IBSC ACTION RESEARCH, 2006-07
BOYS and DIGITAL LITERACY
SUMMARY REPORT

IBSC Research Coordinator

Mary Gauthier is the Executive Director of the Wernham West Centre for Learning at Upper Canada College in Toronto, Ontario, Canada. Mary has worked with teachers and action research programs for the past six years. The process of researching "what works for boys" has helped move teachers toward intuitive to intentional best teaching practices.

2006-2007 IBSC Action Research Team
Boys and Digital Literacy

Peter de Lisle is Head of IT at Hilton College in Pietermaritzburg, South Africa. Peter has his Master's degree in Computers in Education. He teaches eighth and ninth grades with a special interest in project based learning. Peter is also involved in Teacher Development and various outreach projects. View Peter de Lisle's research here.

Andrew Holmgren is the Dean of Academic Affairs at Fairfield Country Day School in Fairfield, Connecticut, United States of America. In addition to working with faculty on integrating technology into the curriculum with a special focus on the development of higher order thinking skills, he also teaches Latin and coaches. View Andrew Holmgren's research here.

Nick Mair is Head of the Foreign Language Department and teachers Spanish and French at Dulwich College in London, England. He is interested in the application of research in boys and learning. View Nick Mair's research here.

Marlene Sclar is the Director of Computer training and Curriculum Development at Landon School in Bethesda Maryland, United States of America. She states the most important aspect of her job is to ensure that teachers and students become efficient and effective users of technology and information. View Marlene Sclar's research here.

Dale Sheppard works with the Junior School and Leadership Team at Brighton Grammar School in Melbourne, Australia. Dale has studied in the areas of Library and IT and has his Master's in Information and Communication Technology. View Dale Sheppard's research here.

Lynne Weber holds the Trustee Master Teacher Chair in Humanities at St. Mark's School of Texas in Dallas, Texas, United States of America. She teaches sixth grade humanities, tenth grade honours English and twelfth grade English. View Lynne Weber's research here.

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Peter de Lisle
Hilton College, South Africa

Research Question: ***Are digital technologies able to enhance learning by promoting the use of varied learning styles in a group of boys with learning and behavioural problems?***

Research Design

Prensky (2005) and many others maintain that games and gaming produce an engaged experience, and that this is applicable to boys in particular. In contrast school is boring or "enraging". So it is argued that games are therefore the best way to create innovative instructional design for boys. (Barab et al. 2006; Squire and Steinkuehler 2005)

I was keen to find out to what extent this is true for a general sample of boys at my school. Is the kind of "Digital Native" referred to by Prensky somewhat of a stereotype? I also wanted to know how games rate against other technologies which boys are involved with, e.g. cell phones and MP3 players, and with other activities in general, and how important these things are in their lives.

I needed to know what boys think of the use of computers for class work, and what they feel about school generally. My aim was to investigate means of achieving engagement through the use of various digital technologies, and to compare these to more traditional class activities. Another whole aspect to my research is the question of individual difference, both in terms of academic ability and learning style. My aim was to find which combinations of content and delivery mechanism worked best.

Literature Review and Helpful Resources

- Csikszentmihalyi (1990) introduced the concept of "flow" to describe "the mental state of operation in which the person is fully immersed in what he or she is doing." (Wikipedia).
- The modern proponents of this idea talk of "engagement", and see possibilities of designing educational experiences along the same lines as games, e.g. Dickey, M. D. (2005); Prensky, M (2005).
- Clark (1994) argues that what is of primary importance in designing educational experiences is the structure of the experience rather than the medium used to deliver it. "It isn't technology per se that makes learning engaging for the Net Gen; it is the learning activity." (Oblinger and Oblinger, 2005).
- Dunn and Dunn (1978) argued that there are different styles of learning, most notably Visual, Auditory and Kinaesthetic, and that individuals have a preferred style which will promote optimal learning. This is related to the concept of "Multiple Intelligences**"** put forward by Gardner (1983; 1999).
- It is argued that some learning styles are more "boy friendly" than others, and also that the net generation "digital native" (Prensky 2001) requires different approaches to what traditional classrooms offer.
- http://www.alanemrich.com/SGI/Week_10/SGI%2010%20GAMER%20GENERATION.PDF Useful summary of lots of facts & figures with games, particularly looking at Gamers vs. Boomers (Generational theory).
- http://www.innovateonline.info/index.php?view=article&id=389 Useful article on principles for current approach to education.
- http://edtechlife.com/?p=176 Annotated Bibliography of games in education.
- http://tecfa.unige.ch/perso/staf/rebetez/blog/2006/05/16/204/
  Summary of: Dickey, M. D. (2005). Engaging by design: *Educational technologies research & development 53(2),* 67-83
- http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf Prensky, M. 2001. Digital natives, digital immigrants. *On the Horizon* 9 (5): 1-6.

Collecting Data

Two groups were part of the study. Firstly one Grade 8 and two Grade 9 classes were surveyed in 2006. A second small group was selected as the target group, an English class made up of 12 of the academically weakest in the grade, and having behavioural problems. The target group was taught using various media and methods, and they were surveyed half way through the academic year. Data was collected from all these sources:

- Baseline survey
- Gapadol reading age assessment (Target group)
- Learning Styles profile (Whole of grade 8 and half of grade 9)
- Follow up survey with target group
- Observations of the participant/observer teacher

Analysing Data

Baseline

3% no cell phone; 19% no mp3 player.
Text messaging: 26% fun once in a while, 26% love it, 34% have to do it
Computer games: 72% fun once in a while, 23% love it
Enjoy lessons with computers: 89%
How do you feel in lessons with computers: 36% more fun, 16% less restricted, 13% promote collaboration
How do you feel in class: 18% bored, 20% would rather be somewhere else

Gapadol

Reading age of target group is on average 3 years 1 month behind the average chronological age; 2 boys are as much as 4 years and 1 month behind their chronological age.

Learning Styles

Visual learning style a strong preference: 73% target group have preference or strong preference; 76% overall
Global learners: 64% target group have preference or strong preference; 67% overall

What do you like most at school? Sport 44%, Friends 38%, Learning 13%
Ritalin: 39% on Ritalin, 5% used to be
Most engaging activity at school: Sport 38%, Reading 15%, Watching a movie 15%, Computer Game 8%, Texting 8%

Follow up survey with target group

The boys had to rate this list summarising some of the activities in class, both for what they felt taught them the most, and what was most enjoyable. They had two opportunities to vote, and could select as many times as they liked. The activity that got the most votes was "watching a DVD of the setwork, *Merchant of Venice"*, followed by "Creating a video", "Writing a story on PC", and "Being read the setwork novel".

Findings

- For most boys at Hilton College, computer games are not a major obsession. Text messaging seems to be more compelling. The target group are most engaged by sport and spending time with friends. In contrast, there is negativity with regard to lessons.
- In line with the Learning Styles assessment and the reading scores, the boys particularly enjoyed watching the film of *Merchant of Venice*. The writing activity was also very absorbing, and from my observations, the creating of mp3 recordings based on the setwork novel also was engaging.

Reflections and Questions

- In an all-boys boarding school, social networking is more important than gaming. So it is important to promote communication, particularly with audiences outside of the school. Sport is far more engaging than any digital game.
- It is the activity itself that is engaging, not the media it is wrapped in.

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Andrew Holmgren
Fairfield Country Day School, USA

Research Question: ***Does e-communication and writing through shared web spaces such as wikis and Google Docs enhance the learning experience for boys?***

Research Design

The purpose of this project was to determine if e-communication and writing through the use of wikis and Google Docs contributed to the overall quality of work and level of engagement for boys in grades six, seven, and eight. At Fairfield Country Day School, laptops are used by all of our students, grades six through nine. As many one-to-one learning environments have found, there are numerous benefits and challenges to this type of program. In the short history of laptop learning, we have witnessed keyboards transform into tablets, e-mail give way to instant messaging, school communities become web communities, and word-processing move from the isolation of a single machine to the vast common spaces of cyberspace. It is this last trend that this study looks to examine.

When thinking about our program, it occurred to me that we had a confluence of two issues. With the explosion of My Space, blogs, and other shared web forums, the question became, "Can we use our boys' penchant for these shared spaces to further their learning experience?" At the same time, the faculty was struggling with a common problem to young boys, "How to manage a shared project (specifically a long-term project) when the organizational skills of an 11- to 13-year-old boy are, to say the least, still developing?"

The process began when two teachers from different departments developed similar projects using slightly different media. The science teacher used a wiki provided by Wiki Spaces to keep track of his sixth grade students' science fair projects over the course of several months. The shared space would eventually hold the students' final science fair reports. This same teacher used wikis to track the progress of his seventh grade Robotics classes as they prepared projects for their Robotics forum. In both instances, the boys would be working in small groups of two to three, and they were required to contribute equally to the project. The second teacher had his eighth grade American history students write their chapter outlines using Google Docs. The boys had previously worked alone and on Word to create these documents. Now, in groups of varying size, they would work in the shared online space provided by Google Docs. Throughout this phase of the research the teacher adjusted the size of the groups and his grading policies in an attempt to arrive at the best outcome.

Literature Reviews and Helpful Resources

McClintock, R. *Renewing the Progressive Contract with Posterity: On the Social Construction of Digital Learning Communities* (1996). Retrieved November 4, 2006 from Columbia University Digital Text Project website: http://www.ilt.columbia.edu/mcclintock/renew/index.htm

Mader, S., ed.. *Using Wiki in Education*. (2006, October 24). Retrieved January 15, 2007, from http://www.wikiineducation.com

Johnson, S. *Everything Bad for You is Good for You: How Today's Popular Culture is Actually Making Us Smarter* (New York: Riverhead Books, 2005).

Collecting Data

In addition to regular meetings and discussions with the teachers involved, each group of boys involved was given a survey at the end of the process. The survey was delivered electronically. The teachers' results came in the form of formal and informal observation and grading results. A preliminary survey was also given to our Upper School faculty (grades six through nine) to determine where we might look to improve the program. It was through the survey and informal discussions that the notion of long-term, shared projects and organization issues emerged.

Analysing Data

Once the data was collected, the survey results were analysed for each group and as a whole. The results were also compared to the observations of the teachers involved. I looked at how often students used the internet, how useful they found the program, their feelings about collaborative work, the amount of work they generally did on the computer, the boys' and the teachers' willingness to use the programs again, the range of their grades, the teachers' general impression of the quality and quantity of the work, and the boys' level of enthusiasm and involvement in the project. I also looked at the negative aspect of the project and tried to determine where improvements might be made in the future.

Findings

As there were three different projects running at once, I will discuss each of them individually and then draw a few general conclusions about the entire process.

In the two science projects the benefits of the wiki were immediately clear to the teacher. **The wiki not only gave him immediate and regular access to the students' work, it also resulted in a much higher quality and quantity of work**. In many instances, the teacher reported that the quality of the work was a direct result of the access he had to the wiki. From the students' perspective, the wikis were also a success. Roughly 80% of the seventh graders and roughly 70% of sixth graders found the wiki a useful tool and would use it again in their other classes. The boys cited several key reasons for the success of the wiki:

- Ease of use
- The ability to track their own progress throughout the process
- Online access at any hour of the day outside of school
- Not having to email versions of their projects from person to person
- The ability to work remotely on a project at the same time – one student noted how helpful it was not needing to have his partner over to his house to work on the project.
- Easy to organize and keep track of their work – they did not lose anything

The American history chapter outlines using Google Docs were not as overwhelming a success at first. The students and the teacher struggled to find the right formula for allocating work, group size, and grading. On the second attempt, the grades on the quizzes rose, and the quality of the outlines began to improve. Again, the eighth grade boys noted many of the same positives that the sixth and seventh graders found with wikis, with nearly 80% preferring collaborative work on Google Docs to that of e-mailing Word documents. In addition, a large number of boys found that collaborative work meant less work on the outlines but more time devoted to studying for the quizzes – a trade-off that likely contributed to higher quiz grades.

Overall, the higher the students' daily internet use, the more they enjoyed these projects. The least enthusiastic group was the eighth grade, where only 29% used the internet for three hours or more a day; 65% of the eighth grade preferred Google Docs to more traditional mediums. Next was the sixth grade, which had a 56% usage of the internet over three hours; 75% of them found the wiki a valuable tool. The highest satisfaction rate with an online shared space was 85% in the seventh grade. These same respondents listed their internet use over three hours a day at 69%.

From this data it appears that the more comfortable one is with the internet, the more responsive one will be to online shared spaces.

Reflections and Questions

It is clear that the boys enjoyed working with the wikis and Google Docs.
For many of them it did enhance the learning experience.
They did act as a tool for better organization.
Boys with greater exposure to the internet were more likely to enjoy these online shared spaces.

As we all struggle with the relevance of technology and the place it has in boys' education, we should not underestimate the simple lure of the familiar. Would the wikis have been as popular with boys less familiar with technology? Is using technology to teach a room full of tech-savvy students any different than using batting averages to teach math to a room full of baseball players?

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Nick Mair,
Dulwich College, United Kingdom

Research Question: ***What can we learn from boys' interest in computer games to improve the way we teach?***

Research Design
Use digital games and technologies to see if any improvement in enthusiasm and exam results in MFL

Literature Review and Helpful Resources

- Practical: Designing BBC JAM online Spanish course, working with Attic Media Educational Game designers, interviewing curator at Game On exhibition, interviewing game arcade owners.
- Literature:
    - What video games have to teach us about learning and literacy: JP Gee
    - Don't Bother me Mom, I'm learning: M Prensky

Collecting Data

- Video / MP3 interviews
- GCSE Coursework results

Analysing Data

- Excel spreadsheets – year groups of 80, comparing with previous years
- Take up of MFL at age 16

Findings

- Attention span of boys
    - far longer than thought. We should be able to get boys to concentrate for longer if we could only present things in the way they want
- Frequency of decision making in boys
    - Boys like a choice every minute or so (45 seconds a common figure)
- Boys ability to receive information from multiple sources
    - Early research on sesame Street showed this to be the case – consider multiple sources of information on a typical computer game
- Components of a successful game
    - Pace and Increasing challenge in a complex word – ideal for learning
- Safety vs. Risk
    - Most games punish rash bravery – waiting to process information far more successful – ideal for learning
- Ease of success
    - Poor gameplay if a game too easy – ideal for learning. Key feature is to personalise information to gameplayer's style and then make it hard but accessible. Not ideal for a classroom situation
- Wiki vs. Playstation
    - Kinaesthetic learning Wii vs. Strategy. Both have huge potential for education

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Dale Sheppard
Brighton Grammar School, Australia

Research Question: ***How can the use of boys' digital literacy further engage boys and improve their skills in traditional numeracy and literacy?***

Research Design

- This was an Action Research study. It began with baseline data collection (survey, questionnaire, writing samples and prior results) which gave a picture of each of the students involved in the study.
- The purpose of the research was to develop an online space in such a way that the boys involved in the project would show improvement in skills in literacy and numeracy (especially problem solving). Engagement would also improve.
- The project began by creating a metaphor for the online space (The CaVE). It developed a specific vocabulary for those involved in the project. Initially, much of the project involved manipulating technology. For the students, the most important aspect of the beginning was the social relationships they developed.

Literature Reviews and Helpful Resources

Hartman, D (ed) *Educating Boys: The Good News – insights from a selection of papers presented at the 4th Biennial Working with Boys*, Building Fine Men Conference Callaghan NSW; University of Newcastle Family Action Centre. 2006

Willlianson, B & Facer, K (2003) *More than 'just a game' – The implications for schools of children's computer games communities in Education*, Communications and Information, Vol 4, No 2/3, November, 253-268

McNiff, Lomax & Whitehead, (2003) *You and Your Action Research Project*, RoutledgeFalmer, London

Nagel, M. (2006) *Boys Stir Us*, Hawker Brownlow, Melbourne.

Lampert, M (2001) *Teaching Problems and the Problems of Teaching*, Yale University Press, New Haven.

Collecting Data

- Survey – pre-surveys in July 2006; completed again in March 2007.
- Questionnaire
- Writing samples
- Student focus group – interviews
- Online log
- Participant observation
- Conversational interviews (online & offline)
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Analyzing Data

- Comparison between two surveys – perceptions of Math
- Comparison between writing samples gathered before the project and during the project
- Analysis of focus group interview

Findings

- Engagement of students was definitely increased. Enthusiasm for The CaVE was high amongst all participants. This was reported in online logs, focus group interview and conversational interviews.
- Quantity of writing increased dramatically, especially in logs
- Increase in link to relevance of Math in real life
- Language development was noted – especially in 'popular communication'
- Social interaction

Reflections and Questions

- Technology can get in the way – does the teacher have to be in ahead of the student?
- Social interaction – students far more developed in online interaction than their teachers

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Marlene Sclar
Landon School, USA

Research Question : ***Does the use of an organized, systematic teacher generated webpage affect a boys' individual success in school?***

Research Design

- The goal of the research was to develop a grade level homepage on the school's Intranet that would enable 6th grade boys to "take charge" of their life at school.
- Discussion sessions were held with the 6th grade Dean and faculty to review the process by which boys currently obtain information for class assignments, upcoming tests, and general announcements.
- Pre- and post online surveys were administered to both 6th grade students and teachers.
- Feedback from the surveys, and faculty and students, assisted with the development (design and content) of the new 6th Grade Homepage. (This did not appear previously. Students had to find each teacher from a list of faculty by department.)
- "Town meeting" type sessions were held with the 6th grade students to get reactions and feedback to the new page. Monthly meetings also continued with the Dean and 6th grade faculty.

Literature Reviews and Helpful Resources

Don't Bother Me Mom, I'm Learning, by Marc Prensky.
The author discusses the "digital native" and the impact video games have on learning.

What Video Games Have to Teach Us About Learning and Literacy, by James Gee
The author argues for the positive affects video games have on learning, along with a set of learning principles (36 to be exact) that are vital to good video games and supported by research on cognitive learning.

Teaching with the Brain in Mind, by Eric Jensen
The author discusses how to apply brain research to teaching including ways to connect it directly to curriculum and assessment. He makes the statement "that teachers have more influence on students' brains than you realize…".

Speaker at AIMS Conference: *"How Today's Technology Affects a Child's Brain, Personality and Social Development – and What We Can Do About It"*, by William R. Stixrud, Ph.D.
Education Week, http://www.edweek.org
Futurelab, Innovations in Education,
http://www.futurelab.org.uk/resources/publications_reports_articles/literature_reviews/
The Brain Connection: Education Connection, http://www.brainconnection.com/edu/
"The Secret of their Success: PBS Shows How to Create Sites that Kids Can't Resist", School Library Journal, Nov. 2006

Collecting Data

- An online survey was issued to 6th grade **faculty** to assess format and use of faculty webpages, along with recommendations for improvement.
- An online survey was issued to 6th grade **students** to assess their use of Bearinfo (school Intranet) and teachers' webpages, to obtain feedback on the format and navigation, and to make recommendations on making pages more "user-friendly".
- A "hit counter" was inserted on the new page to monitor its use.
  On-going meetings with 6th grade teachers and students generated changes as the boys used the new homepage.

Analysing Data

Two themes appeared in the surveys taken by the **6th grade teachers**: 1) boys lack of organization, and 2) improve communication process with the boys.

Three themes appeared in the **student** surveys: 1) difficulty in locating information on Bearinfo assignments pages, 2) communication with teachers, and 3) test dates and schedules.

Findings

- Findings indicate that the new 6th Grade Homepage had a positive impact on the boys' organization skills.
- Boys are used to instant digital gratification; the new homepage provided instant access to their study and homework needs.
- Student motivation increased with the new homepage; boys located what they needed with less frustration. Boys requested a similar page for 7th grade next year.
- There was an immediate increase in the percentage of students using Bearinfo after the new page was posted online (177 hits within the first 24 hours).
- Responses on the student surveys revealed the process for accessing teacher pages, checking assignments, and communicating with teachers had been simplified with the new page.
- The number 1 reason for accessing Bearinfo was to check for homework
- assignments (71% of the students).
- 94% of the students found the new page easy to navigate.
- 67% of the students accessed the new page more than 3 times a week for multiple
- reasons.
- 68% of the students identified the "quick links" to 6th grade teachers as the most
- helpful feature.
- Boys identified "missing links": direct email to teachers, online resources to help with class assignments/projects, more photos of 6th grade boys/activities

Reflections and Questions

- Digital literacy involves more than the ability to use computers.
- The technological abilities and training of the teacher has a noticeable impact on the effectiveness of the technology when used with students.
- Are students as tech-savvy as originally predicted or just better risk-takers?
- What changes should be put into place to make teacher webpages more beneficial?

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Lynne Weber
St. Mark's School of Texas, USA

Research Question: ***What aspects of video gaming and other forms of digital expression appeal to male learners, and how can educators use these techniques and attributes to enhance learning?***

Research Design

- Purpose: to include digital learning methods along with traditional ones and to see whether learning improved when we added the "digital factor."
- We first surveyed 6th grade humanities students about their interest in research projects and their preferred methods of doing research, and we also surveyed the same groups about what aspects of video gaming and digital expression most attracted them.
- We planned to implement one research project early in the school year based solely on print resources and reported in a traditional, documented print format. This project was a traditional research project on various topics regarding the religion of Islam. Students were to use only print research sources and were required to type up their research in a standard form with MLA documentation, then to present their findings orally to the class.
- Next, we designed two separate research projects for sixth graders based on Internet resources and constructed with various aspects of video gaming in mind.
- The project on India was structured as follows: the students were assigned a topic related to colonial India (monsoons, the Sepoy Rebellion, Hinduism, Gandhi's March to the Sea, etc.). After researching the topic on the Internet, using both school-authorized databases and standard "Google" searches, they took their notes and created a "Scratch" learning game that would then be played by their fellow students. The goal was to design a game that would teach sixth grade students about the assigned topic. After investigating several game-making programs, we chose "Scratch" because it had been designed by one of our recent graduates (with a group of his friends) during his first year at M.I.T. We had the good fortune to meet up with this student during his Spring Break, and he introduced us to "Scratch" and showed the students how to use it. The boys' products were both amusing and highly effective in teaching their peers about India.
- The second project was a "Virtual Safari" of Africa. We had done this project for several years, in a slightly different way than we did it for the action research project. This time, we gave the students a budget, a time-frame, and a requirement that their "clients" visit five different countries in Africa. We also included a list of types of sights and attractions the travelers should visit. The boys were to imagine themselves as owners of a travel agency and create a PowerPoint advertising the trip they had planned. They were required to use sound and animation in the PowerPoint, and they presented the results of their research orally, using the PowerPoint structure. These products were also quite amazing. The boys researched their travel plans (including flight numbers, costs, hotel rooms, etc.) on real websites, converted currency, investigated the resources and traditions of Africa, and stuck to their budgets, all with an enjoyment and energy that are normally missing during traditional research projects. Their presentations were both enjoyable and spectacular!
- We surveyed students after both types of research projects as to their preferences in learning style and product format. Informally document interaction among students and level of enthusiasm/energy/motivation during both types of projects. Teachers and librarians kept anecdotal records; student wrote evaluations of their experiences.
- The data was analyzed by the sixth grade teachers and the librarians in bi-weekly meetings.

Literature Reviews and Helpful Resources

Ackley, Heather Ann. "Digital Literacy and the 'Middle Way: Teaching Mindfully.'" *Academic Exchange Quarterly*, March 22, 2003.

Fryer, Wesley A. "Digital Literacy NOW!" May 1, 2004. http://www.techlearning.com/showArticle.php?articleID=18902855

Gilster, Paul. *A Primer on Digital Literacy*. New York, John Wiley & Sons, 1997.

Prensky, Marc. *Digital Game-Based Learning*. New York: McGraw Hill, 2001.

Collecting Data

- We used an on-line survey resource and polled the boys on their preferred research and learning styles as well as on aspects of gaming and digital learning that appealed to them.
- We also gave pre-tests and post-tests to determine the level of competence the boys had with the content of the units.
- Teachers and librarians kept anecdotal records, and the boys also wrote about their experiences.

Analysing Data

The sixth grade teachers and the librarians compiled survey data, read the boys' analyses of their experiences, noted test results, kept anecdotal logs and met approximately every two weeks to note progress and to discuss findings.

Findings

- While retention of factual knowledge was virtually the same using traditional teaching methods and digital learning, the motivation factor when teachers used gaming strategies and digital resources was huge.
- The boys were considerably more enthusiastic about the digital projects and spent large amounts of their free time working on their projects without prompting from teachers.
- Therefore, our findings are that while factual, short-term knowledge remained flat, the depth of learning and the long-term retention of concepts and ideas was powerfully influenced by the digital learning experience.

Reflections and Questions

Digital learning certainly made a difference in the boys' level of motivation and excitement about the subjects they studied. The only drawback was our own (the teachers' and librarians') relatively limited knowledge of technology. We had to let the boys find their own way after we gave them the tools to do it, and they seemed to have no problem figuring out the technology. The questions we are left with are these: (1) How do we increase the instructors' grasp of these new learning tools and (2) What is the best balance between traditional methods of instruction and new digital methods?