

The FIE Technology Partners Project (FTPP) Spring 2015 Field Test

Effective teachers are the number one factor contributing to increased student achievement, especially those in at-risk settings, where children are more likely to find themselves in classrooms staffed by underprepared, inexperienced teachers (Bowman et al., 2000). Strengthening teachers' competence is closely linked to improved child outcomes. Regular and targeted professional development can increase early childhood educators' knowledge about effective practices and expand their knowledge and skills. Existing professional development approaches are rarely flexible enough to accommodate the differing continuing education requirements, release time, and teacher performance expectations found across diverse settings including private for-profit and not-for-profit childcare programs, family childcare homes, public and private schools, and Head Start programs. One of the most likely reasons that some early childhood programs fail to close the achievement gap between advantaged and disadvantaged children is that the programs have not provided the training needed to ensure that the classroom environment for language and literacy development is of high-quality (Ramey and Ramey, 2004). Attention must be focused on providing professional development opportunities that are research-based, convenient, and accessible.

Over the last 20 years, technology has reorganized how we live, how we communicate, and how we learn. Children of the digital age must learn both digital and emergent literacy skills. Digital literacy is the ability to use information and communication technologies to find, evaluate, create, and communicate information, which requires thinking skills and mechanical skills (American Library Association, 2012). While effective teaching can occur without the integration of technology, the digital age student is a consumer and a producer of technology; therefore, it is important to provide teachers with the technology skills and knowledge needed to support digitally literate children. That is the goal of the FIE Technology Partners Project (FTPP).

FTPP Professional Learning Model and Theory of Action

The FIE Technology Partners Project (FTPP) is a collaborative practitioner/researcher initiative designed to gain knowledge about how blended professional learning sessions can be delivered and consequently impact classroom literacy instruction. This brief describes the FIE professional learning model and reports on the results of a field test of the model including the implications for practice.

The FIE professional learning model uses a blended approach consisting of face-to-face and online sessions to address three main topics: literacy content, research-based instructional strategies, and the use of technology. FIE researchers used an iterative design process to create the FIE sessions and help early childhood educators effectively use technology and instructional strategies as part of their literacy instruction.

The theory of action for the FIE Framework for Teaching and Learning states that *if* we are to increase literacy achievement for all students *then* we must improve teacher practice. *If* we are to improve teacher practice *then* we must identify and test research-informed instructional

strategies and disseminate findings to others. The FTTP Spring 2015 Field Test was implemented as a first step towards realizing this theory of action utilizing a blended professional development model.

FTTP Spring 2015 Field Test

The FTTP Spring 2015 Field Test consisted of three face-to-face sessions and 11 online sessions delivered over 11 weeks, March-May 2015. This field test focused on emergent writing as the literacy content area, four research-based instructional strategies, and the integration of tablet technology, specifically iPads, into emergent writing instruction.

Purposes

The purposes of the FTTP Spring 2015 Field Test were to

- Document the effectiveness of a blended professional learning package targeting four research-based instructional strategies and embedded tablet technology to (a) change teachers' emergent writing instructional practices and (b) increase teachers' digital literacy.
- Explore the impact of the changes in teacher practice on children's writing development.
- Use results to identify (a) effective professional development elements using a blended delivery mechanism that strengthens early writing instruction and young children's writing development and (b) areas for further development and/or refinement.

Participants

Participants were 20 early childhood teachers, 15 from Flagler County and 5 from Duval County. Of the 15 participants from Flagler County, 5 were kindergarten teachers and 10 were prekindergarten teachers. All 15 of the Flagler County teachers were based in public school settings. The 5 participants from Duval County were all prekindergarten teachers based in private schools or childcare centers.

Content

The content of the FTTP Spring 2015 Field Test professional learning sessions focused on three topics: emergent writing, four research-based instructional strategies, and using iPads during emergent writing instruction.

Emergent Writing

Writing, unlike speaking, is not naturally acquired by children, so providing instruction in writing and authentic opportunities for children to write throughout the day is critical to children's literacy development. Unfortunately, many early childhood teachers focus on handwriting as opposed to emergent writing during their literacy instruction. The FTTP sessions

emphasized the importance of providing writing instruction for young children. FIE researchers created an emergent writing guide that describes the developmental stages of emergent writing, a 3-step daily writing routine, writing activities that can be implemented at each stage, and links to other literacy activities that can enhance children's emergent writing development.

Before designing the professional learning sessions, FIE researchers analyzed the Florida writing standards for prekindergarten (Florida Early Learning and Developmental Standards for Four-Year-Olds, 2011) and kindergarten (Language Arts Florida Standards, 2010). Gaps between the two sets of standards were identified, and the FIE sessions were created to help teachers close these gaps. FIE emergent writing content is designed to provide teachers with declarative and procedural knowledge, so they are prepared to address the standards and teach young students to be successful writers.

Research-based Instructional Strategies

Effective instruction is teaching that maximizes student learning. In order to maximize student learning, teachers must scaffold their students using instructional strategies that support students as they become independent strategic learners. Four research-based instructional strategies teachers use to maximize student learning were included in the 3-step daily writing routine described in the emergent writing guide. These instructional strategies are

- Modeling,
- Thinking aloud,
- Stating the instructional purpose for the lesson, and
- Providing high-quality feedback.

Modeling happens when teachers demonstrate what they want the students to do or think about during a lesson. This gives the students a visual representation or a “model” of what teachers are expecting from students by the end of the lesson.

Thinking aloud is done when the teacher's actions and thoughts are made visible to students through an oral description. This process of making a person's thinking public by describing things as they are doing them is generally used when modeling for students. When that is done, students receive the information through multiple modalities, specifically visual and auditory, which makes the information more accessible to varying types of learners

Stating the instructional purpose of the lesson ensures that students know what it is they are supposed to have learned by the end of the lesson. The instructional purpose must be stated explicitly and in child-friendly language, so students understand what they are learning in the lesson.

Providing high-quality feedback through instructional conversations addresses the student's current state (learning or performance) as it relates to learning goals. High-quality feedback is specific and can be given through scaffolding, feedback loops, asking for explanations, providing information, and encouraging and reinforcing.

iPad

FIE provided an iPad to teachers for use in their classrooms during the project. FIE researchers identified three instructional applications aligned with emergent writing and introduced these

applications to the teachers during online sessions and the second face-to-face session. Through hands-on experiences in their classrooms, teachers practiced using the iPad during small-group instruction, center work, whole-group instruction, and individualized instruction.

Delivery Method

FTPP was delivered through a blended model consisting of face-to-face and online sessions.

Face-to-face Sessions

The three face-to-face sessions provided opportunities to interact with the participants, solve technical issues involving the iPads or Blackboard, build a sense of community among the participants by providing time to share successes and challenges, and receive feedback from participants on the aspects of FTPP that were going well and their suggestions for improvements.

Online Sessions

The 11 online sessions provided declarative knowledge on emergent writing and specific iPad applications, while also providing model lessons through short video clips of FIE researchers teaching emergent writing lessons in prekindergarten and kindergarten classrooms. The videos gave participants a model for how to implement emergent writing lessons following the 3-step daily writing routine. Some video lessons incorporated the use of iPads to demonstrate how iPad applications could be used during emergent writing instruction. The specific information presented in the online sessions focused on describing eight stages along a developmental continuum of emergent writing, explaining how iPads could be used during small-group writing instruction, and implementing the 3-step daily writing routine.

All online sessions were organized into five sections: Start Here, Read/Present, Watch, Do/Practice, and Reflect. A short description of each section is shown in Figure 1.

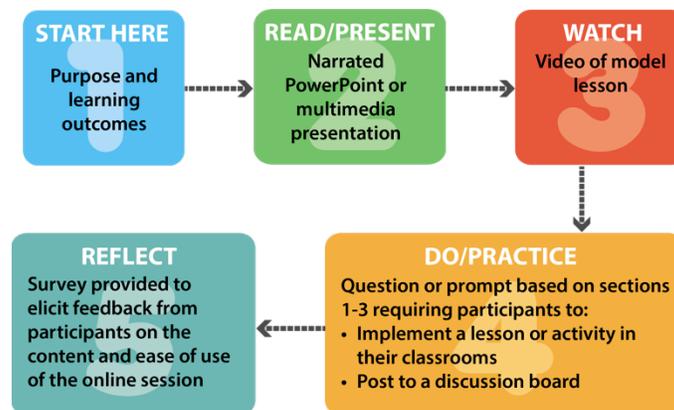


Figure 1. Description of the five sections of each online session.

Research Questions

Three research questions were addressed during the pilot study.

1. How did teachers' emergent writing instruction change as a result of completing FTTP?
2. Did teachers' iPad self-efficacy and use for emergent writing instruction increase over the course of the FTTP?
3. How did teachers' participation in FTTP impact children's writing development?

Data Collection and Results

Data were collected in four ways.

- FIE researchers observed teachers using the FTTP 3-Step Daily Writing Routine Observation Rubric. The observations focused on the learning contexts, instructional strategies, children's engagement, and classroom writing environment.
- Teachers completed feedback forms on the content, presentation, and ease of use of the online sessions.
- Teachers collected and submitted children's writing samples over the 11 weeks. The writing samples were used by researchers and teachers to assess children's emergent writing progress along the developmental continuum.
- Teachers completed a 45-item online survey at the beginning of the project and again at the end of the project. The survey items asked teachers to report on the learning contexts of iPad use in their classrooms and the perceived benefits of iPad affordances.

FTTP 3-Step Daily Writing Routine Observation Rubric

Participating teachers were evaluated using an observational rubric designed by FIE researchers that is unique to the FTTP professional learning called the FTTP 3-Step Daily Writing Routine Observation Rubric. The rubric was divided into the following four sections: whole-group mini-lesson, small-group instruction, sharing time, and emergent writing environment. Sections 1-3 refer to the instructional strategies used during implementation of a writing lesson and the engagement and participation levels of the children. Section 4 refers to characteristics of the classroom writing environment. The FTTP 3-Step Daily Writing Routine observations occurred during classroom implementation of emergent writing lessons and took place at the beginning and end of FTTP implementation.

At the initial observations, the majority of teachers did not include the instructional strategies as part of their writing instruction, as demonstrated by the *Not Observed* data shown in Table 1. The instructional strategies were *Not Observed* in 60% of the whole-group mini-lessons, 65% of the small-group instruction, and 100% of the sharing time portions of the lesson. At the final observations, percentages for the same response on those items were 20%, 0%, and 60%, respectively, indicating increased implementation of the instructional strategies presented in FTTP. The observational data for Section 4 demonstrates increased proficiency levels in

teachers' abilities to provide opportunities for children to write by the end of FTTP implementation.

Table 1
FTTP 3-Step Daily Writing Routine Observation Rubric Data

Observation Item	Pretest	Pretest	Pretest	Pretest	Posttest	Posttest	Posttest	Posttest
Section 1: Whole-Group Mini Lesson	NO	NYD	Dev	Pro	NO	NYD	Dev	Pro
1. Tells children instructional purpose	60	15	20	5	20	10	30	40
2. Models drawing and writing	60	5	10	25	20	15	10	55
3. Performs a think aloud	60	15	0	25	20	15	15	50
4. Restates instructional purpose	60	25	10	5	20	15	40	25
5. Children's Interest	60	0	20	20	20	0	15	65
6. Children's participation	60	0	20	20	20	0	15	65
Section 2: Small-Group Instruction	NO	NYD	Dev	Pro	NO	NYD	Dev	Pro
7. Tells children instructional purpose	65	15	10	10	0	10	50	40
8. Models drawing and writing	65	5	10	20	0	75	5	20
9. Gives simple directions	65	0	0	20	0	0	5	95
10. Provides specific feedback	65	0	5	30	0	0	20	80
11. Children's Interest	65	0	5	30	0	0	5	95
12. Children's participation	65	0	0	35	0	0	5	95
Section 3: Sharing Time	NO	NYD	Dev	Pro	NO	NYD	Dev	Pro
13. Models how to ask the author questions about his/her writing	100	0	0	0	60	10	10	20
14. Models how to make comments about the author's writing	100	0	0	0	60	5	10	25
15. Gives simple directions	100	0	0	0	60	25	10	5
16. Prompts children to ask questions or make comments about their writing	100	0	0	0	60	0	5	35
Section 4: Emergent Writing Environment	NO	NYD	Dev	Pro	NO	NYD	Dev	Pro
17. Provides a variety of appropriate writing tools for children's use throughout the classroom	0	10	35	55	0	0	5	95
18. Provides opportunities for children to write for a variety of purposes	0	20	45	35	0	0	25	75
19. Provides children with opportunities to develop and use environmental print	0	0	45	55	0	0	30	70

Note. NO is *Not Observed*, NYD is *Not Yet Demonstrating*, Dev is *Developing*, and Pro is *Proficient*.

Teacher Feedback

FIE created Weekly Feedback Forms that were completed by teachers during the reflection portion of each online professional learning session. Teachers completed a feedback form after each of the 11 online sessions. Teachers also completed a feedback form at the end of the project to share their ideas for how FTTP could be improved. Teacher feedback provided a wealth of information for FIE researchers to consider when making revisions to improve FTTP for its next iteration.

An analysis of teacher responses yielded the following findings:

The most valuable part of FTTP that impacted instruction

- Providing opportunities for children to share what they have learned

- Importance of modeling during instruction

The most helpful/useful part of FTTP

- Viewing videos of lesson implementation in classroom settings
- Information presented in multiple formats and modalities

Instructional changes as a result of participation in FTTP

- Incorporating a writing routine and stating an instructional purpose
- Using a developmental continuum to guide writing instruction

Pros and Cons of the blended professional learning model

- Pros
 - Enjoyed the combination of face-to-face and online sessions
 - Many opportunities for exchanging ideas
- Cons
 - Keeping track of due dates for online sessions
 - Not being able to access videos while at school

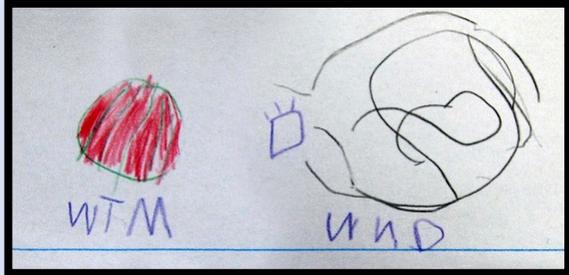
Children's Writing Samples

Teachers were asked to upload digital photographs of children's writing samples via Blackboard five times during FTTP implementation. Class portfolios of children's work were used to document the writing tasks assigned to children during writing instruction and children's movement along the FIE emergent writing continuum.

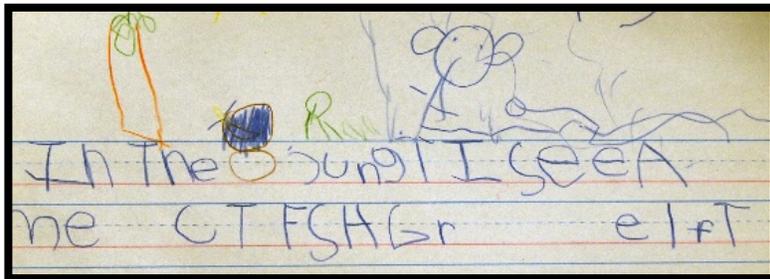
Promising evidence of change in teachers' instructional practice was demonstrated through analyzing the writing tasks included in the portfolios. Initial writing tasks were often handwriting worksheets involving tracing letters, while samples collected later demonstrated teachers transitioning to providing more complex and authentic writing tasks for children. Towards the end of the project, children's writing samples also included many samples completed using the iPad as teachers learned about writing apps that the children could use to compose pieces.

Significant writing progress was not expected due to the short duration (11 weeks) and timing (end of the school year) of the FTTP Spring 2015 Field Test, and that assumption held true for most of the children. However, some children did make progress in their writing, moving from attempting to write the sounds in one word to attempting to write full sentences as seen in Figure 2. This example shows the potential for progress in children's writing development as a result of teacher participation in FTTP.

Writing Sample Examples from the beginning and end of the PD. Samples were rated using the 8-stage continuum of children’s emergent writing development. Author is a female, prekindergarten child.



This writing sample, from the beginning of the PD, shows a watermelon labeled using some of the sounds in the word. “WTM” represents watermelon, thus, demonstrating an understanding of beginning and middle sounds, but missing the ending sounds in the word. This sample indicates a transition from Stage 6 (Beginning Sounds for Writing) to Stage 7 (Writing with Beginning, Middle, and Ending Sounds).



This writing sample, from the end of the PD, shows a picture and the sentence, “In the jungl [jungle] I see A me, CTFSH [catfish], Gr [grass], elfT [elephant].” This sample demonstrates a transition from Stage 7 (Writing with Beginning, Middle, and Ending Sounds) to Stage 8 (Early Conventional Writing) as the author uses some spaces between words and attempts writing a sentence instead of just one word when explaining the drawing.

Figure 2. One child’s writing samples from the beginning and the end of FTTP

Changes in Frequency of Technology Use

At the beginning and end of the FTTP implementation, participating teachers were asked to complete the FTTP Teacher Technology Survey. The FTTP Teacher Technology Survey was administered online. The first set of survey items inquires about the frequency of teachers' use of the iPad in four learning contexts: one-on-one, small group, center, and whole group. Teachers rated these items *Not at All*, *1-2 Times*, *3-5 Times*, *6-8 Times*, *9 or More Times*, or *Don't Know* during a typical 5-day school week.

The data provided in Figure 3 indicate that the use of the iPad with individual children increased over time. The percentage of teachers reporting that they used the iPad *Never* and *1-2 times* a week is less for the post survey while the percentage of the other three responses increased—especially the *9+ times* per week.

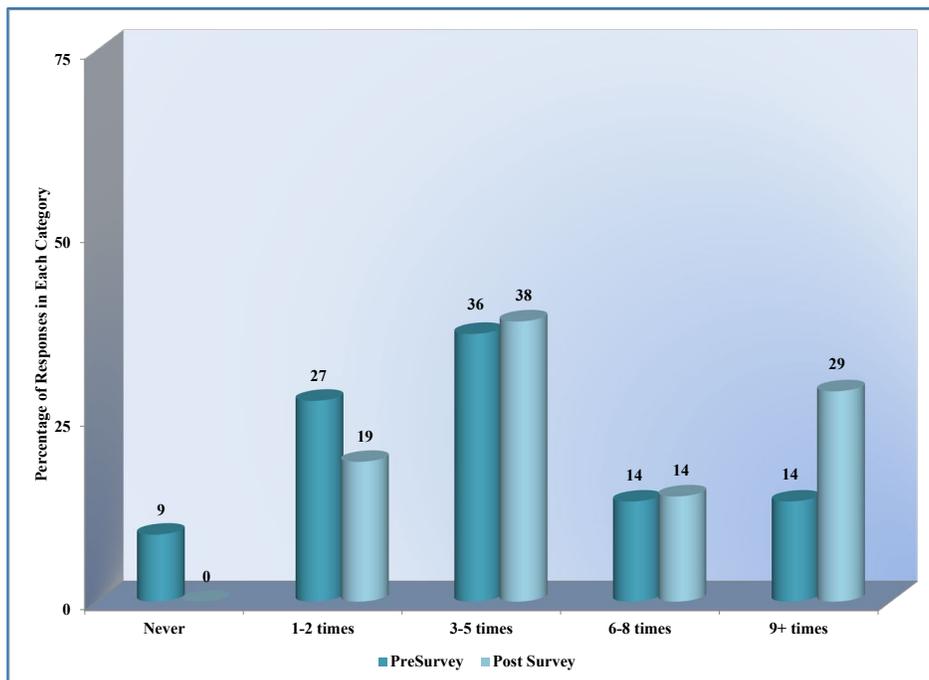


Figure 3. Number of times the iPad was used one-on-one with a student during a typical 5-day school week.

The data included in Figure 4 indicate that the use of the iPad during small-group instruction increased over time. At the time of the PreSurvey, 64% of the respondents indicated that they used the iPad in small-group instruction *Never* or *1-2 times* per week. At the time of the PostSurvey, all respondents used the iPad *3-5 times* a week or more with almost half indicating that they used the iPad *6-8 times* a week during small-group instruction.

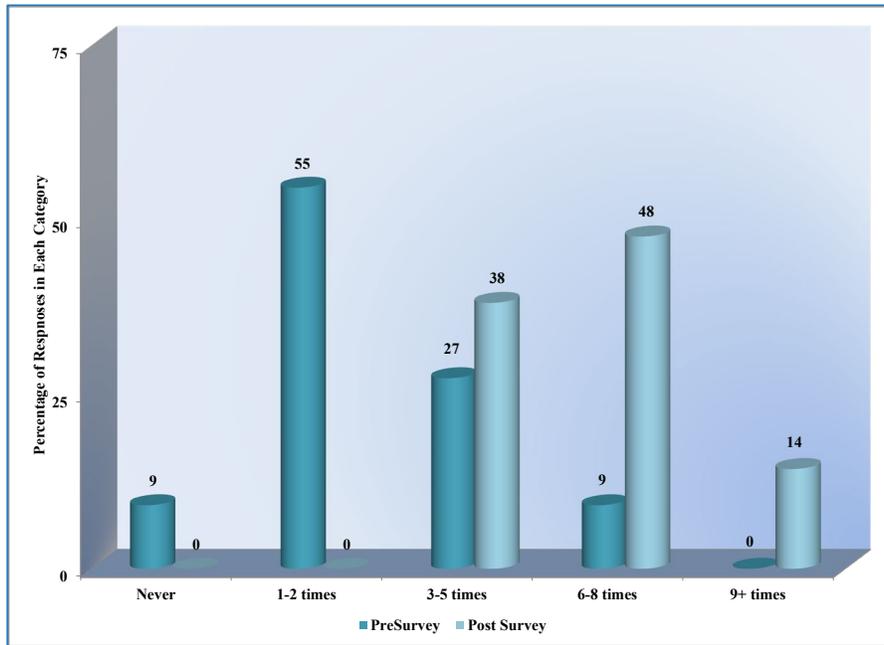


Figure 4. Number of times the iPad was used during small group instruction during a typical 5-day school week.

The data reported in Figure 5 indicate that the use of the iPad as part of a center increased slightly over time. At the time of the Post Survey, 81% of the respondents indicated that they used the iPad as part of a center activity 3-5 times a week or more compared to 73% at PreSurvey.

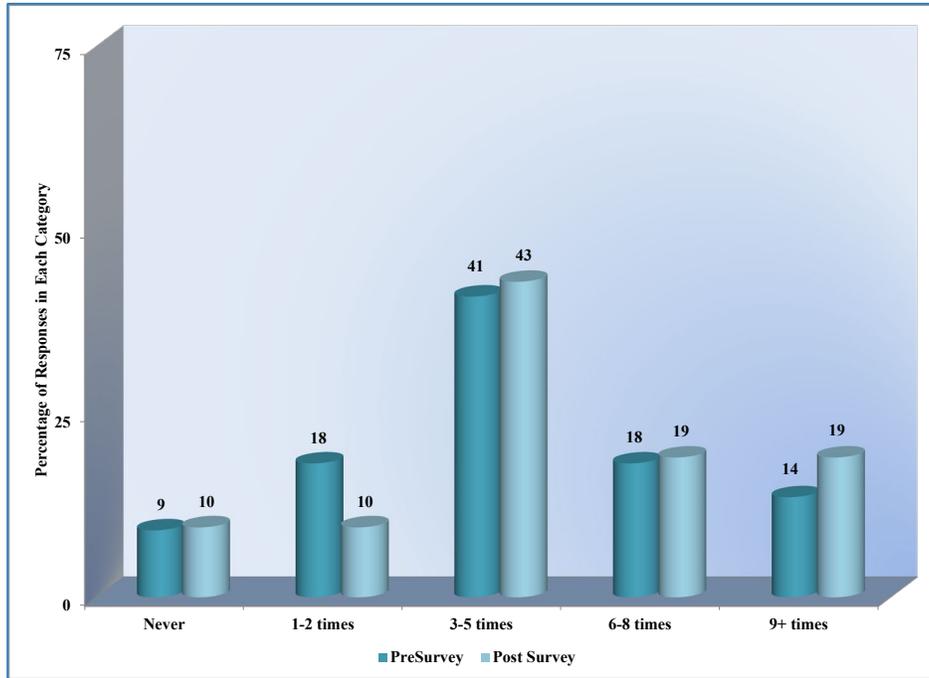


Figure 5. Number of times the iPad was used during a center activity during a typical 5-day school week.

The data reported in Figure 6 indicate that the use of the iPad during whole-group instruction increased drastically. At PreSurvey 64% of the respondents indicated that they *Never* used the iPad during whole-group instruction, and at PostSurvey only 29% of participants reported *Never* using the iPad during whole-group instruction. At PostSurvey 35% of the respondents had shifted their responses from *Never* to the other categories resulting in more responses indicating use between one and five times a week.

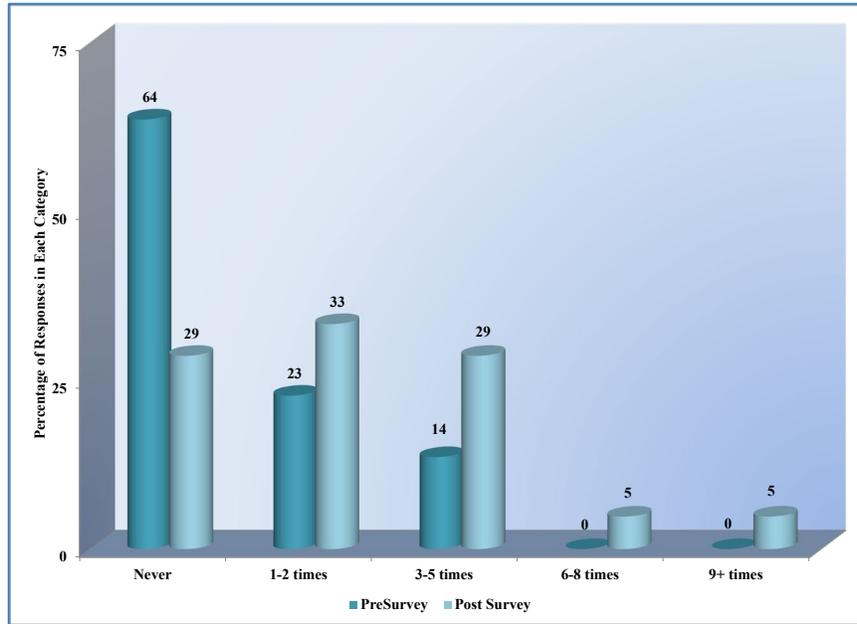


Figure 6. Number of times the iPad was used during whole-group instruction during a typical 5-day school week.

Teachers' Perceptions of Student iPad Use

Survey items addressing teachers' perceptions of students' use of the iPad included questions about student engagement levels during instruction and the usefulness of accessibility features of the iPad. Teachers rated these items (1) *Not at All*, (2), (3), (4), (5) *Very*, or *Don't Know*.

Survey results indicate that teachers' acknowledged that student engagement was very high when the iPad was being used either as part of classroom instruction or without teacher assistance. The majority of teachers also reported that the various accessibility features of the iPad were beneficial to students. Specifically, 90% of the teachers at PostSurvey reported that it was very beneficial (responses of 4 or 5) for students to record their writing in their own words using the iPad.

Table 2
Teachers' Perceptions of Student iPad Use

Survey Item	1 (Not at All)	2	3	4	5 (Very)	1 (Not at All)	2	3	4	5 (Very)
1. When using the iPad without your assistance, how engaged are your students?	0.0*	0.0*	9.5*	19.0*	71.4*	0.0**	0.0**	4.8**	9.5**	85.7**
2. When using the iPad as part of instruction, how engaged are your students?	0.0*	0.0*	28.6*	14.3*	57.1*	0.0**	0.0**	9.5**	23.8**	66.7**
3. When using the iPad, how beneficial is it for your students to hear content read to them by the iPad?	0.0*	0.0*	4.8*	33.3*	61.9*	9.5**	0.0**	23.8**	19.0**	47.6**
4. When using the iPad, how beneficial is it for your students to listen to word/sound pronunciation?	0.0*	4.8*	0.0*	19.0*	76.2*	0.0**	0.0**	9.5**	19.0**	71.4**
5. When using the iPad, how beneficial is it for your students that content is visually stimulating, provides dimensionality, and includes animation?	4.8*	0.0*	0.0*	23.8*	71.4*	0.0**	0.0**	4.8**	14.3**	81.0**
6. When using the iPad, how beneficial is it for your students to manipulate material and information on the iPad screen?	0.0*	0.0*	14.3*	14.3*	71.4*	0.0**	0.0**	9.5**	14.3**	76.2**
7. When using the iPad, how beneficial is it for your students to record their writing in their own words?	4.8*	14.3*	23.8*	19.0*	38.1*	0.0**	0.0**	9.5**	33.3**	57.1**

*Indicates PreSurvey Percentages. **Indicates PostSurvey Percentages.

Teachers' Perceptions of their Abilities to Use Technology

The Teacher Technology Survey also included 33 items adapted from the TPACK-Deep scale (Kabakci-Yurdakul, et al., 2012). TPACK can be defined as combined knowledge that a teacher should have regarding the use of pedagogical and technological knowledge together in teaching a certain content area effectively (Koehler & Mishra, 2009). The survey measures teachers' perceptions of: their ability to use iPads to plan and deliver instruction, their ability to use the iPads in an ethical manner, and their level of proficiency in using the iPad. Teachers rated these items (1) *Strongly Disagree*, (2) *Disagree*, (3) *Neither Agree nor Disagree*, (4) *Agree*, or (5) *Strongly Agree*. Results from this survey are shown in Table 3.

Teachers reported increased levels of confidence in all four factors: planning, instruction, ethics, and proficiency, as seen in the mean scores. The mean scores for all factors are less than 4.00 at PreSurvey and greater than 4.00 at PostSurvey, showing statistically significant increases over the course of the project.

Table 3

Mean Scores for Factors Associated with Teachers' Perceptions of Their iPad Usage

Scale	PreSurvey M	Presurvey SD	PostSurvey M	PostSurvey SD	<i>p</i> -value
Planning	3.83	0.61	4.14	0.64	.019*
Instruction	3.96	0.50	4.30	0.59	.010*
Ethics	3.99	0.57	4.22	0.59	.041*
Proficiency	3.89	0.72	4.16	0.65	.029*

Note. *p*-value < .05 is statistically significant

Discussion of Findings

Results from this project provide promising evidence that blended professional development models addressing the integration of technology into emergent literacy instruction are likely to positively impact teaching and learning. Specifically, the findings are related to the research questions outlined previously.

How did teachers' emergent writing instruction change as a result of completing FTTP?

Findings indicate that teachers implemented the 3-step daily writing routine after participating in FTTP. The use of whole-group lessons with four explicit strategies increased, as did their use of small-group instruction. Results furthermore indicate that teachers were highly *proficient* using the strategies, giving simple directions, and providing specific feedback at the end of the project. Initial observations showed that teachers did not provide opportunities for children to share their writing, but they did show modest increases of such opportunities over time.

Did teachers' iPad self-efficacy and use for writing instruction increase over the course of FTTP?

Teachers' self-efficacy in the use of iPads during emergent writing instruction, on average, increased during FTTP implementation. Survey results also indicate that teachers increased their weekly use of iPads across multiple classroom contexts.

How did teachers' participation in FTTP impact children's writing development?

Significant writing progress was not expected due to the short duration and timing of the field test, and that assumption was found to be true for most of the children over the 11 weeks. However, some children did make progress in their writing, which provides promising evidence for the potential for impact in children's writing development as a result of teacher participation in FTTP, especially if program implementation increases in duration and begins earlier in the school year.

Challenges and Successes

FIE researchers identified many successes and challenges identified through this FTTP field test.

Challenges:

- Creating video clips for online sessions was time and labor intensive (i.e., scheduling the videotaping sessions in classrooms, implementing the lessons and videotaping in the classrooms, editing the videos, and uploading the video clips to Blackboard).
- Meeting the needs of teachers who have limited knowledge and experience with online classes.

Successes:

- Teachers' writing instruction evolved from a primary focus on handwriting to providing opportunities for children to produce more complex, authentic writing.
- Teachers integrated technology (iPads) into writing instruction.
- Teachers reported that video demonstrations of instructional strategies used in real classrooms were valuable and helpful.
- Teachers increased their use of research-based instructional strategies during writing instruction.

Implications

The findings from the FTTP Spring 2015 Field Test have implications for future development of blended professional learning.

- Teacher feedback indicated that watching the videos of emergent writing lesson implementation, which also included modeling the instructional strategies, was a valuable aspect of the online sessions. Video clips could be added to online professional learning modules to give teachers ideas of how the concepts and knowledge they are learning could be implemented during instruction.
- Observation results indicated that teachers did not provide many opportunities for children to share during writing time. Although modest increases in these sharing opportunities were seen, more attention could be focused on the importance of sharing and how to provide sharing opportunities in future professional learning sessions.

- Survey results indicated that teachers were more confident in their abilities to use iPads and used them in more varying contexts at the end of the project. These findings suggest that when teachers are given guided opportunities to practice using technology tools during professional learning, their confidence increases and their willingness to try to implement what they are learning increases. More opportunities for teachers to practice while they are learning should be included in professional learning experiences.
- Survey data showed that teachers reported high levels of student engagement when iPads were used in the classroom. This finding suggests that the use of technology tools such as iPads may be an engaging way for children to practice skills and create projects.

In conclusion, our results call for the development of innovative blended professional learning interventions that positively impact classroom instructional practices and children's learning.

Next Steps

FTEP will be revised using teacher feedback to improve the professional learning sessions and will be implemented with additional early childhood teachers. The revised FTEP professional learning will begin early in the school year (September) and will continue through February, with teachers being given two weeks to complete the online sessions instead of one week. This change will double the duration of project implementation, from 11 weeks to 22 weeks, and will give teachers more opportunities to practice what they are learning in the professional learning sessions while they are learning.

In addition to revising the original FTEP that focused on emergent writing, another version of FTEP is in the development stage. FTEP Part II will follow the FTEP model consisting of blended professional learning, but the focus will be on introducing ways to build children's background knowledge and vocabulary through literacy instruction.