

**“We’ve made the shift.
There’s no going back.”**

Kristina Vlahovich
Anchorage Grade 5-6 Teacher



James Barthelman
Quinhagak Elementary Teacher



Cara Heitz
Cordova High School Science Teacher



An Inside Look at AASB’s Consortium for Digital Learning 1-to-1 Initiative

Project Summary Report

Prepared for the Association of Alaskan School Boards

by Dr. Jason Ohler

Spring, 2011

Report II

A Follow-up Report on AASB's Consortium for Digital Learning 1-to-1 Initiative

EXECUTIVE SUMMARY

“We’ve made the shift. There’s no going back.”

Background

In 2006, the Alaska Association of School Boards (AASB) launched the Consortium for Digital Learning (CDL) as a means of helping school districts transition into the new era of digital age teaching and learning. The 24th and 25th Alaska legislatures supported this vision by granting CDL a total of \$7.5 million. The funding supported a “1-to-1 program,” in which students and teachers were provided laptop computers, wireless Internet access and software to be used for teaching and learning. In addition, teachers also received on-going professional development in the areas of software and hardware training, and in developing learning activities and pedagogy that took advantage of the new technology.

As of this writing, CDL initiatives have been established in 28 of 53 school districts statewide. Today over 12,000 students in nearly 100 schools are experiencing education with a laptop computer and Internet access at their fingertips.

In an attempt to learn about the benefits and challenges of the 1-to-1 Initiative, in summer, 2009, AASB commissioned Dr. Jason Ohler to help develop a series of questions to ask participants in phone interviews. The researcher conducted interviews with key program participants. These consisted of teachers, administrators and project managers who were actively involved in the initiative. Questions were designed to help paint a detailed picture of the impact of AASB’s 1-to-1 program on those who incorporated it into their districts, schools and classrooms. Ten interviewees were chosen due to the depth and breadth of their deployment of 1-to-1 technologies. A report that synthesized interviewee responses was issued in fall, 2009. That report and the questionnaire upon which it is based appear in the appendix.

In late Fall 2010, with the 1-to-1 program in its final phase, AASB contracted for similar research to be conducted to produce a summary perspective of the program’s successes, challenges and legacy. For the most part, the same interviewees were asked the same questions that they had been asked in the previous interviews, with some minor additions. These responses were synthesized and are presented in this report. This synthesis is set within the context of the responses received a year and a half earlier for the first report. The primary findings for this report are presented below in this executive summary, and are explored to a greater extent later on in this document. Given the consistency of responses, it was not difficult to paint a cohesive picture of interviewee sentiment.

For the most part, responses supported all of the findings of the first report. Thus finding #1 is as follows:

Finding #1

As previously reported, test scores are mixed, while student engagement, digital expression and preparation for the digital culture beyond school continues to be very successful.

Respondents continued to report that students' use of Internet resources and laptops across the curriculum resulted in engaged learning, particularly as teachers continued to adapt to pedagogies required for digital age education.

However, the rest of the findings are indicative of a change in focus on the part of participants. Whereas earlier they reported about the success they were experiencing with CDL's 1-to-1 program, they now worried about how to continue that success and sustain the new digital status quo that had emerged in an era of declining funding for such projects. The rest of the findings address this change in focus.

Finding #2

"We've made the shift. There's no going back."

Every respondent reported that there was no way to return to the technology and pedagogy prior to having a 1-to-1 laptop program. They reported that not only teachers and students, but also parents, community members and school board members felt that returning to pre-laptop times would be very harmful to students' prospects for being prepared for the world beyond school.

Finding #3

Linking the continued use of laptop computers solely to an increase in state test scores ignores the larger reality that life beyond school requires students to have skills required in the digital economy.

Solely focusing on test scores ignores the fact that the students need to be able to use personal computing technology that now permeates higher education, the workplace and life in general beyond school.

Finding #4

CDL has been critical to our success.

Every interviewee noted that CDL played a critical role in terms of helping their school transition to a digital learning environment. Without CDL, making the shift would have been very unlikely.

Finding #5

CDL's professional development program played a crucial role in participants' success.

Interviewees universally identified professional development as a highly effective component of CDL projects. This suggests that CDL might consider offering just professional development (separate from hardware and connectivity) to school districts that have invested in technology but not invested in the training to use it effectively.

Finding #6

Most participants report that their schools or districts had found ways to incrementally expand their programs.

CDL funding has inspired a number of schools and districts to incrementally expand the 1-to-1 initiatives to other schools and grades, through the use of grants and district funds.

Finding #7

How are we going to sustain this?

Despite the efforts on the part of individual schools and districts to expand what they had started with CDL funding, every respondent worried about finding funding to keep the shift alive. A few noted that they were bracing for a “triple whammy” in that funding was about to cease from three sources: CDL, E2T2 grants and stimulus funds.

Finding #8

Many communities in Alaska do not have 1-to-1 programs and may need seed money and guidance to start them.

Given that interviewees credited CDL funding with allowing participating districts to successfully make a shift to digital age learning that they considered critical to student success, policy makers need to consider the following question: What are the impacts on the 91% of Alaskan students who were not served by CDL? Thus, two potential funding needs emerge, namely, continued support for existing digital education programs, and for schools and districts that did not benefit from CDL’s previous funding efforts.

In summary, respondents collectively noted the following:

Our schools and communities have embraced the shift to digital age teaching and learning. We have done so in order to reinvigorate K-12 education and better prepare our students for the world they encounter beyond high school, regardless of whether they go to college or enter the work force. However, what we have not developed, and what we desperately need to develop, are effective business and funding models to sustain this shift to digital age, and the new status quo it represents, on an on-going basis. While there is no going back, we are unsure about how to fund our efforts going forward.

Project Background, Overview and Findings

Study Overview

As mentioned earlier, AASB has commissioned two reports about the CDL program. This second report is a summary report about the CDL program, and builds upon the efforts of the previous report.

For this report, the same interviewees were asked the same questions, with some minor additions. For the most part, interviewees had not changed their minds about any of the key issues they discussed during the first round of interviews in 2009. That is, they noted continued improvement in terms of a number of aspects of the educational experience such as student engagement, teachers' opportunities to diversify, personalize and differentiate instruction, and continued community involvement in the schools because of the program. And they continued to note the same challenges, such as acculturating new teachers to a digital learning environment and guiding on-line behavior. Rather than restate these findings in detail, they are summarized and appear here as Finding #1. For more information about these aspects of CDL, the reader is directed to the first report, which is attached as an appendix.

Instead, this report focuses on the one primary change discerned in the interview: a shift in focus on the part of respondents from reflecting on the past to projecting concern about the future. Respondents were, for the most part, pleased with the status quo. However, as CDL and other funding sources were coming to an end, they focused on their concern about how to maintain their programs, as well as modify and expand them in order to remain responsive to the evolving needs of education in the digital age.

Results Overview

Each of the primary findings identified in the Executive Summary is addressed in detail.

Finding #1

As previously reported, test scores are mixed, while student engagement, digital expression and preparation for the digital culture beyond school continues to be very successful.

Test scores continue to be mixed, while interviewees continued to report on-going enthusiasm for and progress in the area of writing, researching, and classroom engagement in general. The discrepancy between these findings might be viewed in terms of the instruments used to ascertain standardized improvement. What is difficult to reveal on a grade by grade basis, might emerge on a class by class basis, allowing test scores to be tied to differences in classroom cultures, teaching styles and adaptation to new technology.

The difference might also be viewed as a difference in learning cultures, from the perspective that while standardized tests reveal some of what changes in a student's life, it by no mean reveals all of it, including the new literacies that emerge as the result of the use of new tools. Along these lines, interviewees continued to report that students and teachers were for the most part adapting successfully to new kinds of expression, such as the use of new media to explain content area material. They continued to note that in so doing, students were adapting more completely to the media environment that now permeates mainstream culture and the world beyond school.

In addition, those interviewees who reported an improvement in student behavior and attendance during the first round of interviews continued to do so. Note that behavior and attendance are not issues in all schools represented by the respondent base, thus, changes in all schools would not be expected. However, all respondents continued to report great engagement in school activities in general. Through the shifts in teaching and learning that the 1-to-1 program facilitated, such as differentiated instruction and personalized learning, schools continued to serve students well in their quest to provide quality education adapted to the realities of working, learning and living in the digital age.

Finding #2

“We’ve made the shift. There’s no going back.”

There was a notable shift in focus in the second set of interviews. While the first round tended to focus on what had already happened, the second round tended to focus on the future. Interviewees were clear about their belief that what had once perhaps seemed like an experiment – using laptops, the Internet, and learning approaches that adapted to the new digital reality in their classrooms – was now the new status quo. The shift to digital age learning had created a new kind of education that everyone had adapted to and that allowed students to transition to the real world beyond school. There was no going back.

Not only had teachers and students made the shift so had the community and, in some cases, the district administration and staff, some of whom had received laptops through the CDL program. After hearing repeatedly the theme “there is no returning to pre-laptop times,” I re-interviewed participants and asked them this very simple question: “How would parents, students, administrators and the community respond if the CDL 1-to-1 program were suspended?” Every interviewee was emphatic that reactions would be negative, spanning from distress to outrage. In each case, interviewees were clear that such a move would be considered irresponsible with regard to preparing students for the future that awaited them.

Finding #3

Linking the continued use of laptop computers solely to an increase in state test scores ignores the larger reality that life beyond school requires students to have skills required in the digital economy.

Everyone interviewed felt that digital skills were destined to be an important part of students’ lives, regardless of what they elected to do after high school. Therefore, they considered it the school’s responsibility to make sure students had digital skills that transferred to the world of work, individual innovation and higher education. As proof, some of the interviewees spoke about testimonials from graduates and parents of graduates. As one interviewee put it: *“Parents of graduated students are our greatest cheerleaders. They thank us for preparing their kids for college. You don’t realize the benefits of this program until your kids have been out (of school) for a few years.”* This suggests that perhaps a fertile area of research about the effectiveness of 1-to-1 programs may lie in longitudinal studies that track students after graduation, with the hope of discerning correlations between the digital preparedness they received and the degree of success they experienced beyond high school.

Despite these benefits, those involved in 1-to-1 programs – from funders to teachers to policy makers – often struggle to justify digital education programs primarily in terms of one metric: test scores. It is the researcher’s opinion that this is a very limited perspective. To my knowledge, there is no research that supports the notion that students became smarter when they stopped using slate tablets in favor of paper and pencil as their primary media source in school so many years ago. Yet, society made the shift anyway, presumably because not doing so was considered irresponsible. Students needed to emerge from school capable of being useful in whatever mediascape that business, higher education and society had adopted. In the “real world” no one was using slate tablets.

There are a number of parallels here. A primary consideration of today’s employers is a digitally skilled labor pool. For that reason alone, school districts are justifiably interested in having students graduate with digital skills beyond those they might develop on their own. That is, if society is concerned about students using computers primarily for entertainment and gaming purposes, then it needs to charge schools with the responsibility of integrating computer use into the tasks of research, reflection and expression that translates into the skills and perspectives needed in higher education and the workplace.

Finding #4

CDL has been critical to our success.

All interviewees viewed CDL as an important part of their success in terms of helping their schools “make the shift” to digital age learning. Toward that end, CDL had assumed many roles. First and foremost, it was an incubator, much like incubators in the private sector. CDL provided seed money (and guidance) for the purpose of purchasing technology and training, which in turn allowed innovative schools to begin their transition to digital age education. CDL was also seen as an equalizer, allowing remote schools to have access to many of the technologies and online resources once reserved only for larger communities with more robust resource bases. In addition, CDL allowed students from financially challenged households to make the shift to digital age learning along with their more fortunate classmates.

Above all, interviewees appreciated the leadership role that CDL assumed in approaching support from a comprehensive perspective. Rather than simply providing funding for technology, it provided funding for technology, Internet connectivity and professional development. All three elements were viewed as important. Having all three delivered in an integrated fashion was seen as critical to their success.

Finding #5

CDL’s professional development program played a crucial role in participants’ success.

The professional development CDL provided was viewed so enthusiastically by interviewees that it deserves to be highlighted as a separate finding. As one interviewee put it, “*it (professional development) cannot be oversold.*” It was professional development that helped teachers make the shift in educational perspective that made the technology truly useful for instructional purposes. Professional development was a part of every CDL installation, and consisted of training teachers not only in software and hardware use, but also in the use of new pedagogies that are more responsive to today’s

digital students. Thus, CDL received high marks from interviewees not only as a funder, but also as a resource provider who understood the total package required by schools in practical terms.

As CDL continues its support of teachers and students throughout the state, it might consider focusing on providing professional development - separate from hardware and connectivity - for those schools and districts that have an installed technology and connectivity base, but have not invested in the necessary training to use it effectively.

Finding #6

Many participants report that their schools or districts had found ways to incrementally expand their programs.

Inspired by the results of CDL initiatives, individual schools and districts had managed to expand those initiatives to unserved schools within and grades using alternate funding sources. A number of important points can be derived from this. First, CDL was effective in recognizing real demand. The annals of educational technology are replete with stories of expensive technology ventures that went nowhere. However, in this case, the programs funded by CDL not only survived but also were adopted and expanded.

Second, CDL supported efforts that were scalable, a very important aspect of rebuilding infrastructure. Sometimes new technology ventures end up being more of an anomaly than part of sustainable change. Computer labs are a good example. Even when they are successful, future expansion is prevented by the physical space needed to house them. In contrast, incremental expansion of a laptop program is less constrained because the laptops are often taken home by students. In the event that they are housed at school, they can be stored in a cart. Thus, it scales much more easily.

Third, the successes of the 1-to-1 programs were apparent enough to administrators and school boards, who ultimately decide how to spend school district money, that they began to rethink their own budgets, finding pockets of money to prolong and expand programs begun by CDL. This was probably the greatest signifier of its success. Communities saw CDL's success and supported it in real terms.

Finding #7

How are we going to sustain this?

However, interviewees shared a widespread concern about securing sustainable funding going forward. Some interviewees noted that they were going to lose three funding sources at once in the near future: CDL, E2T2 grants and stimulus funds. While interviewees reported that their organization could fund some of the shortfall, they noted that they simply could not fund all of it.

One interviewee, a district technology director, noted that his goal during the last year of CDL was to determine the true costs of maintaining any kind of personal computer program, whether it involved laptops, the newer touch technology, or technology we cannot conceive of yet because it defies current imagination. No doubt this goal is on many participants' minds. Funding "the shift" begins with understanding, as much as is possible, what learning with digital technology costs.

Finding #8

Many communities in Alaska do not have programs that support personal technology programs and need seed money to start them.

Interviewees were asked to provide a local perspective of their local situations. After all, this is their sphere of expertise. Alaskan's are left to infer the "bigger picture" of Alaska's situation as it struggles to make the shift to digital learning. A number of questions inform this. First, given that CDL funding allowed participating districts to make a shift to digital age learning that interviewees deemed critical to student success, how are Alaska schools faring that have not had support like that provided by CDL? Second, how many Alaska communities have not made this shift due to a lack of funding? Lastly, and above all, how great is the digital divide in Alaska, what kind of educational inequities exist because of it, and how can they be addressed?

Rough numbers can paint a rough picture of the challenge that faces Alaska. Currently, 12,000 students in over 100 schools statewide are currently participating in CDL digital learning projects. In contrast, Alaska has approximately 130,000 students attending about 500 schools. Therefore the CDL project now involves approximately only 9% of Alaska's total population of students and has a presence in only about 20% of schools. Thus, 91% of Alaska of students and 80% of Alaska schools have not been served by CDL.

Conclusions

Without conducting a full inventory of CDL-like programs, and directly asking districts for details about their current efforts in the area of networking, technology deployment and professional development, there is no way to know what percentage of the 80% of the schools mentioned above are truly unserved. Perhaps they have obtained grants, or found other means of support for the shift to digital education. However, it is instructive to note that in all the schools represented by the interviewees, only one had begun efforts to begin a 1-to-1 program on its own prior to CDL. The rest were eager to begin a program, but could not have done so without CDL support.

Thus two funding needs emerge:

1. Continued support for existing programs
2. Support for schools and districts that did not benefit from CDL's previous funding efforts, or similar efforts, in order to help close the digital divide that exists in Alaska.

There is no question that interviewees considered CDL efforts a critical component in the inevitable evolution of their schools and districts toward an integrated approach to digital education that prepared students for the realities of higher education and the workplace beyond school. The primary issues that await Alaska policy makers are: 1) How does the state help maintain the forward momentum already in place in some districts in an era of decreased funding, and 2) How does it offer those districts who have been excluded from "making the shift" the opportunity to do so?

CDL PROFILE: Kristina Vlahovich

Kristina is a grade 5/6 teacher at Chinook Elementary, a Title I school in Anchorage.



Before the shift to digital learning

Before her school joined the Consortium for Digital Learning program, her school was, in her own words, *“one of the worst equipped schools in the district.”* Her 30 students had access to two computers in her classroom, and sporadic access to a computer lab on a scheduled basis. *“The disconnect of working only once a week on a project made it hard to keep enthusiasm for the project...by the time the project was finished, the class would often have moved to another unit of study.”* Prior to CDL, she used a traditional “stand and deliver” approach to content delivery. Assignments were “one size fits all” with little differentiation to accommodate individual learning styles.

After the shift

After Kristina became involved in the Anchorage School District’s Digital Citizen program in 2008, she transformed her classroom into a student-centered learning environment. Funded in part by CDL, the program put Netbooks (Dell Latitude 2100 Netbooks) in the hands of each of her students. Suddenly, students had affordable access to the Internet all day, allowing them to research topics immediately, whenever they needed to, rather than waiting for the lab to come open or for a turn at the two computers in her classroom. Kristina shifted her classroom management approach to self-directed learning. Students could stay on task and follow through on projects in a timely way, and pursue the material in ways that maximized their learning. Her students welcomed the shift: *“My students have learned to be independent, responsible workers who need very little policing... I seldom have behavior problems because students are engaged.”*

**“The Netbooks gave us affordable access all day, everyday.”
The result was self-directed, engaged learning.**

Literacy improves

Part of her CDL project involved students using specialty literacy software. Ms. Vlahovich used Achieve 3000, which provides non-fiction news articles written at twelve different reading levels. This allowed multi-age classroom students to read and discuss the same article. MyAccess software provided students writing opportunities through the use of writing prompts and immediate feedback that helped them revise their work. Ms. Vlahovich was very pleased at the results. *“MyAccess is a great tool for getting kids to write, expand their writing, and actually revise!”*

Differentiated instruction enhanced – even during free time

Differentiation allows teachers to help students work at their own rates according to their own needs. The Netbooks and the software that CDL provided took differentiation to a new level. Not only could students pursue their academic work more successful through a personalized approach to the material, but they could also structure their “free time” to better suit their academic needs. The Netbooks came packed with educational software in the areas of math, literacy, and content. Students used these after they finished their class work. The result: no wasted moments in class. Learning happened all the time.

**“My students enjoyed working on group projects the most.”
They researched, wrote and presented their findings to the class using digital tools.**

CDL PROFILE: James Barthelman

James teaches elementary school in Quinagak.



Before the shift to Digital Learning

We look at the impacts of CDL on James' classroom through the lens of a particular project: a science fair presentation about the Pebble Mine. His goal was to help students develop a balanced view of the mine's impacts from a scientific perspective. He began by using conventional learning materials, but student interest waned quickly. *"This project started as many do, as a paper-pencil-book lesson. A Foss Kit from the district had some worksheets that explained different elements of a river system. The worksheets proved to be pretty mundane, boring stuff."*

After the shift – a change in learning

The shift began with how the students approached learning. Using newly acquired Internet connectivity, laptops and other technology, Mr. Barthelman's students explored the geography and science associated with the Pebble Mine through Internet science sites. They used Google Earth to research the Pebble Mine site and form a list of concerns related to placing a copper mine in that location. They used YouTube to visit and view mines throughout the world, in order to better understand many topographical concerns, like earthquake faults and watersheds. Based on this new approach to learning, James commented: *"I find the computers critical to learning, creating and presenting the information we are finding."*

"As we brainstorm ideas for the science fair, technology has become an important part of the presentation."

The shift continues – a change in presentation

How students demonstrate academic understanding shifted greatly as well. First, for the science fair they will forgo a cardboard project in favor of a Smart Board presentation. Second, they will recreate an earthquake in the earthen dam situation by creating a movie using iMovie software. Trying to use a model eventually fails because the sand becomes saturated. However, the movie can be shown over and over. Third, the students will mix elements of their class experiments and website information to create podcasts about their findings.

Literacy is up, behavior issues are down

His project-based learning style is supported by the new ways his students learn math and reading literacy. Both of these are now digital and individualized. In the meantime they are developing the digital literacy skills the workplace demands. Because much of his curriculum has shifted to the use of empowering digital tools, motivation is up, and behavior issues are down. *"When students are asked to use CDL computers to complete assignments or projects there is a rush to the computer cart. Their excitement is a thing to see."*

"I wish I could make my whole day, month, year, full of these projects. They are so much fun to teach, the students are always engaged, and I believe they truly learn material and processes they will always remember."

CDL PROFILE: Cara Heitz

Cara teaches high school health and science in Cordova.



Before the shift to Digital Learning, 2.0

Before her school joined the Consortium for Digital Learning program, Cara was already committed to using technology fully and effectively. *“Prior to the (CDL 1-to-1) rollout...I would post a word document on the website to show assignments, class lessons and test dates for parents and students to view.”* However, without laptops and connectivity, her students could not access these resources individually. Due to these limitations, Cara was more a traditional lecturer who walked students through assignments. Students used traditional means to access and complete work.

After the shift

When Cordova joined the CDL 1-to-1 laptop program, the change to real digital learning became possible. She transitioned from lecturer to guide and facilitator; *“Students spend a lot of time on their own or with partners or teams exploring content via the laptops... and discuss with each other via blogs...what they have learned.”* Given her comfort level with using technology in the classroom, Cara was an ideal candidate for a 1-to-1 environment. What had been missing were laptops and connectivity for her students in order to bring her teaching methods fully to life. We are left to wonder how many other Alaskan teachers would “make the shift” if they simply had the tools to do so.

“The students were very excited in all classes to edit the wiki and add content so gracefully.” Students used their laptops to research science material and publish their discoveries.

Digital learning takes off

She created wikis for each of her classes, and provided access to these through a class website. Wikis are an excellent example of free “Web 2.0” software that adapts well to education, providing an electronic space that combines bulletin boards, public forums and work spaces for individuals and teams. Ms. Heitz trained her students how to use the tools, which she employed to teach biology, anatomy, life science, marine biology and health. All wiki sites are rich media sites, with class information, web resources, video and other material. Students used wiki team pages to post digital artifacts they created to demonstrate their understanding of science concepts.

The public is invited

Cara began using CDL resources by incorporating a digital component into a traditional high school science fair. Students used laptops to create a movie about the History of Science, which was *“...a highlight of the community science fair that year.”* Because she used wikis and other public tools, everything she and her students did was open to the public. Parents and community members could see what students were studying, when they were taking tests, and follow the development of their digital work portfolios. The shift to CDL’s 1-to-1 program and “anytime, anywhere learning” was an accountable, community event. See for yourself at: www.cordovasd.org/~cheitz.

“I gradually became comfortable converting lessons from paper to digital form, often using a new Web 2.0 tool. The students responded very positively.”

Dr. Jason Ohler

Professor Emeritus at the University of Alaska Southeast, Juneau, AK, served as the evaluator for the CDL Mid-Project Summary Report. Dr. Ohler has an extensive background in educational technology and conducts presentations and workshops internationally on the topic.



In 1986, he created the Educational Technology Program at the University of Alaska, one of the early teacher education programs in the United States that was created in response to the personal computer revolution in the classroom. He directed this program until 2003, at which time he was appointed President's Professor of Educational Technology and Distance Learning at the University of Alaska, overseeing a number of projects exploring the area of digital literacy. He has won several awards for his work with teachers and is author of many books and articles.

Appendix One

Interview Questions

Original questions asked CDL interviewees for the 2009 report:

1. What initially motivated your district/school to participate in the AASB Consortium for Digital Learning 1 to 1 initiative? (Concrete and/or philosophical reasons)
2. How has the program been embraced by your superintendent, school board, principal(s), teachers, parents, students and the community? Have these stakeholder groups been pleased with the results? (Leadership, support, enthusiasm, commitment, responsiveness)
3. Since the program was introduced, what specific changes have occurred in your district/school? (Anecdotal evidence of student engagement, attendance, dropout rate, academic performance, etc.)
4. Was the teacher professional development provided with the program helpful? If so, describe how it has facilitated your district/school's transition to laptop-based instruction.
5. Was access to educational resources increased? If so, how did it help students gain digital skills and information important to learning as well as workforce preparation?
6. What did the program enable teachers and students to do that they couldn't do before? (Impact of CDL)
7. Please describe any school projects or classroom activities that have emerged from the program. (Examples of student work available?)
8. What challenges did your program encounter? What suggestions do you have for improving the program?
9. Do you think the CDL initiative has helped your district/school? If so, why and in what ways? (1 to 1 testimonials)
10. Should the CDL 1 to 1 initiative be expanded in your district/school if funding were available? If so, how and why? (Support for additional funding; at which grade levels?)
11. Are programs like CDL vital to your students' future?

Responses to the questions above by interviewees formed the basis of the original report that was produced in 2009. As a result of interviewee comments, these follow up questions were asked for the 2011 report:

How did the CDL program impact the following:

1. Student school attendance?
2. Student engagement at school?

3. Student attitude toward school?
4. Students' use of expanded methods of expression? (That is, using new media to express understanding of content)
5. Opportunities for teachers, including yourself, to facilitate differentiated teaching? (That is, to provide instruction tailored specifically for individual student needs)
6. Student development of a more professional attitude toward the use of digital tools? (That is, to see the value of using computers beyond primarily gaming and entertainment)
7. Your school's ability to achieve better equity of access to learning resources for teachers and students?

Appendix Two

CDL Mid-Project Summary Report

An Inside Look at AASB's Consortium for Digital Learning 1-to-1 Initiative

CDL Mid-Project Summary Report



Prepared for the Association of Alaskan School Boards

by

Dr. Jason Ohler

Fall, 2009

An Inside Look at AASB's Consortium for Digital Learning 1-to-1 initiative

Executive Summary

Project overview. In 2006, AASB launched the Consortium for Digital Learning (CDL) as a means to improve student achievement by providing students with laptops and Internet access. The 24th and 25th Alaska legislatures supported this vision by granting CDL a total of \$7.5 million. CDL initiatives have now been successfully established in 28 of 53 school districts statewide. Today over 12,000 students in nearly 100 schools are experiencing education with a laptop computer and Internet access at their fingertips. Launching a statewide digital learning initiative has involved the development and coordination of numerous interrelated components designed to maximize the success of each four-year project and to hold districts accountable for meeting set goals.

Study overview. AASB contracted with the Institute of Social and Economic Research, University of Alaska Anchorage (ISER) to evaluate the CDL initiative. The evaluation largely consisted of a quantitative analysis of three data sets: 1) Alaska Standards Based Assessment tests (SBAs) over three years (2005-2007), 2) drop-out and attendance data as reported by the Alaska Department of Education and Early Development, and 3) the impacts on the school learning environment with data from AASB's School Climate and Connectedness Survey (SCCS) for the last two years of the study. The results were mixed, with clear patterns difficult to discern with regard to these three areas.

In an attempt to learn about the benefits and challenges of the 1-to-1 initiative from an "in the field" perspective, AASB commissioned Dr. Jason Ohler to help develop a series of questions to ask participants in phone interviews. He conducted interviews with program participants, who consisted of teachers, administrators and project managers who were most involved the initiative. Questions were designed to help paint a detailed picture of the impact of AASB's 1-to-1 program on those who incorporated it into their districts, schools and classrooms. Ten interviewees were chosen due the depth and breadth of their deployment of 1-to-1 technology.

Results overview. Given the overwhelming agreement among interviewees on a number of issues, it is not difficult to paint a composite picture of the impacts of 1-to-1 in general terms. While all interviewees cited challenges with program, and provided ideas for the program's improvement, they all considered the program a success and essential to their students' futures. Each interviewee wanted the 1-to-1 program either to be expanded to include more schools or grade levels, or at least wanted it continue to be supported in its current form. Some voiced fears about what would happen to the many gains made in terms of student engagement and achievement if the program were not part of their future.

While interviewees reported that some teachers struggled with the shift from traditional book and lecture methodology to a more distributed, student-centric pedagogy, they also reported that the majority of the teachers eventually were successful and many thrived in the new learning environment. Similarly, while some interviewees reported hesitation and concern on the part of school boards, parents and the community, most reported that support developed quickly once stakeholders saw the impacts on the students in their communities. The result in most cases was clear community support

for 1-to-1 programs, with the following caveat: a vision for the 1-to-1 initiative needs to be continually renewed by all stakeholders. There was no resting on past success, or assuming that the program would be understood or supported by new teachers and school board members. Schools need to reaffirm the value of their 1-to-1 programs on an on-going basis if they want continued local support.

While a number of important impacts emerged from the interviews, the following were prevalent and particularly significant:

1. **An increase in student engagement and a decrease in behavioral issues were pronounced.** Increases in student engagement with schoolwork due to the 1-to-1 initiative were dramatic. Not coincidentally, behavioral issues – often linked to student disengagement – decreased dramatically where these were issues prior to the 1-to-1 program. This change is also supported by ISER, who found that students showed modest declines in risky behavior. In addition, ISER reported that both staff and students showed modest improvements in their ratings of school climate (Hill, 2009). Behavioral issues include lack of attendance, as well as disruptive and off-task behavior. In most cases, interviewees directly credited the improvement of student attitude to student participation in the 1-to-1 program because it facilitated student engagement in authentic learning that was interesting and meaningful.
2. **Student writing improved.** Teachers observed that because of the laptops, students wrote more and their writing improved.
3. **Student expression broadened to include many forms.** Students not only developed written work that was more articulate, but they also developed other kinds of media, including movies, multimedia presentations and other media forms commonly associated with the information age economy.
4. **Student achievement was either mixed or held steady. There were slight increases in writing scores.** Where comparative test score data was available, most reported that student achievement as measured by standardized test scores held steady, and in some cases improved slightly, especially in the area of writing. This is supported by ISER (Lexi, 2009) as well the Maine’s 1-to-1 research (Silvernail, 2006). Yet, most interviewees were quick to point out that there were other kinds of student improvement in terms of behavior, engagement and personal responsibility.
5. **Teachers grew in their approach to teaching and reaching digital age students.** Laptops and Internet access required teachers to change their approach to teaching, often from one that was teacher-centric to one that required students to work collaboratively and to assume more responsibility for their own learning.
6. **Challenges to the CDL program were positive in nature.** While many interviewees identified challenges, most were not “negative challenges.” Instead, challenges focused on needing more of what had worked, including resources, professional development and support. There were a number of comments about

wanting more specialized professional development in content areas, searching skills and technical support. No one wanted to leave the program, and all interviewees wanted the program to continue.

7. **Challenges varied due to school culture and geography.** The nature of the challenges cited by interviewees were varied, due in part to the nature of the school culture where 1-to-1 was implemented, as well as where the schools were located. Some schools were more enthusiastic about the adventure of the 1-to-1 program than others, which impacted the nature and extent of challenges they experienced. Remote communities had different needs and faced different challenges than did Anchorage. In addition, schools that had high turn over rates in staff faced different challenges than those that did not, particularly in the area of staff development and maintaining a shared vision for the program.

Conclusion. One-to-one computing is clearly an effective means of increasing student engagement. This engagement surfaces in a number of ways, including students' showing more interest in school work, community involvement and personal development. Interviewees overwhelmingly support the continuation of AASB's 1-to-1 initiative and encourage whatever funding agencies are involved to continue and, if possible, expand the program. Many interviewees felt that their school had gone past a point of no return. That is, because of the 1-to-1 program, they felt that their schools had fully entered the digital age and were actively involved in successfully preparing students for the future that lay ahead of them. They felt that retreating to traditional educational models would seriously impact student engagement, achievement and student success beyond school.

Re-engaging Students through 1-to-1 – Why it's important

Lurking behind disappointing test scores and the general malaise toward learning that has overtaken so many of today's students is at least one common denominator: a lack of engagement. Disengagement comes in many forms, from poor school attendance to boredom, apathy, disruptive behavior and a simple unwillingness to participate in school activities. Regardless of disengagement's form, one thing is certain: without the inspiration to engage, the ability to do so is greatly diminished.

Where does disengagement come from? There are a number of sources. But one most certainly is schooling's inability to connect what happens in school with what happens outside of school. Students' lives after school hours are filled with mobile connectivity facilitated by digital tools. In the real world of work, nearly every profession is permeated with laptops and cell phones that are used for on-going data acquisition, analysis and communication. Yet in many schools the digital tools so prevalent in the real world are conspicuously absent.

This leads to what researcher Warschauer (2006) calls the "home/school" gap, which he defines as "the gap between the media-rich and autonomous literacy experiences that many children enjoy at home and the more restrictive literacy practices they engage in at school." The result is that the chasm between school and life grows with each missed opportunity to let students use today's information processing tools to pursue inquiry and learning. If we are going to re-engage students, we must connect the two worlds.

One way to address this situation is obvious: have students use information tools in school. This isn't a new idea. Schools have been stocking computer labs with desktop computers for many years. However, labs make students come to the machine rather than vice versa, an approach completely at odds with today's world of computing, which is mobile and infused in most tasks throughout the day. It is counterproductive to force students to wait their weekly turn to use a computer to write, when writing is an activity that goes on throughout each day. A foundation of today's work world is the fact that mobile digital tools are always on, always ready to help answer questions, conduct research and collaborate with others. We don't just need access to information when we are sitting at a desktop computer. We need access on a permanent, on-going basis and mobile basis.

Next step: 1-to-1. The obvious step to take is simple in concept, but complex in application: provide each student with a laptop computer and ubiquitous access to the Internet. The challenges in doing so are not insignificant, and include funding, technical support, stakeholder buy-in and teacher professional development, to name a few. Yet it is quite clear that to re-engage our digital native students, as well as prepare them for the real world of work beyond school, we must provide them with computing power and Internet access on an on-going basis.

It should be comforting to remember that shifting to 1-to-1 computing is not the first time we have made a change in schooling of such magnitude. Many years ago a revolutionary idea began to circulate in communities: get rid of chalk and slate tablets and give each student his own textbook, paper and pencils. One can only imagine how heated the debates must have been among community members, for many of the same reasons facing 1-to-1 initiatives now, including cost, teacher preparation and cultivating

a shared vision of the future among community members. Ultimately communities voted to make sure that students acquired the skills in school that they would need in the world outside school. That is, they decided to do what we must decide to do now: prepare students to be members of a community that depends upon them to have the skills and perspectives necessary to be effective citizens.

In practical terms this has meant the emergence of 1-to-1 laptop programs throughout the United States and elsewhere. Typically a 1-to-1 program shares the following components:

1. Each student receives a laptop computer, capable of connecting wirelessly to the Internet
2. Wireless connectivity is generally available throughout the school.
3. A common bundle of productivity and other software are installed on each laptop.

Beyond this, there are wide variations in 1-to-1 programs with regard to a number of elements that cluster in the following areas:

- How many students to include, at what grade level and for how many years.
- Whether or not to allow students to take laptops home
- The availability and level of technical support.
- The level of commitment and investment in professional development.
- The degree to which parents and the community are involved in the program.
- The level of investment in conducting research about the results of the program initiatives.

Other 1-to-1 programs. One-to-one programs have been undertaken since 1999 in a number of states, including South Dakota, Maine, Michigan, and Georgia. Research about these programs is just now becoming widely available. Readers are invited to consult Project Red (www.projectred.newswire.net/), a project and website devoted to providing a selection of articles summarizing successful implementations of technology-transformed schools.

Perhaps the best known 1-to-1 program is Maine's Learning Technology Initiative. In 2002 Maine took the bold step of providing every 7th and 8th grader a laptop computer. Since that program started, it has been studied by the Maine Education Policy Research Institute with the following overall discovery: test scores have improved somewhat in writing while holding more or less constant in other areas. At the same time, student engagement in schoolwork has improved dramatically.

This is a common theme among the research that is emerging in this area: mixed results in terms of test scores, but a great increase in student participation. Clearly we are in a transitional period. Although we have new tools and resources that demand a new approach to teaching and learning, we are still testing very conventionally. It is the opinion of the author that we are perhaps five years away from being able to align the new elements of the educational landscape so that we can create authentic assessment that will truly measure the student improvement that is currently underway. Successful alignment can only come about through a combination of leadership and professional development that focuses on the challenges of teaching the digital generation. In the

meantime we are faced with the challenge of figuring out how to manage students who are anxious to use digital tools to reengage with school.

Alaska's 1-to-1 Program

In spring of 2006, the AASB Consortium for Digital Learning (CDL) initiative was launched when it was awarded \$5 million in capital funds by the 24th Legislature. In 2008, \$2.5 million in additional legislative funds were received. CDL 1-to-1 initiatives have now been successfully established in 28 of 53 school districts statewide. Today over 12,000 Alaska students in nearly 100 schools are experiencing education with a laptop computer at their fingertips. Launching a statewide digital learning initiative has involved the development and coordination of numerous interrelated components designed to maximize the success of each four-year project and hold districts accountable for meeting set goals.

Major components at each project site include the following:

- Hardware and software
- Wireless network and web connectivity
- Staff professional development
- Technical support and training
- Alaska-based equipment repair

In addition, CDL support components included

- Performance contract identifying each district's academic targets
- In-state professional development training team
- Reserve of staff training days
- University of Alaska credit for professional development training
- Distance delivered evening workshops
- Replacement laptops
- Ongoing tech support
- Project evaluation
- Onsite parent education seminars

Future funding. Funding for new programs is always fluid, depending upon resources and what lawmakers perceive to be the most pressing educational needs at the time. Some interviewees worried that in the absence of AASB's support, they would be forced to return to traditional pedagogies, perspectives and tools that are completely out of synch with the real world. More importantly, they were very concerned that the re-engagement they had witnessed among students, that has made such a difference in their attitude toward learning, would be lost.

Talking to Participants

In an attempt to understand the impact of the 1-to-1 initiative "on the ground," AASB decided to ask teachers, administrators and project coordinators who were recipients of 1-to-1 support to discuss the program's effects. Ten interviewees were selected because of their involvement with projects that were broadly implemented and used a wide range of initiative resources. A survey was constructed (Appendix I), and phone conversations were conducted with ten of the most active participants in the program.

The results follow and are grouped into the following main response areas: Motivation to join CDL, Impacts of CDL, CDL administration, and the Future of CDL.

1. What motivated you to participate in the CDL 1-to-1 program?

In every case, the desire to be part of CDL was driven by a desire to serve and engage kids, and to prepare them for the real world. In most cases respondents said that what made CDL a reality in their district was someone or some group of people with a clear vision of serving kids in the digital age. One respondent spoke for many in saying, “Without AASB’s CDL program, we simply would not have had the political will to do this.” Clearly, there was an alignment between digital age educators looking for the right opportunity to move forward in providing kids the digital age education they need and deserve, and the opportunities afforded by AASB’s CDL program.

2. What difference did the CDL 1-to-1 program make?

Described below are the major themes that emerged from interviews. This section restates much of what appears in the executive summary earlier in this report:

- 1. An increase in student engagement and decrease in behavioral issues were pronounced.** Increases in student engagement with schoolwork due to the 1-to-1 initiative were dramatic. Not coincidentally, behavioral issues – often linked to student disengagement – decreased dramatically where these were issues prior to the 1-to-1 program. This change is also supported by ISER, who found that students showed modest declines in risky behavior. In addition, ISER reported that both staff and students showed modest improvements in their ratings of school climate (Hill, 2009). Behavioral issues include lack of attendance, as well as disruptive and off-task behavior. In most cases, interviewees directly credited the improvement of student attitude to student participation in the 1-to-1 program because it facilitated student engagement in authentic learning that was interesting and meaningful.
- 2. Student writing improved.** Teachers observed that because of the laptops, students wrote more and their writing improved.
- 3. Student expression broadened to include many forms.** Students not only developed more articulate written work, but they also developed other kinds of media, including movies, multimedia presentations and other media forms commonly associated with the information age economy.
- 4. Student achievement was either mixed or held steady. There were slight increases in writing scores.** Where comparative test score data was available, most reported that student achievement as measured by standardized test scores held steady, and in some cases improved slightly, especially in the area of writing. This is supported by ISER (Hill, 2009) as well the Maine’s 1-to-1 research (Silvernail, 2006). Yet, most interviewees were quick to point out that there were other kinds of student improvement in terms behavior, engagement and personal responsibility.

5. **CDL caused participants to focus on a number of important digital age education issues that had been not been previously addressed.** The presence of ubiquitous computing and Internet access compelled teachers, students, administrators and the community to ask questions about what constitutes a solid, relevant education in the digital age. Issues such as classroom management, student learning, the role of technology, and making home to school connections were under active discussion. CDL was not only an engine of change, it was an engine for talking about change.

Individual Comments

Whereas interviewees tended to converge on the few broad themes identified above to agree on overall themes, each identified these themes in personal ways, using different examples to illustrate changes in classroom activity, as well as teacher and student behavior. All the examples they cited were powerful indicators of change and the potential to improve learning. Therefore, further study is warranted to determine whether they are isolated incidents or are indicative of broader patterns of impact.

Individual comments include the following:

1. **CDL brought a more professional focus to digital tools.** We are fond of calling our students “digital natives” (Prensky, 2005) because they have grown up with digital technology and are rather fearless when it comes to using it. But using it for games and fun is quite different than using it for school assignments and real world work. The 1-to-1 initiative essentially retooled students intellectually, showing them how to use tools they were familiar with in a much more professional manner.
2. **Approaches to instruction are more conducive to creating lifelong learners.** The 1-to-1 program compelled a new kind of teaching in which students have to develop the skills and the sense of responsibility necessary to take charge of their own learning. This leads directly to the skills they need to be lifelong learners.
3. **Issues of equity are actively addressed.** CDL helped greatly reduce the digital divide by providing equal access to computers and the Internet to all students within the program. One teacher commented that the 1-to-1 program had brought the issue of equity to fore, saying “We aren’t done achieving equity until every student has the same digital opportunities.”
4. **CDL helped students develop and honor “multiple intelligences” (Gardner).** Computers and Internet resources leveraged skills, talents and perspectives that do not normally surface in a typical education, in particular in the areas of media production and visual arts. As one interviewee commented, “Laptops bring out so many intelligences, and give all kids a chance to be smart.”
5. **Ubiquitous computing helped students explore post-high school options.** Interviews contained comments about students using the Internet to more effectively research job opportunities and professional options. In addition, an

administrator from an alternative high school noted that she saw a substantial increase in enrollment in college on the part of her graduating seniors. She noted that prior to CDL, only 2 students went to college at her school. After CDL, 14 were going. She attributed this to the fact that students used their laptops to learn about higher education opportunities.

6. **It was much easier to differentiate instruction.** Two teachers noted that they were truly able to differentiate instruction by developing IEPs that were easily facilitated by laptops and Internet access. True differentiation - that is, providing instruction tailored specifically for individual students' needs - was finally made possible because of the laptops. As one teacher put it, "we could meet students where they were and create a program uniquely for them."
7. **Students could engage in longer, more involved projects.** For many students, computing time had been limited to whatever could occur during scheduled computer lab time. Having laptops allowed students to engage in longer, more detailed projects, and to continue those projects at home.
8. **Home to school connection strengthened, leading to an "extended school day."** In most 1-to-1 deployments, students were allowed to take their laptops home. This facilitated an extended school day, resulting in more thorough student work. Of some concern was the cost of taking laptops home, in terms of resources, lost time and breakage. Clearly these kinds of costs need to be weighed against the students' ability to extend the school day and more effectively bridge the worlds of school and home.
9. **One-to-one computing helped meet the needs of special needs students.** One interviewee described how ubiquitous computing allowed teachers to focus on special needs students through the use of large font, text to speech programs, recording lectures when note taking was difficult and so on. It should be noted that these capabilities are standard features built into most laptops.
10. **Ubiquitous computers made a "night and day" difference in terms of information access.** Remote communities reported a dramatic difference in terms of both students' willingness and ability to engage in research. As two interviewees noted, in remote communities libraries are small and out of date, and sending away for articles takes forever. Having Internet access made all the difference in the world. Teachers could reference what was going on in class with current events, research reports, lectures, media presentations and other kinds of instructional support, easily and instantaneously. It is important to note that laptop availability also played a major role in improving Internet access. Regardless of how fast Internet access is, if it is only available in a computer lab then it is useless on a day-to-day, class-by-class basis in any practical sense. But when students used their laptops throughout the day, students truly saw them as their "textbooks, paper and pencil for 21st century learning," as one interviewee put it. For this reason, even larger schools that already had reasonable Internet speeds noted increased utility in information access.

11. Communication improved between teachers, students and parents.

Improved communication occurred in a few ways. First, the use of email and other electronic communication allowed teachers to send and receive assignments, and provide feedback to students and parents much more quickly than before. In addition, one interviewee noted that it had produced the unexpected effect of encouraging otherwise reticent students to talk more freely about problems and concerns, related to both school and personal issues, with counselors and teachers. Electronic communication also provided a means for students to keep in touch when traveling, sick or simply needing remediation. Teachers from at least two locations began podcasting their materials and making them available to students and parents electronically.

12. Teachers and students received much needed help in the area of appropriate Internet use.

A common fear among adults is that students might wander into online territory that is inappropriate for their age level or for school activities. A number of teachers noted that the program iSafe, which was provided with the 1-to-1 initiative, was very helpful in addressing this issue. Others noted that the professional development that was provided for both parents and teachers about how to “check web browser history” to understand what students did with their computers was also helpful.

13. Increased community involvement.

There were several reports of parent involvement at home and in community activities due to the 1-to-1 initiative. Parents attended training to learn how to understand how their children were using their laptops, and to learn how to promote safe, appropriate computing at home. In addition, interviewees noted that parents could actually watch students' involvement with their schoolwork in their own living rooms. Parents ended up learning how to use digital tools so they could talk to their children about school assignments. Also, parents used PowerSchool, a powerful “grade book” and student progress program that was more readily available with the 1-to-1 initiative, to check their children's progress online.

14. Student involvement in community issues.

Using 1-to-1 technology and training, some students studied local issues, and provided briefing and media reports for newspapers, radio broadcasts and city council meetings. One project involved students studying and making presentations to the community about a local woodchip boiler project, including creating movies that were shown at the local Renewable Energy Fair. Other projects included: video recording elders to share with the community, joining NASA and PBS in studying local phenomena, joining and winning the international Flat Classroom project, and creating a virtual museum about Kuspuk. (For more information: <http://www.kuspuk.org/CCVM/Crooked%20Creek%20Virtual%20Museum/Welcome.html>)

3. Was the program administered effectively?

The overwhelming response to AASB's efforts was very positive. When asked to cite challenges and possible improvements of the program, concerns focused primarily on wanting more opportunities, more support and more professional development. The

importance of professional development is supported by research conducted by ISER, who found that "...to be successful, schools must invest in substantial training and infrastructure development before launching the program." (Hill, 2009) However, most interviewees saw a need for professional development that was on-going throughout the program, rather than just prior to launching the program.

The component of the program that received the most comments was professional development. The 1-to-1 initiative provides a number of days of professional development for participating schools and districts. The response to this aspect of the program was very positive, with everyone citing the trainers as being knowledgeable and helpful.

There were a number of suggestions to improve professional development, much of it focusing on the need for more training and specialized training. Suggestions included training that focused on the following:

- specific content area use rather than general tool use
- helping remote communities resolve technical issues
- more general approaches to using technology in the classroom that included cross-platform applications
- the entire two-year training program for districts that experienced high teacher turnover so that each new teacher could become acclimated
- better searching strategies so students don't spend so much time "Googling through their assignments"
- managing the changes brought on by the introduction of laptops and internet access, in particular, how to manage students who are not on task in class as they use their computers

It is interesting to note the variation in professional development. Some districts used 34 days, while another used 2. Some districts used it gradually, others included students, others provided prep periods. One district provided laptops to the teachers six months ahead of the students, allowing teachers to get used to new tools prior to classroom deployment. This range of deployment supports the notion that each school is different and that those who are "on location" often best understand how to reach the target population.

4. Future of CDL

Interviewees were asked whether they felt the 1-to-1 program should be expanded. Without exception, every respondent responded in the affirmative. Some noted using their CDL experience to reconfigure their approach and expand the program in new ways. In one case, a school opted to get more, less expensive computers so they could focus on specific school uses that did not require full multimedia laptops. Others reported finding ways to temporarily expand the program on their own. One interviewee gave voice to a common concern by noting that he was less worried about expanding the program than he was about being able to maintain the current program should

funding disappear. "After this, there is no going back to traditional teaching methods," he reported.

Interviewees were also asked quite simply whether programs like CDL were vital to their students' futures. There was complete agreement among everyone interviewed: absolutely. Language was frequently animated and enthusiastic. There was a shared sense among interviewees that the 1-to-1 initiative was preparing students for the real world, while bridging the worlds of home, school and their personal lives. One interviewee put it well when she described part of the value of the initiative as "helping us prepare for the inevitable." She noted that in the not too distant future, computing and connectivity will either be so affordable or so mandatory, that 1-to-1 will become a normal part of life, much the way books are now. This program is helping pave the way for the inevitable. And, in the opinion of many of those involved with CDL, there is no going back.

Dr. Jason Ohler, Professor Emeritus at the University of Alaska Southeast, Juneau, AK, served as the evaluator for the CDL Mid-Project Summary Report. Dr. Ohler has an extensive background in educational technology and conducts presentations and workshops internationally on the topic.

In 1986, he created the Educational Technology Program at the University of Alaska, one of the early teacher education programs in the United States that was created in response to the personal computer revolution in the classroom. He directed this program until 2003, at which time he was appointed President's Professor of Educational Technology and Distance Learning at the University of Alaska, overseeing a number of projects exploring the area of digital literacy. He has won several awards for his work with teachers and is author of many books and articles.

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Appendix One – Interview questions

1. What initially motivated your district/school to participate in the AASB Consortium for Digital Learning 1 to 1 initiative? (Concrete and/or philosophical reasons)
2. How has the program been embraced by your superintendent, school board, principal(s), teachers, parents, students and the community? Have these stakeholder groups been pleased with the results? (Leadership, support, enthusiasm, commitment, responsiveness)
3. Since the program was introduced, what specific changes have occurred in your district/school? (Anecdotal evidence of student engagement, attendance, dropout rate, academic performance, etc.)
4. Was the teacher professional development provided with the program helpful? If so, describe how it has facilitated your district/school's transition to laptop-based instruction.
5. Was access to educational resources increased? If so, how did it help students gain digital skills and information important to learning as well as workforce preparation?
6. What did the program enable teachers and students to do that they couldn't do before? (Impact of CDL)
7. Please describe any school projects or classroom activities that have emerged from the program. (Examples of student work available?)
8. What challenges did your program encounter? What suggestions do you have for improving the program?
9. Do you think the CDL initiative has helped your district/school? If so, why and in what ways? (1 to 1 testimonials)
10. Should the CDL 1 to 1 initiative be expanded in your district/school if funding were available? If so, how and why? (Support for additional funding; at which grade levels?)
11. Are programs like CDL vital to your students' future?