "hourly wage" to sponsored participants. A more modest stipend was provided to un-sponsored residents from an internal budget managed by Southside's Director.

<sup>13</sup> Removal from any scheduled activity was generally followed by a period in "time out" followed by counseling pursuant to individualized psychiatric treatment plans; or by confinement to their quarters for non-violent removals.

<sup>14</sup> Some resident's earliest efforts at using the word processors were apparently stimulated by their determination to "pass electronic notes." This was done by repurposing their personal file storage areas' as subterranean "outboxes;" and covertly sharing their passwords with intended mail recipients.

<sup>15</sup> Although Resident 2's language arts mastery scores indicated modest gains, gain scores computed based on the TABE's language achievement tests indicated nearly 2.5 years of grade-equivalent progress. See data for Resident 2 on Chart 3, pg. 29; below.

<sup>16</sup> There are more stories about academic and therapeutic benefits experienced by residents during the Southside project; more than the author can possibly include in only one chapter.

<sup>17</sup> Anecdotal evidence suggests these covert, electronically passed "notes" became a strong motivation for some of the residents to write more and subsequently become more proficient at composing written communications. The residents' "underground e-mail system" is discussed more fully in a later section.

<sup>18</sup> This was a significant change in the Southside community. Previously, there had been open hostility between the child-care workers and the teachers. The child-care workers were openly critical of the teachers for their apparent inability to educate the residents, and the teachers literally refused to let them set foot in their classrooms.

<sup>19</sup> Resident 12 was on run-away status and was not present for the math and language post-tests.

<sup>20</sup> The Division of Children and Family services by policy released minor wards of the State after their 18<sup>th</sup> birthday.

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- <sup>21</sup> Performance of un-sponsored residents was different primarily because they had reduced access to microcomputers. Mastery gains by both groups were remarkably uniform.
- <sup>22</sup> At least two online formative assessment item banks are currently available from educational publishers and test developers. One such product is the *ETS® Formative Assessment Item Bank*. (See: <http://www.ets.org/portal/site/ets/menuitem.1488512ecfd5b8849a77b13bc3921509/?vgnextoid=f55aaf5e44df4010VgnVCM10000022f95190RCRD&vgnnextchannel=c1f1253b164f4010VgnVCM10000022f95190RCRD>) Another available product is the *Assess2Know®* benchmark assessment system from Riverside Publishing. (See: <http://www.riverpub.com/products/a2k/index.html>)
- <sup>23</sup> Implementation of performance-based, problem-based, “inquiry” and other authentic learning strategies and assessments is supported by the *Authentic Assessment Toolbox*, created by Professor John Mueller at North Central College in Naperville, Illinois. (<http://jonathan.mueller.faculty.noctrl.edu/toolbox/>)
- <sup>24</sup> Recent research by Kulik examines effects from various Integrated Learning Systems on achievement in math, reading and science and concludes academic effects from these newer systems show evidence of improved impact on students’ academic performance, possibly from improvements in instructional designs and more powerful technology systems. Kulik’s research on ILS impact doesn’t consider the influence of “instructor effects” on outcomes. (See: [http://www.bestevidence.org/tech/tech\\_summary\\_10\\_06.htm](http://www.bestevidence.org/tech/tech_summary_10_06.htm) and Kukik, 2003)
- <sup>25</sup> A Report from the US Department of Education (2000) reviewed national data and made the following recommendation: “In general, the research on class size suggests that teachers of smaller classes confront fewer discipline problems, cover subject matter in more depth, have more one-to-one contact with students, and keep better track of student progress.” (<http://www.ed.gov/offices/OESE/ClassSize/class.pdf> ; also see: Research Points, AERA, 2003.) A recent report from the US Department of Education (2004) evaluating impact from all Federal CSR class size reduction programs recommends: “As districts consider the tradeoffs between using their NCLB Title II, Part A, funds for reducing class size versus one of the other allowable teacher quality reform activities under that part of the law, they may wish to take into account the factors that research suggests may be important in class size reduction efforts.” (<http://www.ed.gov/rschstat/eval/other/class-size/report.pdf>)
- <sup>26</sup> Two complementary definitions exist for *learning communities*. One stresses classroom and instructional organization based on living and working together in a democratically governed system characterized by active participation, collaboration and shared decision-making. (See: [http://highered.mcgraw-hill.com/sites/0072486694/student\\_view0/glossary.html](http://highered.mcgraw-hill.com/sites/0072486694/student_view0/glossary.html)) A complementary definition stresses restructuring curriculum to establish new linkages between content and courses and support students to interact with their teachers and peers to construct meaning and apply new knowledge. (See: <http://www.evergreen.edu/washcenter/resources/acl/iii2.html>)
- <sup>27</sup> An elegant definition of *communities of practice* may be found in the writings of Etienne Wenger: “(a practice community) community is defined by knowledge rather than by task, and exists because participation has value to its members.” (<http://www.co-i-l.com/coil/knowledge-garden/cop/lss.shtml>); Also see Wenger, 2003.)
- <sup>28</sup> The caveat warned that teacher-developed online lessons might ultimately prove to be time-consuming, expensive, and *inefficient*. See: Blomeyer, 2002b)
- <sup>29</sup> See: Shaverson, R. & Towne, L. (2002) (eds.) *Scientific Research in Education*. National Academy Press. Washington D.C. and Bransford, J., Brown, A., & Cocking, R. (2000) (eds.) *How People Learn: Brain, Mind, Experience, and School*. National Academy Press. Washington D.C.
- <sup>30</sup> See: ETS ICT standards [http://www.ets.org/Media/Tests/ICT\\_Literacy/pdf/acrl\\_standards.pdf](http://www.ets.org/Media/Tests/ICT_Literacy/pdf/acrl_standards.pdf) and the American Library Association Information Literacy standards <http://www.ala.org/ala/acrl/acrlstandards/informationliteracycompetency.htm#ilhed>

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## Appendix A.

### Evaluation Methods

The intent of this methodological appendix is to make the procedures followed by the researcher during the execution of the investigation as transparent and apprehensible to the reader as possible. According to Freeman, deMarrais, Preissle, Roulston, & St. Pierre, (2007):

A key source, then, of standards of evidence and quality throughout the history of the scientific method and its application in qualitative inquiries had been the systematic and careful documentation of all procedures – an account of practice – to provide a record for the researcher’s ongoing contemplation as well as for peer review. (pg. 26)

The authors go on to point out another source of guidelines and support for assuring “exemplary qualitative research” is *theory*. In particular, theories concerning the design and execution of program evaluations are often prominent in methodological accounts like this one. (Freeman, deMarrais, Preissle, Roulston, & St. Pierre; 2007)

In this case, evaluation theory may be less important than a practical concern to provide online learning practitioners and leaders with a better understanding of the service provided to educational programs by commissioning professionally designed and executed formative and summative program evaluations. I’ll try to keep “evaluation theory” to an absolute minimum.

The author has a responsibility to acknowledge the contributions of teachers, colleagues and peers who have guided the development of our work. This can be particularly important because in cases where other researchers have completed qualitative studies on similar subjects, or in similar settings, findings from new work can either inform and support, or unduly influence interpretations and generalizations from new data.

The evaluation “approach” that guided data collection, analysis and reporting during the Southside project was the “portfolio evaluation,” that was developed and used for arts education case studies conducted in Cleveland by Robert E. Stake and Patricia Scheyer-Templin. (1976) The data collection, cataloguing and analysis procedures advocated by Stake and Scheyer-Templin for organizing and creating meaning from a rich mix of data artifacts made using the evaluation portfolio approach nearly ideal for a mixed-method evaluation of Southside’s technology intensive instructional project.

The key idea is to establish a file or collection of records and materials which broadly represent the program. This portfolio should be a loose collection so that parts of it can be rearranged and differently displayed from time to time. The entries should reflect the program activities, its issues, its values and its compromises. (Stake & Sheyer-Templin, 1976, p. 1)

Southside's evaluation portfolio worked very much like the authentic assessment portfolios that are used now by classroom teachers to support cumulative evaluation of student's project-based work and the professional portfolios required for students in many undergraduate and graduate teacher education programs. For the duration of the project, documents and data artifacts were collected by the author from the Director and both teachers.

This worked because they were all so busy with other dimensions of that work that asking them to spend time on anything else was out of the question. I was present on-site from early morning through late afternoon five days a week; it made sense for me to become the "official" artifact collector. The author subsequently used portfolio evaluation methodology on other technology program evaluations. In these cases, an administrative assistant or support staff-member was assigned responsibility by the onsite project director for regular, periodic collection of all required portfolio artifacts.

Documents and other artifacts that went into the daily and weekly portfolios as artifacts included reports from the managed mastery testing, TABE scores, observational records, taped interviews, notes from meetings, copies of the Directors project-related correspondence and anything else I could get my hands on. Everything was tagged with the time and date of collection and went into the banker-boxes used to house and organize a growing collection of mixed data artifacts.

According to Stake and Scheyer-Templin (1976), building an evaluation portfolio is a symbiotic activity that is both structuring and structured by evaluator's own self-evaluative deliberations. New portfolio entries trigger and shape new discussions; the discussions influence the collection of new entries and new reflection that precipitate corrections and revisions to entries. From "progressive focusing" on the issues, significant questions and their answers emerge to become issues, attributes and factors by which the program is eventually "judged" to better understand both its merits and its shortcomings.

At Southside, we employed what would have ordinarily been a formative evaluation approach for a mixed method summative evaluation. The mixed portfolio of qualitative and quantitative data supported attention and sensitivity to rich qualitative data documenting the participants and the institutional context and also supported detailed reporting and analysis of both the required, standardized achievement testing scores (TABE) and mastery testing data from the Wasatch instructional management and performance reporting system.

When the project was completed, the complete portfolio containing field notes taken during the planning phase of the project, complete quantitative and qualitative portfolio data from the 8-week project, and some field-notes and taped interviews conducted after instructional activities ceased at Southside all went off-site for the evaluator's review and analysis. All the quantitative data (TABE and mastery testing data) were recoded into spreadsheets for statistical analysis using Excel

In summary, the Evaluation Portfolio Evaluation worked well for the qualitative, mixed method program evaluation conducted at Southside and we continue to use this very practical and efficient evaluation approach on other suitable evaluation projects.

A historically important qualitative research project that was very influential on the Southside field study was actually more influential on the development of the project and on the composition and character of field-notes and interviews conducted during fieldwork for the project, than a conscious effort to emulate an evaluation methodology or an “approach” to organizing and conducting a program evaluation.

One of the earliest examples of educational research illustrating both the “how” and the “why” of computer aided learning (delivered via telecommunications over considerable distance) was in Lou Smith and Paul Pohland’s co-authored account of a rural, computer-aided learning project, was entitled “Education, Technology and the Rural Highlands.” Their research was a program evaluation required for a federally sponsored educational research and development project, in a “rurally isolated” Appalachian high school, during the late 1970’s. (Smith & Pohland; in Blomeyer and Martin, 1991)

The students described in their account seemingly would probably never have learned much fundamental math content for many of the same reasons that poor, rurally isolated students today have the same problems passing the required high school math courses. Probably, none of the Appalachian high school students who participated in Smith & Pohland’s pioneering computer-assisted instructional project would ever have experienced the opportunity to *use*, or even to “learn about,” computers then, *one way or the other*.

Their portrayal of one participating students provides a particularly powerful and detailed descriptive account concerning a young man named Roger. Roger was described as being an “exceptional child” who was believed by all his teachers to be “mentally handicapped.” Roger was the youngest member of a large Appalachian family believed by all concerned to all be “troublemakers and dullards.” In the end, the Roger learned to do basic mathematics using the computer-based learning system, mastered all the computer-based lessons, and learned how to do basic arithmetic *in his head*. When asked how he did it, he said: “I just think it out.” (Pg. 35)

In their summation, Smith & Pohland offer a memorable and important statement about the potential of computer-assisted instruction for improving teaching and learning with disadvantaged or “at risk” students:

Perhaps the thing that makes this tale a most encouraging one to us is that we have had a long-standing commitment to the educational process, a psychology of teaching if you will, that will “turn kids on” and make learning an exciting and stimulating adventure. CAI was such an experience for Roger. From what we could infer, Roger was a potential

dropout who was "saved" in the best sense of the word. For Roger, and for others like him, CAI was an important part of the curriculum. (Pg. 36)

Smith & Pohlands' account provides a powerful example illustrating how even the earliest computer-based "online lessons," delivered via phone lines to a remote Appalachian communities high school, used delivery systems and instructional designs having much in common with the internet-based online courses being delivered today to online high school programs located all across the United States.

The closing section of Smith & Pohland's' account was sub-titled "Aspects of a Theory of Fieldwork Methodology." This detailed theoretical and methodological treatise, presented within the body of their evaluation study, attempts to reconcile the theoretical position taken by Glaser and Strauss (1967) on "grounded theory" (theory generation based on descriptive or heuristic educational research) with their own studies employing participant observation as the primary data source.

In their closing methodological section, Smith & Pohland offer this methodological to future qualitative researchers:

The theoretical orientation (of this work) is implicit rather than self-conscious. In agreement with Glaser and Strauss (1967), our general position argues that participant observation is ideally suited to the generation of grounded theory. (Pg. 47)

This author is much less inclined to theorize, based on our experience conducting the original research at Southside and writing the results twice, for two different audiences. While I honor Smith & Pohland's seminal contribution to qualitative research, I value their dedication to portraying the needs of culturally, educationally, and economically deprived students like Roger even more.