Sustaining and Deepening Technology Integration in a 1:1 Laptop Programme in the International School Setting

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Revised Proposal November 2014

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Entry to program – May 2013

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Setting / Context

Atlanta International School (AIS) is a private, not for profit day school and is located in the city district of Buckhead in Atlanta, Georgia. As an authorized International Baccalaureate (IB) World School, instruction is offered from three-year-old Kindergarten through 12th grade that delivers three of the four programmes offered by The International Baccalaureate Organization (IBO); Primary Years Programme (PYP), Middle Years Programme (MYP) and Diploma Programme (DP). The student body is described by the school website as "50% American and 50% International, with parents and students representing more than ninety-three countries speaking more than fifty languages" ("AIS Fast Facts," n.d.). Founded in 1984, Atlanta International School is also accredited by the Council of International Schools (CIS), AdvancED and Southern Association of Independent Schools (SAIS).

In 2010, the AIS community embarked on a five-year strategic plan that holistically looked at the many stakeholders across the school. Part of that process was a Technology Strategic Plan to be implemented from 2011 to 2016 that would encapsulate "Project 3C" – Creativity, Collaboration and Communication that would involve a rollout of a 1:1 laptop program across the secondary school. The device selected was the MacBook Pro, with initial provision to faculty with Year 1 and Year 2 of the MYP (6th and 7th Grade) receiving their lease-to-own devices in 2011 – 2012 school year with Year 4 and Year 5 (9th and 10th Grade) onboarding in 2012 – 2013 school year. By the 2013 - 2014 school year, all students in the MYP Years 1 – 5 (6th – 10th Grade) were to have access to their own MacBook Pro, along with the current DP Juniors (11th Grade) and a "Bring Your Own Device" (BYOD) programme operating

for the current DP Seniors (12th Grade). It was anticipated that by the 2014 – 2015 school year, all students in the MYP and DP should have their own MacBook Pro or similar Apple device for personal use in the 1:1 classroom setting. This is the case at this juncture in time.

Capstone Problem and Rationale

Part of the Technology Vision at AIS is to insure that "Technology is not something that only happens in computer labs, taught by technology teachers, but is embedded throughout the learning environment and utilized by all teachers. The programme includes both vertical (technology taught as a standalone subject) and horizontal (technology integrated across other subjects) components, and dedicated time is made available for both." (AIS Technology Strategic Plan, n.d.). This is rationalized from the school mission and vision that "To meet the challenges and opportunities of our interdependent, fast-changing world as responsible citizens, young people require flexible intellectual competence, self discipline, and a global outlook" ("Mission and Values," n.d.). The latter is aligned with the IBO Mission Statement in a global context and recognizes that being part of the "fast-changing world" demands that approaches to using and integrating technology into teaching and learning are a necessary responsibility of all AIS faculty and community members.

As the introduction of the 1:1 laptop programme in AIS enters it's fourth year, it has been perceived that the use of these devices for teaching and learning has only scratched the surface. For the programme to further progress, there needs to be an evaluation of the use of the laptops issued to date for teaching and learning and recommendations made as to the next steps beyond the scope and sequence of the current strategic plan and strategies for faculty to implement and understand the depth of technology integration in their specialist subject areas. This is vital to the sustainability of a 1:1 laptop programme in any school setting to insure rigorous, high standards

of teaching and learning for all stakeholders (students, teachers, parents, administration and wider community) so that the value of the device in teaching and learning is seen. (Inan & Lowther, 2010, p.137) state "Increased availability of technology in the schools does not necessarily lead to improvement in classroom teaching practices" with further thoughts to this end from (Trilling & Fadel 2009, p.70) "Though our tech-tuned 21st century students are often more fluent in the use of technology than their parents or teachers, they will always need guidance in how to best apply these powerful tools to complex learning and creative tasks. For the students in each one of the programmes to achieve the highest learning potential from using these powerful devices to access a vast world of information, faculty and the wider community need to deepen their understanding and utilization practices of the device as a tool for teaching and learning.

This comes at a time when MYP has undergone a radical change in planning, teaching and learning and will scaffold changes to DP in the next seven-year cycle review. With this in mind, as our school community continues to wrestle with the 1:1 laptop in their daily teaching and learning practice, it is necessary to contemplate how we deepen the integration of ease of access to technology into subject specific teaching and to sustain the device's authentic use in the MYP and DP programmes to deepen student subject specific learning as part of their toolkit of the inquiry cycle of awareness and understanding, action and reflection. (Sauers and McLeod, 2012, p.3) in their brief, "What does the research say about school 1:1 computing initiatives?" cite (Drayton, Falk, Stroud, Hobbs and Hammerman 2010) in looking at "how important professional development is when implementing one to one". Stroud's literature review on 1:1 programmes found that most studies focus on the first three years of implementation (as cited in Drayton et al., 2010). The review also revealed that 67% of the 1:1 studies focused on the time

period between pre-implementation and the first two years of implementation" (Sauers, McLeod, 2012, p.5). Therefore the rationale of this project is to look at sustaining a 1:1 laptop programme in an International School setting beyond the first three years of implementation by deepening educator understanding of technology integration in their subject areas. To do this, a review and assessment of current existing technology integration models will be necessary to ascertain their effective use in the International School context and to best recommend a technology integration model with teachers that, if used in the setting and context of experience from the 1:1 programme in Atlanta International School, would set in place a roadmap for other International Schools to implement and maintain their 1:1 programmes to see the "more significant results (that) can be expected once schools become more experienced and skilled with one-to-one computing and learning paradigms" (Sauers, McLeod, 2012, p.5). Building on Bebell and O'Dwyer (2013) in looking at "Educators and policy makers that wish to invest in these initiatives as a means for improving educational outcomes, there is little empirical evidence upon which to base decisions,") (Bebell & O'Dwyer, 2010, p. 5), this capstone will aim to further postulate the value of investment in this type of technology programme and measure the benefits for teaching and learning in the MYP and DP using the model recommended.

Objectives / Deliverables

- An extensive evaluation of the 1:1 laptop programme in AIS to date and capture community experience to allow possible discussions about next steps in sustainability. The objective of this is to use this baseline data to reconcile where best to test the three models that will be tested in this project. These three models will be LoTI, SAMR and TPACK.

- Aligned use of these models with a small group of teacher will access teachers to self assess through their MYP / DP units of inquiry or instruction to increase teacher awareness to endeavor to implement higher technology integration into lessons in a 1:1 classroom setting 6 – 12 and to ascertain if this benefits teaching and learning outcomes in the MYP and DP. The key objective here is to encourage faculty to consider technology integration aims through their professional development growth plan, write into SMART goals, use the technology integration model to assess and reflect on that goal. Success will be measured by teachers firstly reflecting on their current status with technology integration in a targeted area of instruction and recognizing opportunities to integrate characteristics of meaningful technology into their learning environments from the technology integration model adopted.
- The key deliverable will be the recommendation of one of the models that meets not only the requirements of deepening technology integration into a 1:1 classroom but also considers the key characteristics of an International School setting and IB Programmes in MYP and DP. It is anticipated that this model will become a grounding resource for international teachers (beyond the AIS context) to use alongside Professional Development Goals and assist in their measurement of success in deepening technology integration in subject areas.

PSC Standards

1. Visionary Leadership

Candidates demonstrate the knowledge, skills, and dispositions to inspire and lead the development and implementation of a shared vision for the effective use of technology to promote excellence and support transformational change throughout the organization.

1.1 Shared Vision

Candidates facilitate the development and implementation of a shared vision for the use of technology in teaching, learning, and leadership. (PSC 1.1/ISTE 1a)

1.2 Strategic Planning

Candidates facilitate the design, development, implementation, communication and evaluation of technology-infused strategic plans. (PSC 1.2/ISTE 1b)

1.4 Diffusion of Innovations & Change

Candidates research, recommend, and implement strategies for initiating and sustaining technology innovations and for managing the change process in schools. (PSC 1.4/ISTE 1d)

2. Teaching, Learning and Assessment

Candidates demonstrate the knowledge, skills, and dispositions to effectively integrate technology into their own teaching practice and to collaboratively plan with and assist other educators in utilizing technology to improve teaching, learning, and assessment.

2.2 Research-Based Learner-Centered Strategies

Candidates model and facilitate the use of research-based, learner-centered strategies addressing the diversity of all students (PSC 2.2/ISTE 2b)

2.3 Authentic Learning

Candidates model and facilitate the use of digital tools and resources to engage students in authentic learning experiences (PSC 2.3 / ISTE 2c)

2.6 Instructional Design

Candidates model and facilitate the effective use of research-based best practices in instructional design when designing and developing digital tools, resources and technology-enhanced learning experiences (PSC 2.6 / ISTE 2f)

3. Digital Learning Environments

   Candidates demonstrate the knowledge, skills, and dispositions to create, support, and manage effective digital learning environments.

   3.1 Classroom Management and Collaborative Learning

Candidates model and facilitate effective classroom management and collaborative learning strategies to maximize teacher and student use of digital tools and resources. (PSC 3.1/ISTE 3a)

   3.2 Managing Digital Tools and Resources

   Candidates effectively manage digital tools and resources within the context of student learning experiences. (PSC 3.2/ISTE 3b)

   3.3 Online and Blended Learning

   Candidates develop, model, and facilitate the use of online and blended learning, digital content, and learning networks to support and extend student learning and expand opportunities and choices for professional learning for teachers and administrators. (PSC 3.3/ISTE 3c)

   3.5 Basic Troubleshooting

   Candidates troubleshoot basic software and hardware problems common in digital learning environments. (PSC 3.5/ISTE 3e)

   3.6 Selecting and Evaluating Digital Tools and Resources

Candidates collaborate with teachers and administrators to select and evaluate digital tools and resources for accuracy, suitability, and compatibility with the school technology infrastructure. (PSC 3.6/ISTE 3f)

3.7 Communication and Collaboration

Candidates utilize digital communication and collaboration tools to communicate locally and globally with students, parents, peers, and the larger community. (PSC 3.7/ISTE 3g)

4. Digital Citizenship and Responsibility

Candidates demonstrate the knowledge, skills, and dispositions to model and promote digital citizenship and responsibility.

4.1 Safe, Healthy, Legal and Ethical Use

Candidates model and facilitate the safe, healthy, legal, and ethical uses of digital information and technologies. (PSC 4.2/ISTE 5b)

4.2 Diversity, Cultural Understanding and Global Awareness

Candidates model and facilitate the use of digital tools and resources to support diverse student needs, enhance cultural understanding, and increase global awareness. (PSC 4.3/ISTE 5c)

5. Professional Learning and Programme Evaluation

Candidates demonstrate the knowledge, skills, and dispositions to conduct needs assessments, develop technology-based professional learning programs, and design and implement regular and rigorous program evaluations to assess effectiveness and impact on student learning.

5.1 Needs Assessment

Candidates conduct needs assessments to determine school-wide, faculty, grade-level, and subject area strengths and weaknesses to inform the content and delivery of technology-based professional learning programs. (PSC 5.1/ISTE 4a)

5.2 Professional Learning

Candidates develop and implement technology-based professional learning that aligns to state and national professional learning standards, integrates technology to support face-to-face and online components, models principles of adult learning, and promotes best practices in teaching, learning, and assessment. (PSC 5.2/ISTE 4b)

5.3 Programme Evaluation

Candidates design and implement program evaluations to determine the overall effectiveness of professional learning on deepening teacher content knowledge, improving teacher pedagogical skills and/or increasing student learning. (PSC 5.3/ISTE 4c)

6. Candidate Professional Growth & Development

Candidates demonstrate the knowledge, skills, and dispositions to engage in continuous learning, reflect on professional practice, and engage in appropriate field experiences.

6.1 Continuous Learning

Candidates demonstrate continual growth in knowledge and skills of current and emerging technologies and apply them to improve personal productivity and professional practice. (PSC 6.1/ISTE 6a, 6b)

6.2 Reflection

Candidates regularly evaluate and reflect on their professional practice and dispositions to improve and strengthen their ability to effectively model and facilitate technology-enhanced learning experiences. (PSC 6.2/ISTE 6c)

6.3 Field Experiences

Candidates engage in appropriate field experiences to synthesize and apply the content and professional knowledge, skills, and dispositions identified in these standards. (PSC 6.3)

Project Description

The central goal of this project is to look at the AIS Technology Strategic Plan for 1:1 laptop technology integration into the MYP and DP programmes, assess the current "state of the union" four years after initiation of the project, test and document three technology integration models with teachers, evaluate their effectiveness and to recommend one that will assist in a concise road map to sustain the programme for deepening technology integration to enhance authentic teaching and learning across the MYP and DP in an International School setting. This action will encourage faculty to look strategically at their professional development growth planning through their SMART goals and deepen their understanding and use of technology to enhance learning engagement and rigor across the changing landscapes of the MYP and DP Programmes through their collaborative unit planning process.

There are three stages, based on the ideas behind the Inquiry Cycle in the MYP.

Awareness and understanding – to assess the current situation in AIS by gathering data from a community survey that will be delivered at the beginning of the 2014 – 2015 school year. This survey will also be delivered to one other International School environment in a similar

context to provide baseline data and benchmark experience in delivering the MYP and DP Programmes using 1:1 laptop initiatives at this current time.

Action – Pertaining to the data gathered from the questionnaire and classroom walkthroughs and observations, and using LoTI, SAMR and TPACK online training modules, develop a short list of teachers to approach to work with in MYP and DP in assessing their technology integration using one of these models in a Unit of Inquiry. Using this small pilot group of teacher volunteers, pinpoint and assess an area of the curriculum to be improved, assess and advise on methods to deepen technology integration using a model aligned to them from walkthroughs and observations and reflect on learning outcomes using summative assessment data for that unit of work.

Reflection – Final reflections will help to refine the AIS Technology Strategic Plan review beginning in 2015 and look to the sustaining a 1:1 laptop program in an International School setting by providing recommendations to the technology integration model that teachers in this context can use reliably to enhance and deepen their authentic integration of technology into subject units of work.

Timeline

October / November 2014	Collaborative on survey creation and content with mentor and one International School partner
December 2014	Issue survey to school community at AIS and International School partner
January 2015	Synthesize data results and present to faculty and other community stakeholders

	Build a working pilot group across community of interested teachers (one from for each model)
January 2015 – March 2015	Plan, design, create prototype and test with small pilot group the three models for technology integration in the 1:1 classroom for use by MYP and DP subject teachers wishing to augment and deepen their technology use in their subject areas
April - May 2015	Reflection – evaluation follow-up survey of pilot group to benchmark the most successful models and why and advocate deployment for wider faculty in 2015 – 16 school year as part of faculty professional development. Investigate use possibilities in other International School settings

Resources

- Access to school Survey Monkey account
- Discussions with academic council, senior management team, Parent Association and school board concerning community components
- Flip Camera and editing studio software for snapshots of good practice
- Mentor assistance

- Webmaster assistance for housing final product on school website with security and login protocols for AIS faculty
- Access to master schedule for pilot team collaborative meetings / synchronous professional development
- Online databases and interlibrary loan for research materials from school librarians
- Network contacts in the International School community through IBO

Evaluation Plan

This project will have met the objectives if faculty begins to use the recommended model beyond the pilot group to deepen and enhance their technology integration through the 1:1 laptop programme in our school community and begin to iterate through SMART Professional Development Goals and in written curriculum in planning. According to the timeline iterated on page 12 and 13, this will take place in the final reflective stage of the project. The final project report will contain the final recommendations for the model to use and clear strategies from the project that will allow other International School communities to reflect on their 1:1 programmes in context in a similar manner and also allow AlS to move forward in a review of the existing Technology Strategic Plan with a view to creating a sustainable, exemplarity and robust 1:1 laptop program by training in the use of the recommended technology integration model for wider faculty to consider when creating their own Professional Development Goals for enhancing teaching and learning in the classroom and in curricular planning.

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