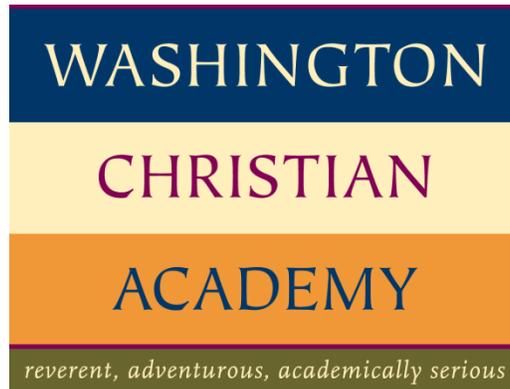


# Implementing Technology in the Delivery of Education A Plan for WCA

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**Project Overview:** There is no lack of devices, programs, resources, instructional materials, and websites that promote the use of technology in education. And, as has been true ever since the first calculator was introduced into a classroom, there is significant debate concerning the benefits of teaching with technology. Though our school has been using various forms of technology through the years, to my knowledge (and certainly not within the past nine years) there hasn't been an intentional investigation of technology trends and potential benefits. At the same time, as WCA's resources have been limited, so has our implementation of technology. We do have computers for every faculty member, projectors in most classrooms, and a handful of students taking online courses, but that is about the extent. My project's goal was to develop a future plan for the use of technology in WCA's delivery of education.

## **Project/Paper Structure:**

### Background

- WCA History and Overview
- Recent Challenges and Limitations on Resources
- School in Need of a Technology Plan
- Moving Ahead Now

### Strategic Plan

- Survey Results
- Focus Groups
- Initiatives and Goals

### Research

- Mentor Discussion with Glenn Vos
- Reading
  - "Getting Smart" – Tom Vander Ark
  - "Disrupting Class" – Clayton Christensen
- Case Study – Annapolis Area Christian School

### Technology Plan - Next Steps

## **WCA History and Overview**

In the 1950s, members of the Washington, D.C. Christian Reformed Church, Knox Orthodox Presbyterian Church, and Wallace Presbyterian Church laid plans for a school in the Reformed, Christian tradition, serving a racially and economically diverse community. Washington Christian School opened its doors in 1960, in fulfillment of the prayers and efforts of many and began fulfilling the mission, to “educate covenant children from a Reformed, Christian perspective, developing students’ God-given abilities so that they may occupy their places worthily in society, church, and state.

The school began with grades K-4 in a modest brick building and increased grades as the school grew, eventually serving grades K-8. In 1982, the school moved to a larger facility leased from Montgomery County which opened up new options and opportunities – one of which was to add or merge with a high school. And in fulfillment of that vision in 1996, Washington Christian School merged with Silver Spring Christian Academy to form Washington Christian Academy and serve children in grades K – 12. Part of that merger brought with it an intention to provide an education that would measure up to any school, public or private, and enable WCA graduates to continue their education at the best colleges and universities. That level of commitment to a college-ready education remains a central focus of the WCA instructional program.

Another important goal for WCA became locating and securing permanent, owned facilities. After several more years of prayers, labors, and the Lord’s provision, WCA was able to purchase land and secured the financing for a new facility. In the summer of 2008, Washington Christian Academy began a new and exciting chapter as it moved to its permanent home at the southern border of Olney on Batchellors Forest Road.

## **Recent Challenges and Limitations on Resources**

The move into permanent facilities occurred simultaneously with the national financial challenges and came at a hard time for WCA. The new facility had significant room to grow enrollment, and the financial plan required that growth to enable WCA to make the debt-service payments. Within the first year in the new facility, it became apparent those financial challenges were significant and we began a five year journey with the bond-holders (holders of our debt). Over the course of those five years, the enrollment started up, but then headed back down as a result of instability. The bond-holders decided to recoup their investment by selling the facility and for the past three years WCA lived under the threat of foreclosure/eviction. The ensuing enrollment decline put more pressure on resources and we were required to limit spending on only the most essential expenses.

Combining those six years with the previous three spent in temporary facilities, and two before that in raising funds for a new building, hiring a new Head of School, and going through a marketing initiative, there hasn’t been a recent serious effort to investigate and implement the use of technology in our educational program.

## **School in Need of a Technology Plan**

As little had been done in ten years, I knew that this area would be a priority, which is why I chose this as the project for my Van Lunen Fellowship. Because of the continuing wide-spread implementation of technology in all of our competitor schools, we were frequently asked about our use and our plans. It became a significant limitation on our ability to attract prospective families. Even if we weren’t able to do anything immediately, if we had a plan in place, it would show families (current and prospective families) that we understood the need and were in the process of addressing it.

## **Moving Ahead Now**

Finally, after those years of instability, we did get our building situation resolved. The facility was eventually sold to a church – Bethel World Outreach. At the beginning of those sale discussions, we reached an agreement with the church on a long-term lease. We now are in the second year of a five year lease and have two five year options to remain in the property. That stability brought a 15% enrollment increase from last school year to the current year and we are anticipating another increase of 15% or more heading into 2015-2016.

Having turned the enrollment corner at the beginning of this school year, our Board of Directors decided to pursue two initiatives that would move the school forward – a Head of School search and a Strategic Plan. The Strategic Plan process over the course of this school year has been particularly important and revealing in relationship to the technology plan and has provided important information and direction.

### **Strategic Plan – Survey Results**

We have completed the first three phases of our strategic plan process – survey and results, focus groups, and defining initiatives and goals. The work in each of these three areas has helped inform and shape both the need that exists for technology and some of the implementation concerns.

There were three surveys presented and analyzed for our Strategic Plan – one each for the parents, the students in sixth through twelfth grade, and the faculty/staff. Many questions were similar, but in each of the surveys there were questions specific to the target group. In the parent and faculty surveys, there were two questions that related specifically to technology:

- The respondents were asked to rate how well WCA is doing “integrating technology into the educational program.” The responses ranged from 1 to 4 as poor, fair, good, or excellent.
- In a list of potential future goals and plans, “Integrating technologies in the learning process” was one of the options. The respondents were asked to select the three options that had the highest priority.

We ended up with great participation in all three surveys. We were close to a 90% participation rate for parents, 92% for faculty, and 100% for students.

For both the faculty and the parents, “Integrating technology into the school program” ranked the lowest of all the items on the opinion list. For parents, the rating was 2.73 out of 4 with only 63% responding good or excellent. For the faculty the rating was 2.4 with just 44% rating it good or excellent. This was understandable given the lack of technology that exists within the program, but confirmed from the perspective of both the families and the staff that this is an area of significant need at WCA.

Where the parents were asked to rank the future goals, “Integrating Technology” came in second overall with 75 of the respondents listing it in their three choices. This goal showed up tied for second place on the faculty list. Both groups again agreed that this is an important future goal for WCA.

The data from our surveys confirmed that both faculty and parents believe that lack of technology in our education delivery is a current weakness of WCA and that it should be a high priority goal for the future.

### **Strategic Plan – Focus Groups**

The next step in our Strategic Plan effort involved establishing focus groups centered around four topic areas. The area related to this project was the Education and Technology focus group. The results of the survey were used to develop a set of questions that were posed to the group for the purpose of gathering further information. Faculty and parents were invited to each of the groups. In addition, we invited Mr. Dean Kern from NASA’s Office of Education as an expert participant.

There were three specific questions related to technology that were posed to the group:

- What technology trends do you believe will have the biggest impact on education in the next five years?
- How should WCA integrate the use of technology into the educational program? What are the alternatives? When should this happen?
- What resources are needed to integrate technology into the learning program (time, budget, equipment, personnel)? What are the pros and cons of school provided versus family provided computers or tablets?

The report produced from this focus group summarized the responses to these questions. Listed below are relevant excerpts associated with the technology related questions:

- The overall message from the group was that we should proceed with caution
- The need for faculty training was emphasized several times
- The impacts of technology on children are not all positive - technology can be a distraction
- The conversation of the group swung between expressing the need to move quickly and the need to be careful and hesitant
  - Quickly, because WCA is behind other area and competitor schools
  - Slowly, because of the potential pitfalls and the resources required to do it well
- There was not a general consensus about a preference for Chromebook, laptops, etc.
- There was also not a consensus about how the technology should be financed – by the school or the parents
- There was a final agreement that whatever decision was made regarding technology, it will have a major impact on WCA and the students. Therefore it should be planned carefully and professionally developed.

### **Strategic Plan – Initiatives and Goals**

We've recently completed the third phase of the Strategic Plan project. The Strategic Planning Committee met several times through the winter and spring to analyze the results of the surveys and the focus groups. These findings, along with the member's knowledge of the state of the school and additional important needs and plans, were then organized, summarized, and categorized into a set of initiatives, each with a number of goals. The initiatives are listed below:

- A Christ-centered, faithful culture and community
- An educational program that is reverent, adventurous, and academically serious
- A school that attracts, develops, and retains the highest quality faculty and staff
- An institution that is financially stable and carefully manages God's resources
- A community that advances its mission, impacting the region and the world for Christ

Within these initiatives, there were two goals directly related to the implementation of technology in our educational program. Under the second initiative, we included a goal to "pursue wise and intentional use of technology." This reflected the need recognized by the parents and staff, but also acknowledged the cautions expressed in the focus group. Also, a goal within the third initiative related to faculty and staff was to "increase faculty and staff professional development." As highlighted in the focus group, it was understood that we couldn't make wise and intentional use of technology without adequate training. So, these two goals will go hand-in-hand.

### **Research – Mentor Discussion with Glenn Vos**

Through the Van Lunen Fellows Consultant program, I was connected to Mr. Glenn Vos. Mr. Vos has a distinguished career in Christian Education, most recently serving as the Superintendent of Holland Christian Schools in Holland, Michigan. Through his efforts, Holland Christian was one of the leaders in the implementation of technology. He began those efforts back in 2009 when they introduced a one-to-one laptop program in grades 6 through 12. I spoke with Mr. Vos over the phone and had a thorough and wide-ranging discussion on his experiences and how they might relate to where WCA needs to go. Though we talked about many things, there were two primary ideas that I took from the conversation.

First, he suggested a particular implementation sequence that he thought would serve some immediate need, but not be beyond our financial resources. Anticipating that we would eventually get to a one-to-one device implementation, he recommended scaling up to that through a one to two year expansion of mobile resources – such as a cart of laptops. This ramp-up scenario would benefit students and teachers as it headed them in the direction of each student having a device. At the same time, it would be more affordable than a full grade or division implementation, and give time to test and improve the infrastructure, to identify key teachers that could lead further implementation, and create a longer period of time to introduce training to both faculty and students. This could mean equipping a couple of carts in each division (Upper and Middle School) the first year, a couple more each the second year, and then a move to fully equip either Upper or Middle School the third year.

Second, Mr. Vos stressed the importance of having multiple discussions regarding the implementation of technology as it relates to the mission of our school. He said that the tendency is always to begin with the more tactical aspects of the implementation, as the faculty will want those more “practical” issues discussed and decided. However, the larger, mission related questions of “what” and “why” are critical to the eventual success of the project. It would be important for everyone involved (administrators, faculty, students, and parents) to see how success enabled the school to better educate and equip students in the fulfillment of its mission.

## **Research - Reading**

My primary reading research consisted of two books, “Getting Smart” by Tom Vander Ark and “Disrupting Class” by Clayton Christensen. The dynamic nature of technology and the changes in the way it is used in the classroom somewhat limits the timeliness and potential relevance of published books. Though not intended to suggest one specific plan or implementation strategy for technology, each book did present important principles that helped shape my thinking about technology in education.

The content presented in “Getting Smart” reflects the author’s intent to show, by description and example, the several different areas and aspects of education that can be improved with technology. While many of the case-studies he presented were interesting, none of them were particularly relevant to the current situation at WCA. The main benefit I received from reading this book was to understand the many different opportunities for using technology and to have in mind (and subsequently on paper) a structure for thinking about and evaluating those different areas. In the course of the book, Mr. Vander Ark presents the benefits in chapters dedicated to customization, motivation, equalization, integration, and innovation. As I work on this framework, it also important to understand that technology initiatives (such as a one-to-one program) often and typically have benefits in many areas. This creates a fairly complex matrix of what initiatives can and should be implemented and specifically what benefits would be gained.

The second book I read, “Disrupting Class,” was recommended to me by my consultant, Mr. Glenn Vos. It was primarily focused on identifying the areas of disruption that the author sees as necessary to dramatically improve education. And he argues that a few specific implementations of technology in education would provide the catalysts to enable these important disruptions. Mr. Christensen identified the two primary areas of improvement as 1) creating a student-centric education that incorporated customized and differentiated instruction and 2) meeting the motivational need of students to feel successful. He sees an improvement in and expansion of online classes and curriculum as the key technology to provide the disruptions and bring about those two changes. There were many interesting concepts presented and no one can argue with the benefits of customized and student-centric instruction. However, most of the take-aways from the book were at much higher and wide-spread level than the scope of my project for WCA. Reading about his descriptions of future classrooms where the “teacher as instructor” model is replaced by the computer as the primary instructor (and teacher as facilitator/tutor) were interesting and challenging. In many ways, this future model could fundamentally alter a significant aspect of our mission – the Christian faith relationship between the teacher and the student. This potential underscores the importance of understanding how any technology (or any other!) changes would create an overall positive or negative result in accomplishing our mission.

## **Research - Case Study at Annapolis Area Christian School**

To get some additional ideas of what has worked and what hasn’t, I found a school that recently initiated a technology project – Annapolis Area Christian School (AACS). I spent a morning talking with Mr. Rick Slenk, the AACS Middle School Principal. After some investigation and thought for a number of years, AACS began a one-to-one project in the Middle School at the start of the 2013-2014 school year. They decided on Chromebook computers and began with one full grade – the sixth grade. The plan was to carry that class forward and give the next year’s class Chromebooks, as well. This is the second year of the project and so the Chromebooks are now in the 6<sup>th</sup> and 7<sup>th</sup> grades.

I’ve listed below the observations/lessons learned I heard from Mr. Slenk:

- Chromebooks Worked Well – They provided the right amount of technology and right functionality at an affordable price. The models they have used have proven more reliable than expected. Devices having a keyboard were important to them, so they didn't consider iPads.
- Infrastructure Preparation was Critical – They made a concerted effort to ensure that their network infrastructure was reliable and provided enough bandwidth for the number of wireless devices that would be used at one time.
- Teacher Training Worked Well – They thought carefully about the training that would be necessary and had that in place the first year. They focused their training on general use of the devices, important policies that would apply to students, and general support.
- Didn't Use an All-In-One software product – They kept the software general and simple (Google Docs/Drive and their existing student management system) instead of implementing something across all classrooms. There were enough ideas in the existing sixth grade faculty to use the devices in classrooms without a top-down approach.
- Implementation has been bottom-up as opposed to top-down – though he did mention that this has caused the use in the seventh grade to be less than the use in the sixth grade. Because of this it really ends up depending on the individual faculty members. As the project moves along, he plans to begin more top-down initiatives to ensure a minimum level of use in all classrooms.
- 30% to 40% use – He estimated that the sixth grade use the Chromebooks 30% to 40% of the time. After talking, we took a tour of the school and that percentage was reflected what I saw happening in the classroom.
- Funding model was important to figure out – They began charging parents \$40 a year as a technology fee, but have now included this in the overall cost of tuition. In their initial model, they sought to recover 50% of the cost of the Chromebooks (approx. \$300) from the parent fee.

The most important things I learned from my visit and discussion were the following:

- Take time to make sure the infrastructure is ready to support any IT activity. As anything is introduced, it needs to be supported/supportable so that the faculty doesn't waste time and energy and become frustrated. We only have one first time to make it work and infrastructure problems would be a huge momentum killer. As we consider technology implementations over the next year, we need to immediately get started on improving our infrastructure.
- Meet current bottom-up needs. Instead of taking the time and energy to do lots of investigative work, they looked to the place that already demonstrated need – keyboards for students. Already, their existing computer lab and laptop cart were overbooked. That meant there was a need that existed without having to create something from the top down.
- Prepare parents as well as students. In addition to the changes this brought to students, there were also things for the parents to adapt to. Though we anticipate that technology exists in every household, sending their sixth grade children home with an individual laptop did cause some concern. AACS prepared for this by reading together a book related to the drawbacks of additional technology, ensured that the Chromebooks were filtered, even when home, and spent time educating parents.

### **Technology Plan - Next Steps**

In the original formulation of my project, I intended to have developed a five-year technology plan for WCA. Instead of producing a five year plan, my project has produced instead three items for me: 1) a more thorough understanding of the technology landscape, 2) recognition of the critical pieces to have in place before or during the implementation of any technology initiatives, and 3) a short-term plan for the next two years. Though different than originally intended, I believe that this result will no less serve WCA as we move forward in implementing more technology in the delivery of a WCA education.

Understanding the Technology Landscape – I now have a much better understanding of the landscape of options that exist. I also understand the important distinctions between the potential benefits and the categories of initiatives to undertake. As WCA begins to make specific decisions, I will be able to inform and guide the discussion and process, ensuring that we know what we are targeting to improve and more specifically how we will do that.

Critical Pieces to Have in Place – I learned that there are a few, very important items to have considered and in-place prior to or coincident with a technology project. I am very thankful to have identified these before we developed and/or implemented our plan.

- Solid Infrastructure – particularly a reliable and fast wireless network and streamlined and time-sensitive troubleshooting/repair system. Any initiative that is not reliable will not be used. Faculty will quickly stop using anything that cannot be counted on to work reliably and consistently.
- Parent Education and Buy-In – It is important to remember that our parent community will have as many different opinions on the benefits and drawbacks of technology as there are families. And, at any point we start sending technology devices home, we will be confronted with a wide array of opinions and household rules relating to use of technology. It will be our responsibility to identify the benefits, communicate those thoroughly, and be prepared for that wide array of differences.
- Faculty Training – Though this is an area I would have identified before my research, it has confirmed the importance for faculty training. In planning faculty training, we need to be careful not to make assumptions about the technological literacy of the faculty and understand that we will be training a group with a wide variety of technology understanding and abilities. Our training will have to include instruction on how to use even the most basic functions of the devices and programs.
- Mission Discussion – Critical to the success of any initiative will be a clear understanding of, and agreement to the benefits that initiative brings to the students. Families and faculty will want to know how the mission of the school is being furthered before they will invest the time, money, and effort required by technology projects.

Two Year Plan – At this point, five years is too far ahead to look and plan. And, many of the future year plans will depend upon the results of the first initiatives. So, I believe that two years is now the appropriate timeframe for us to consider. I've summarized below the major action items I'm recommending for the next two years:

- 2015-2016 – It's no surprise that the first steps in the project are directly related to the critical pieces I discovered we need to have in place. Here are the main goals during the coming school year:
  - Build up our technology infrastructure
  - Establish a technology task force composed including parents and members of the faculty
  - Begin discussions about technology options and mission.
  - Seek to meet some short term needs through a second semester implementation of a pilot project. This would most likely be Chromebook carts – numbers depending on financial resources. Having these will enable us to evaluate them, have practical examples for our mission discussions, and learn what type of training is needed for faculty and students.
- 2016-2017 – Anticipating beginning a one-to-one program that following year, this is the year for parent education and communication.
  - Continuing discussion of technology options and mission
  - Parent education and communication
  - Faculty training
  - Expand the number of Chromebook carts
  - Position us to execute a one-to-one program in 2017-2018 and/or other major initiatives identified by the task force