

Tablet Technology in Teacher Preparation: A Case Study – The Nook Initiative

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Abstract

Regent University's Special Education and Reading Specialist Programs introduced the Nook Initiative fall 2013. This paper discusses the implementation, the need for integrated tablet technology in teacher preparation, initial outcomes of the study, and offers suggestions for practice. A second tablet pilot program introducing the iPad mini in the Career Switcher Program at Regent is also discussed.

Key Words: Tablet Technology, Nook, Teacher Preparation

Overview

As fall semester 2013 commenced, the Special Education and Reading Specialist Programs at Regent University introduced the Nook Initiative. For a one time nominal fee, all new students (entering the Special Education or Reading Specialist Masters' Programs) were registered for the Nook Initiative. As part of this program, students received a Nook HD tablet, a cover, the extra two-year warranty, and access codes to all but three texts they would be using throughout their 18 - 24 month programs. Not only would the students use the Nook for their personal studies throughout the program, but each class contained a "Nook/tablet Assignment" intended to provide experiences to advance technological knowledge and skills in the content areas while expanding the use of tablet technology in the K12 setting. Most new students were excited about this venture! All students were required to participate and the program opened with an on-campus Nook Orientation presented by Barnes & Noble which was also recorded for later viewing on Blackboard (BB) for those students who could not attend.

Background of Nook Initiative

The Nook Initiative has been germinating for nearly five years as several professors, internship supervisors, and educational leaders observed a need for more integrated use of tablet technology in teacher preparation. Comments regarding the lack of consistent use of new technology in K12 classrooms from students in the Special Education and Reading Specialist Programs, from educational leaders in schools as well as at state and national levels, and from field observations led to further investigation of the literature.

An informal poll of current students and program applicants regarding their thoughts on using tablets and/or e-readers for their texts while in teacher preparation programs was conducted. These students and potential students were asked their thoughts about using a tablet (iPad, Nook, Kindle, etc.) for their own texts and for assignments in their classes to enhance instruction and expand their use of tablet technology for instruction and assessment in the K12 setting. While some voiced misgivings,

most were very much in favor of having all their texts available electronically throughout their entire program. There was no consensus on which electronic format was preferred. Some liked iPad, others preferred android/windows tablets, some really loved their Kindle while others loved Nook.

All of this information led Dr. Hope Jordan and Dr. Elizabeth Hunter to do further investigation into which device should be required or whether there should be a “bring your own device option.” One problem is that texts are often offered in one format or another (not available on all devices) and with regard to doing K12 tablet assignments in each class, it was decided that it was important to have the class and the instructors all on the same page/device. After extensive investigation of all options and considering the device itself, the cost, and access to in-person technical support – (not just online or 800 number support) it was decided that for this initiative – the Nook HD Tablet would be the best option. Dr. Jordan first nurtured the support of the Dean of the School of Education (Dr. Gail Derrick) and then went through the process of getting the support of the appropriate leadership at the university level to put the Nook Initiative in place. With the administration’s approval, procedures were established and plans were made to launch the Nook Initiative.

Need for tablets in Teacher Preparation

Tablet technology is just emerging. Schools at the K12 level have just started using tablets (iPad, Nook, android, etc.) in the last few years. The use of tablets in schools is sporadic as school divisions find the funds and decide which tablets to purchase. The results of the studies on the effectiveness of tablets in the K12 setting are just developing. Though there is a growing body of literature regarding tablets in the classroom, there is little research on the use of tablet technology in teacher preparation. In fact, the authors of this paper could not find any documented initiatives requiring and assessing teacher candidates’ integration of tablet technology throughout their programs.

With regard to technology in general, Lytle (2012) reported a study by Dell that compared

technology use in high schools in the United States, Germany and China. Only 29% of U.S. students, compared to 53% of the Chinese students reported technology use integrated throughout the curriculum in their schools. While 21st century students in the U.S. are digital natives, teachers are not using technology to enhance their instruction nearly as much as Chinese teachers. Lytle suggests that part of the problem might be a need for more intentional technological training in our teacher preparation programs. Though teachers are often able to use the technology (and often do for their personal or administrative purposes), they are less familiar with specifically how to best (beyond just games or internet searches) integrate technology into instruction and assessment.

While the Regent team was getting the Nook Initiative in place, The National Center for Education Information, NCEI, (Feistritz, 2011) was compiling the *Profile of Teachers in the U.S. 2011 report*. This report provides several pieces of information that convey insight to our current teaching population. Since our Regent team was noting a need for more well-prepared teachers (with regard to the use of technology in the classroom), we wondered if the average age of the current teacher population might play a role in this situation. This report shows that nearly 1/3 (31%) of our current teaching population in 2011 was over fifty years old. Though this is reflective of those already teaching (not as likely enrolled in teacher preparation programs), this still may shed some insight into what leaders and university supervisors see as a group lacking the skills to properly use technology to enhance instruction and assessment. Teachers who are more than fifty years old have most likely been teaching for a long time. Also – our Special Education and Reading Specialist Programs are both offered at the master’s level and consist of a portion of experienced teachers who come back to school and enroll in a master’s degree program.

The question is, might there be a tendency to do what you have always done, teach in a more traditional manner and use less technology, for those who have been teaching for a very long time? Experienced teachers are often assigned as cooperating teachers for student teachers. This may provide

a partial explanation for what our supervisors and master's level students report as a minimal use of technology in the many classrooms. Our student teachers complete their field experience and then enter the field having more traditional experiences during their teacher preparation program and report minimal use of technology in many classrooms.

The reasons for sporadic use of technology in general and of tablet technology specifically to enhance instruction and assessment in the K12 setting are complicated. Zhao and Bryant, from the University of Georgia, asked whether integration of technology training alone would lead to higher levels of technology integration (Zhao & Bryant, 2006). They took a qualitative look at the state mandated technology training in Georgia. Their study concluded that integrated technology training positively affected participants' attitudes toward using technology for instructional purposes. They suggested such integrated training should continue as new teachers enter the field and also include support specific to grade levels and subject areas. Thus follow-up support in the field is also needed. The Regent Nook initiative provides integrated activities throughout the program, across grade levels, and content areas. However, once student teaching concludes and students graduate, follow-up support through the university ends and must be provided at the individual school level.

Katrina Schwartz (Mind/Shift, 2013) asks whether tomorrow's teachers are prepared to use innovative technology. She points to a Project Tomorrow report that suggests principals are looking for new teachers to bring creative ideas about technology to create differentiated instruction. However, she notes that student-teachers report simple management technology as the emphasis not specific preparation with regard to use of technology for instruction and assessment during their teacher preparation. She suggests, as the Regent University faculty found, that part of the problem is incoming teachers are entering school divisions that lag behind the times. That, combined with student teachers who use technology in their own lives and have had little experience with specifically how to use that same technology to enhance instruction and assessment in their k12 classrooms creates a larger problem.

However, some reports indicate that aspiring teachers (many who grew up natives of this technology) may be much more likely to use the technology as they teach.

Mishra & Koehler from Michigan State University (2006) present a conceptual framework called Technological Pedagogical Content Knowledge (TPCK). They indicate that introducing technology separate from the content and pedagogy compartmentalizes the technology and does not allow for integration. They argue that there is a need to investigate the relationship between technology and teaching. They contend that technology knowledge cannot be addressed, as it often is in teacher preparation programs, separate from the content and pedagogy. Thus, their model of 3 overlapping circles (Venn Diagram) result in technology, pedagogy and content knowledge being interrelated. They suggest that TPCK requires an understanding of the relationship of these three, resulting in teachers who know how to use technology integrated in the content to solve instructional problems for students. This may result in a flipping of the content driven curriculum model to a model that at times might be technology driven where the focus is content through technology.

Mishra & Kohler (2006) assert that this integration of technology requires teacher training to go beyond just skill with software and hardware to integrating that technology directly into the pedagogy and content. Teachers need to leave teacher preparation programs with a deeper understanding of the specific application of technology and pedagogy in the content in order to intentionally enhance instruction and assessment. This training needs to be integrated and continually updated given the rapid rate of changes with regard to technology. It is important to provide teacher training that offers teacher candidates the opportunity to solve real educational problems through the use of technology. Teacher candidates should learn by doing real tasks and using technology in real classroom situations.

A PBS LearningMedia study by VeraQuest (2013) reveals several important concepts regarding technology in general and tablet technology specifically. 7 of 10 teachers indicate that technology allows them to do much more in their classes and enhances both communication and motivation.

Teachers believe that technology allows them to reinforce and expand content, motivate learning and differentiate based on learning styles. The VereQuest Survey (2013) noted that the availability of tablets has risen from 20% to 35% in the last year, which was the greatest increase in any single type of technology during that year. Yet only 50% of these teachers feel comfortable experimenting with new technology. However, those teachers who use tablets find them beneficial for teaching through the use of applications, access to websites, and the access to e-books and texts. 33% of these same teachers also note that if they had access to grants funds, they would purchase tablets for each child.

Tablets have only become more prominent in the recent past (especially the last 5 years) with the popularization of iPad, iPad mini, Nook, Kindle and various other tablets for personal use. This popularization comes with the opportunity to use such technology to enhance instruction and assessment. The portable nature of tablets allows the easy access to technology in K12 classrooms. Individualization and small group work can be enhanced through the use of tablets and these devices can also be connected to Smart Boards and other projectors for use with large groups. Tablets are becoming less expensive, so the cost of bringing this technology to the classroom is also attractive. 21st century learners are motivated by the use of technology and tablets are a perfect tool in the classroom.

As Hedge posits (2012), tablets are mobile, they remove the barrier between the screen and the students, save paper, support digital conversations, allow both teachers and students to work anywhere, and can replace many types of technology. However, since this technology is so new, there is little research on the impact of tablets in the K12 setting and even less on the use of tablets in teacher preparation programs. However there is some early research emerging that does show the positive impact tablets can have on instruction. *Tablets for Technology* (2013) report such benefits as: enhanced student engagement and learning, decreased student behavior problems, and increased creation of spontaneous teacher and student resources in UK secondary schools.

There is some indication that universities like Concordia University Nebraska and Saint Leo are

starting to integrate tablet technology into their education classes. Concordia reports that in fall 2014 their students will be using the iPad throughout their education classes. Their professors are currently designing their courses to include the use of iPads (Concordia, 2014). St. Leo University (Dean's Report 2014) reports using a program in which student teachers are provided Digital Backpacks and tablet technology training through a grant starting in 2012. Though there are few universities reporting the use of tablet technology in teacher preparation programs there is some indication that this is a growing trend.

As the Regent University professors were unable to find ,U.S. models of teacher preparation programs that integrated tablet technology directly into K12 content to enhance instruction and assessment throughout the program. There is some research to indicate the success of tablets to include iPads and other tablets. Much of this research is very recent, was done with very small groups, is more in the form of action-research, or was done outside the U.S.

Explicit Nook Applications in K12

Maegan Murray, Digital Sales Lead for a local Barnes and Noble provided the following comments regarding some of what K12 teachers can expect to do with a Nook in their classrooms. In her position at Barnes and Noble, Maegan played a key role in training the teacher candidates in the Regent programs both in how to use the Nook to enhance their studies and in how to use them in the K12 setting. The following is a broad overview explaining some of the positive applications our pre-service teachers are finding as they use the Nook in our program. Maegan shared the following:

Tablet technology in the classroom is more abundant than ever, and it benefits teachers to know which devices can cater to their needs. Among the current lineup of tablet offerings, Nook by Barnes & Noble proves itself time and again with its capabilities crafted to help teachers in the classroom. With so many devices to consider, it is difficult to spot the differences. However, the

Nook has many standout qualities.

Nook was created with children in mind. In order to use Nook in the classroom teachers must be able to create an experience appropriate for all ages. Barnes & Noble designed Nook to be able to be divided up into six users. Each user is created by one master account. This enables the teacher to create five different users appropriate for students in their classroom. Such information as age, name, and gender, help Nook to tailor the content to the appropriate grade level. The teacher can also enable and disable any features that they do not want the students to access, such as internet, email and applications. This is an exceptional feature that most tablets simply cannot do. Nook is unique in allowing the teacher to use the device for his/her own pleasure under the adult user, but still allowing the ability to hand the device to the students for school work.

Nook also comes with other features that can help streamline a lesson in the classroom. The device comes with Bluetooth capabilities built in. This allows one to wirelessly attach accessories to the Nook for easier movement and use. For example, a speaker could be sitting on the desk and the Nook could be in a teacher's hand many feet away, but the speaker will still play whatever audio is being transmitted. Nook can also be plugged into devices such as a television or projector via an HDMI cable. In this case, whatever is seen on the device's screen would be shown on the television screen or projected onto the wall. When teaching to a larger group it is better to be able to display material as large as possible. This is made possible with a special attachment sold separately at Barnes and Noble.

Another unique feature of Nook is its content. Barnes & Noble enables each user to shop for books, magazines, newspapers, applications, movies, and more through their button labeled "Shop" on the home screen. In addition to the world's largest collection of digital books through the Nook shop, the Nook allows a secondary application and content store, as well: The Google Play Store. This option opens up the device to any content sold by Google, which means that the Nook can support anything available on android devices as well. This includes applications such as Blackboard, which are still

available on the Nook, even though Barnes & Noble doesn't offer it in its app store. It is just as quick and easy to download it from the Google Play Store on the device. There are no other tablets out there that will allow you access to both companies' content.

Tablet devices are being seen more and more in today's educational system. Using a personalized device allows the teacher to tailor the lesson to each individual. This can be done most effectively with educational applications. Barnes & Noble has worked hard to create content that fosters learning. The Nook shop carries many titles that are interactive. These eBooks have been created as either "Read and Play" or "Read and Record." Once the title is purchased, the reader can choose how he or she wants to read. The eBook can be read alone, read with audio following along, or read and recorded, to be played back later. The microphone on the Nook picks up the reader's voice as they read along with the eBook. This tailors the experience for different kinds of learners. Allowing the eBook to be read with audio helps the reader to hear how the words should sound. Then having the reader record themselves reading helps them to hear how *they* sound.

One of the most unique aspects of using the Nook tablet in the classroom is the free training and support provided by Barnes & Noble. Because Barnes & Noble is a physical store (not just a virtual one), local Nook Specialists provide free classes and troubleshooting for all of the Nook devices. During the life of the device Barnes & Noble is there seven days a week to answer questions, provide support, and help find solutions. In some cases off site meetings have been arranged to provide specific training for institutional needs. Whether it is in person, over the phone, or by email, Barnes & Noble is able to give each customer the attention they deserve.

The Study – Pre-test Post-test Survey

In order to assess student growth in their level of skills, knowledge of tablet technology, and application ability, each student was given the Pre-nook survey as they enter the Nook Initiative at

Regent. This survey is intended to assess their level of familiarity with Nooks and/or tablet devices as they enter the program. Interim Mini Surveys are completed through the program to assess student impressions of their own growth and address questions or problems. A Post-Nook Survey will be administered at the completion of the program.

Spring 2014 semester commenced with 120 students registered in the Nook Initiative as part of the Special Education and Reading Specialist programs at Regent University. Most of these students are seeking teacher licensure in one or both areas. As measured on a survey prior to entering the program, 66% have never used a Nook and 93% have not used a Nook instructionally (more for personal reading). However, 56% considered themselves either strong or very strong with regard to their skills on another tablet, and 58% of these tablet users do not use their tablet for instruction. The students in these teacher preparation programs seem to be reflective of the general population of teachers who are becoming more skilled with using tablets personally but are not yet using them instructionally in their own classrooms.

At the completion of the first semester those 89 students who started in the fall were asked to voluntarily complete an interim survey. This survey was only 5 questions long and the goal of the survey was to get a sense of how the students felt they were doing early on in the program with regard to using the Nook. Though most had only taken an average of 2 classes to this point, 75% of the respondents (50) indicated that they are learning to use tablet technology through their Nook Assignments in the program. 50% indicated they are using all types of technology more in their classrooms as a result of using the Nook in their own program. It must be noted that of the 50% who indicated they were not using more technology – some are still pre-service teachers and not yet in a classroom but noted they feel they will be using tablets and technology more when they do get to the classroom. There was a group who have always been using technology and did not feel they increased use at this time. There were many anecdotal comments about how surprised Regent students were by the vast number of instructional applications on Nook (and other tablets) that they were not aware of

prior to the program. Overall, there was a very positive response to this program early on and the gains Regent students feel they are making that will improve their K12 instruction.

At this point (mid-2nd semester), data indicates that the Nook Initiative (tablet technology in teacher licensure) is having a positive impact on pre-service and current teachers going back for their master's degrees with regard to the use of technology in the K12 setting. Another quick check will be run following the spring semester (and every semester until the students graduate). At the close of the program, a Post-Nook Survey will be given in order to glean the impact of the use of Nooks (tablet technology) on teachers and their use in the K12 setting.

iPad – Career Switchers

While two teacher preparation programs at Regent started the Nook Initiative, the Career Switcher Program (directed by Dr. Mervyn Wighting) started a similar pilot initiative with tablet technology using the iPad mini. Like the Nook Initiative the use of iPad mini in the career switcher program includes the integration of tablet technology throughout the course work. This enhances instruction and assessment through use of tablet technology in the K12 setting using the iPad mini rather than the Nook.

The Career Switcher program is a program which results in teacher licensure. It does not result in a Master's Degree (as the Special Education and Reading Specialist Programs). As such it is a shorter program with fewer classes so the use of tablet technology directly in content is less intense. Another difference between the Nook Initiative and the iPad program is that the students purchase the iPad mini alone. Their package does not come with immediate access to all their texts. Students can download texts to their iPad as they choose (optional).

Both programs are designed to intentionally integrate table technology into the K12 setting and enhance the use of technology in instruction and assessment with the K12 population. The program

chairs for Career Switcher and Special Education/Reading Specialist will do further analysis of the program outcomes in 2015 to assess the efficacy of each tablet in teacher preparation programs. Dr. Wighting shared the following regarding the status of the Career Switcher program's work with iPad mini. Dr. Wighting shares:

In the fall of 2013 Regent University started to issue each new Career Switcher student with an iPad mini. This was achieved by sending every new student a gift voucher to be exchanged for an iPad at a local Apple Store. This system of issuing the device works easily and has not caused any problems at either end. It was found that while some students were already familiar with Apple technology others have never used it so all students attend a full day session on campus to learn how to use iPads in the classroom. This session is taught by practicing technology teachers from a local school division, and they bring with them a wealth of hands-on and up to date techniques. All instructors in the Career Switcher program have introduced assignments that require their students to use the iPad. For example, assignments require them to identify teaching applications that they then share with all other students in order to build up a database of apps that will be useful to them when they get hired as teachers. The current students in Level I of the program were surveyed recently (n=45) in order to obtain feedback on their use of the iPad and their thoughts on how to use it in the classroom once they are hired. The data show that the majority of them use the iPad to access their downloaded course textbooks, as well as researching online for course assignments. The survey also showed that they are acquiring a large number of subject specific applications that can be used in the classroom during their first teaching position.

The benefits of introducing this technology into the program are already very apparent. The program director visited a local high school recently (without prior notice) to find that the Level II Career Switcher (now hired as a teacher) was using iPads to teach a civics class in the 11th

grade. All the juniors were using an iPad belonging to their school and following directions from the teacher they were accessing the websites of the state's Congress as a resource to design their own mock bill of legislation. The mobility of the iPad allowed them to work easily at their own desk, and also to move into small groups to work collaboratively where some students were retrieving data while others were creating their bill in a Word document.

The piloting of the iPad in Regent's Career Switcher program is going well, and it is planned to continue the initiative. This is particularly important as more and more school divisions are expecting their faculty to be comfortable with tablet technology and to use it regularly in classroom instruction.

Conclusions and Recommendations

Though this project is still in the initial stages, literature and observations in the field indicate both an upswing in the use of tablet technology and a need to better prepare teachers to use this technology in their K12 classes. This is true across the board for teacher preparation programs and is especially true in programs that require specific skill and differentiated teaching to meet the needs of struggling learners like those in special education and reading programs.

At this point, the Regent study shows a positive impact on teacher skills with regard to using the Nook as tablet technology in the K12 setting. Regent University School of Education will continue using the Nook in the Special Education and Reading Specialist Programs as well as the iPad mini in Career Switcher Program to intentionally integrate tablet technology in teacher preparation programs. Data will be gathered in both programs in order to assess the impact on teacher preparation with the intent to enhance instruction and assessment for improved outcomes with K12 learners. This program is one small step toward classrooms that meet the needs of 21st century digital learners and we are looking forward to further analysis of these outcomes over the next 2 years.

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