Project Title: There's an app for that? Examining and Fostering Early Childhood Educators Content Knowledge and Use of iPads within the Early Years Classroom

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SUMMARY

Background

Technology appears to be a prevalent part of modern society. Increasingly, young children are described as being shaped by a 'technology constructed childhood' (Fleer, 2011). These young 'digital natives' (Rosen, 2006) are active media users, capable of playing sophisticated games on cell phones, creating avatars, requesting and loading specific websites on the internet (Rideout, Vandewater, & Wartella, 2003). Yet, whether or not educators view and understand young children as "emergent users of new literacies and new technologies is not readily understood. And technology "integration in early childhood settings and recognition as a developmentally appropriate practice remains problematic" (Parette, Quesenberry, & Blum, 2010, p. 335). Extrinsic barriers such as limited budgets and resources appear to be a factor impacting technology integration within early years contexts. And educators positive beliefs about children's learning from technology has demonstrated a significant influence on actual use of technology within early years classrooms (Blackwell, Lauricella, Wartella, Robb, & Schomburg, 2013). To date, little research has examined both aspects-*teachers self-reported beliefs regarding technology* and *what integration looks like* in practice, and whether or not differences in quality of integration exists based on beliefs, training, and the supports provided. This mixed-method study seeks to examine how these two aspects might impact the use of tablets (i.e., iPads) in 27* early childhood classrooms.

Research Goals

The overarching research questions guiding the study include:
1. How do teachers' personal beliefs impact the use of and perceived educational value of tablets in the early years classroom?
2. How do the structural features of the environment (i.e., training, support, and access) impact the integration of tablets within these contexts?
3. What impact does tablet integration have on children's learning?

Project Timeline

The project has a relatively long time frame (Feb 2014-March/April 2015) to allow several activities to occur; ethics approval process, recruitment & selection of of participants, pre-survey, training of educators, 3 observational visits, a post-survey, and wrap-up of the project. As of September 2014, 3 training sessions have been held and one set of observational visits. The pre-survey has also been completed. The research team anticipates the second observational visits will occur in the later part of October.

Project Partners

This project was made possible by the generous support of the Niagara Region Children's Services; the Early Childhood Community Development Centre (ECCDC); and Speech Services Niagara.

*PARTICIPANTS

At the outset of the research project, 27 female participants volunteered. However, as of September 2014, one participant withdrew from the study and the data associated will be removed from future reports.

Participant Demographics	% of Respondents
College Educated (diploma)	82
16+ Years of ECE Experience	33
21-30 years in age	39
41-50 years in age	32

Participants' Use & Comfort Levels with Technology

To gauge participants' familiarity with using 'new technologies' in their personal lives, educators shared that most often they used Facebook and Pinterest as well as a personal smart phone. Notably, all 25 responses to this question, did indicate some use of 'new technologies' in their personal lives.

Use of Technology in Programs at the Outset of the Project

Participants were asked about their current use of technology within their programs at the project outset. Most often, the 26 individuals responding to this question reported that technology was used at the direction of the educator. Additionally, several educators responded that children used the computer station with some educator guidance.

Response	Chart	Percentage	Count
I/We currently do not use any technology within the class/ program		11.5%	3
Any use of technology is directed by the educator (e.g., educator prints off activity sheets from a computer)		3.8%	1
Most of the use of technology is educator directed (e.g., using a TV or audio tape of a story read aloud)		46.2%	12
Technology is equally shared between the children and educator (e.g., sometimes used by children at centres and sometimes used by the educator to capture and record children's learning)		11.5%	3
Technology use is mostly child initiated with some educator guided learning (e.g., children choose to play at a computer centre and at times the educator guides specific learning)		26.9%	7
Technology use is all child initiated (e.g., children play restaurant in the dramatic play centre and create menus on an iPad)		0.0%	0
		Total Responses	**26**

Types of Technology in Use in Programs at the Outset

The type of technology that was reported as most often available & used within programs was a digital camera, laptop computer, TV &/or DVD player. Almost 78% of the programs reported that a tablet was currently not available. Interestingly, internet availability was variable with almost equal numbers of programs having internet available & used as available & not used, or not available.

	Yes Available & Used	Yes Available & Not Used	Currently Not Available	Total Responses
TV &/or DVD Player	13 (48.1%)	8 (29.6%)	6 (22.2%)	27
Laptop or desktop computer	10 (40.0%)	7 (28.0%)	8 (32.0%)	25
Internet	8 (29.6%)	10 (37.0%)	10 (37.0%)	27
Video game player (e.g., GameBoy, PSP, Nintendo DS, Xbox, PlayStation, Wii)	1 (3.7%)	5 (18.5%)	21 (77.8%)	27
Digital camera &/or video recorder	26 (96.3%)	1 (3.7%)	0 (0.0%)	27
SmartBoard &/or interactive whiteboard	1 (3.7%)	0 (0.0%)	26 (96.3%)	27
Light table &/or overhead projector	6 (22.2%)	5 (18.5%)	16 (59.3%)	27
iPod and/or MP3 player	0 (0.0%)	2 (7.4%)	25 (92.6%)	27
Touchscreen smartphone (e.g., iPhone or android)	1 (3.7%)	1 (3.7%)	25 (92.6%)	27
Kindle, Nook, or other e-reader	1 (3.7%)	0 (0.0%)	26 (96.3%)	27
Tablet computer (e.g., iPad or alternative)	6 (22.2%)	0 (0.0%)	21 (77.8%)	27
Assistive technology devices (any technologies to assist children with special needs)	2 (7.4%)	0 (0.0%)	26 (96.3%)	27

Educators' Perception of the Potential Role of iPads in Practice

Educators were asked to foresee if iPads could be used within specific learning/developmental areas of their programs. Educators predicted a role for iPads across <u>all domain areas</u>, with language & literacy and mathematical thinking & numeracy receiving the highest concentration of their responses. Educators (in a separate question) also agreed or strongly agreed that tablets/iPads could help develop children's critical thinking skills; improve individualized learning; assist children with special needs; support professional development; develop content knowledge (e.g., phonemic awareness; document children's learning; support communicating with parents; and support inquiry & play.

Response	Chart	Percentage	Count
Language & literacy		100.0%	24
Mathematical thinking & numeracy		95.8%	23
Scientific thinking		87.5%	21
Social Studies		75.0%	18
Arts		79.2%	19
Health & well-being		83.3%	20
Social-emotional development		75.0%	18
Outdoor inquiries/play		75.0%	18
Other (please specify)		8.3%	2
		Total Responses	**24**

'Storied' Experiences of How the iPads were Taken Up in Practice

The participating educators all worked within diverse contexts. Some of these variances included the number of children in each program, the age and gender mix of the children (e.g., several toddler groups participated), co-teaching models versus sole educator models, the number of children with special needs served, diversity of the families, full year programs versus 10-month programs, etc. Thus, we offer insights from 3 months of the educators' blog entries as a way of highlighting several themes that appear to be emerging from the data. These themes include (but are not limited to): *1. using iPads as a 'provocation' tool to promote inquiry 2. iPads as a parent engagement strategy, and 3. iPads as a venue for all children to express themselves and what they know.*

1.   Using iPads as 'Provocation' to Promote Inquiry

I've been using the iPad as a documentation tool so parents are able to see just what the children are doing during the day. We have also been using the iPad to research different inquires such how is tape made the children were quite impressed I was able to just look up the answers to their questions.   *Blog Entry, July 14, 2014*
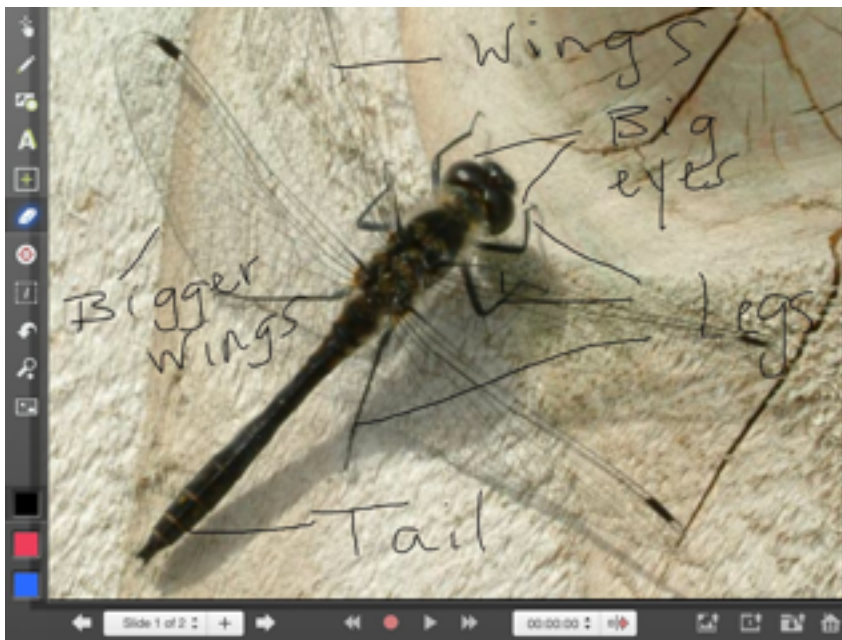
Today the children in my class were asking me how fast can a dragonfly fly and what dragonfly's eat? With having the iPad in our classroom we google their questions right then and there and we actually got to watch a video of dragonflies flying around in the sky on the iPad. The topic of Dragonflies came up during outdoor time where we noticed them flying around the trees. The iPad has really helped enhance their learning!

Blog Entry, June 25, 2014

This week I had some school age children in my program that had a lot of fun exploring and working with the iPad using multiple tools to create their own project. They started out very interested in paper airplanes and were curious on how to make one so they used safari and google (with some teacher assistance with spelling) to

research different types of planes and templates to follow. They then expanded this by using YouTube videos to watch other people fold the planes together and mimicked their actions. This continued on for a couple days and some of them even wanted to include their parents in the project so we asked some parents to come up with a paper airplanes with their children at home and bring it into school the next day. We received lots of positive feed back from this and ended up with several different styles of airplanes. Once we had all of them together we took them outside to test out how they flew and the children started wanting to record information and comparisons of their planes. For example, who's plane flew the farthest, fastest, highest, etc. This is where I as the teacher made a suggestion to use the numbers app on the iPad to record this info. The children were excited and open to trying this but unfortunately it proved to be a little more difficult for them to use on their own. So we ended up with the children telling me exactly what they wanted to record and how they wanted to record it then I input the information into the chart on numbers listening to any corrections or adjustments the children wanted to make along the way. When all was said and done they decided they wanted to email out the chart to their parents so parents could see our results.   *Blog Entry, August 6, 2014*

2. Engaging Parents

I have started bringing the iPad into my classroom in the afternoons. Each child is able to have a turn utilizing which ever tool they choose. So far the favourites seem to be Grandpa in Space and Soundbrush. Yesterday we used sound brush to hear what our name sound like. The children who are able to write their names did this on their own and with the others I used hand over hand.The children were very excited and engaged in this and if their parent came in when they were having their turn we would write their parents name to show off what we were learning. A lot of my children were familiar with the iPad because they have one at home, some of the children had no idea what the iPad was at all. The children and parents who have iPads at home have been offering suggestions of some of their favourite educational applications.   *Blog Entry, June 26, 2014*

Today we drew pictures for our mom's and daddy's! We emailed our pictures to our parents when we had approval and talked about how "mail" works. Our pictures travel through the air and go from our iPad to our mommy and daddy's computers! How cool!
Blog Entry, July 9, 2014

3. Children's Expressions through iPads

A child who uses Niagara Support Services as she is a bit delayed. She has come leaps and bounds and shocked me today while using the I Pad. She knew her letters as well as numbers. She also grew confidence and was so proud of herself. As the games give praise and rewards at the end if you get it right. She is also one who wouldn't come do a letter activity but was able to show her abilities with the games as well as learn more.

Blog Entry, June 24, 2014

Summer programming has begun and we have a few new children beginning. We have a little girl from China who doesn't speak English and is having a hard time in the new environment. I gave her the iPad with the monster app and she loved it. It turns out she loves to colour. I also used the same app with a non-verbal child to keep him busy during sleep room. We are just getting to know each other and this was a good way to start.

Blog Entry, July 13, 2014

Summary

The interim report provides a simple snap shot of the types of data that has been collected thus far and several emerging insights. Cumulatively, the data records (i.e., pre-survey, training manuals, blog entries, site visits, observational notes) indicate that educators, when supported, are finding real and valuable means of implementing iPads into their programs. The children appear to be benefiting both cognitively and emotionally-socially from the integration of this 'new medium'. The research team looks forward to the next phases of data collection and a more thorough analysis of the complete data set.

Picture Collage of Several Programs' Resources at the Outset of the Project

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