

# Dissertation Prospectus

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## Outline

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## 1. Research Idea and Background

I want to research the impact ubiquitous and sustained access to wireless computing devices (laptop computers) and digital reading and writing curricula can have on middle school student reading and writing skills. Specifically, I want to statistically analyze [Texas Assessment of Knowledge and Skills \(TAKS\)](#) reading and writing scores, along with reported district “benchmark scores,” of the Class of 2011 at Floydada Junior High School (JHS) in [Floydada ISD, Texas](#). Students in this class were in Grade 6 at Floydada JHS during the 2004-2005 academic year, Grade 7 during the 2005-2006 year, and Grade 8 during the 2006-2007 academic year. I want to study the impact of technology immersion on the traditionally measured (analog / paper and pencil) reading and writing test scores of these students over the three year period since the laptop immersion program began in 2004.



Since the state of Texas formally measures student writing scores only during the Grade 7 academic year of middle school and not during the Grade 6 or Grade 8 years, it is not possible to exclusively use state reported writing test results to study improvements in student writing skills for this group of middle school students. Since the state DOES test reading skills in Grades 6-8, as well as Grade 5, it IS possible to use state reported reading scores for this academic class of students in investigating my research question. To establish an initial frame of reference for measured student literacy skills, I propose including district reported benchmark scores for the Class of 2011 in writing (if available) and state reported TAKS reading scores for the 2003-2004 academic year when students were in Grade 5.

Anecdotally, I have learned teachers and administrators in Floydada ISD have been particularly pleased with the improvement in student writing scores (measured by TAKS) since Floydada JHS launched a one to one laptop initiative in the fall of 2004. Other categories of formally measured student achievement, including reading, have also improved since the start of the laptop project. Floydada JHS has participated in the [Texas Immersion Pilot Project \(TxTIP\)](#) as a selected “immersion campus” since the start of the program. Floydada JHS was the first of the twenty-two participating immersed campuses in TxTIP to roll-out laptops to students in October of 2004. Although aggregated writing scores for the entire student class of 2011 at Floydada JHS have been reported by the Texas Education Agency (TEA), to my knowledge an analysis has not been conducted to date investigating the question of whether or not this perceived improvement in student writing and reading scores (student literacy) in Floydada ISD constitutes a statistically

significant difference / improvement. In addition, the irregular schedule of mandated writing assessments by the State of Texas does not facilitate a student-level analysis of reading and writing skill improvement. Since student writing skills are formally measured by the state only in Grades 4, 7, and at the EXIT level, it will be necessary to utilize (as available) district administered and reported writing “benchmark” scores for students in the Floydada class of 2011 in Grades 5, 6, 8 and 9. I propose obtaining student test results at the student level, rather than the aggregated level, to permit statistical analysis of individual student literacy skills as they have changed over time (a four year period.)

The [Texas Center for Educational Research \(TCER\)](#) is conducting a formal evaluation of the overall TxTIP project. Contrary to the specific wishes of some participating school district administrators (including [Irving ISD](#)) the formal evaluation of TxTIP is focusing on traditional measures of student achievement (TAKS results.) These reports on “immersion effects” [are available on the eTxTIP website](#).

A focus on student achievement as measured by TAKS is appropriate in our current political and educational culture, since these statistics are regarded by many as the “holy grail” of school/student performance and improvement. It is unfortunate that aggregated, reported state test results are NOT conducive to accurate measures of individual student improvement over time, however. As an example, in the case of student writing skills, it would be more helpful to measure the same students’ writing skills in consecutive years, rather than simply measuring different classes of students’ writing skills each year in Grade 7. By failing to consistently measure individual student writing skills over time,

the state has generated a largely useless statistical data set for evaluating and tracking changes in individual writing performance over time. This study proposes a specific focus on a defined group of students, the Floydada ISD class of 2011, to overcome this significant statistical shortcoming in state reported student performance data.

The TCER published report on “immersion effects” for year 1 of TxTIP [did NOT find](#) a correlation between laptop immersion and measured student achievement. Since this report on project impact was released less than a year after students in many participating immersion campuses actually received their laptops for their own use, this finding is not surprising. Additionally, there are a wide range of confounding variables in the research design of TCER in eTxTIP which are problematic. Numerous differences in the computer hardware, software applications, professional development, schedule of the “laptop rollout” to teachers and students, and rules regarding student abilities to even take computers home from school exist among participating TxTIP campuses. For these reasons, an exclusive focus on a single TxTIP campus (Floydada ISD, in this case) is necessitated rather than a broad, aggregate focus on diverse campuses and test results of their respective students. It is possible that my study could include statistical comparisons between students at Floydada JHS in the class of 2011, and students at Slaton ISD in the class of 2011. Slaton ISD participated in TxTIP as a “control campus” and has a similar student population to Floydada ISD in terms of student demographics and numbers. My proposal at this point, however, is to exclusively study student achievement results for students at Floydada ISD. Because Floydada JHS is a relatively small campus, the number of individual students available for analysis and comparison over this four year



period is relatively small and may not provide adequate “power” for statistical analysis. For these reasons (as well as the hopefully obvious reason that I am open to the suggestions and guidance of my committee) I remain open to changes in this proposed research focus and design.

## **2. Literature Review Ideas**

My previous literature review included in [the initial draft of my first three dissertation chapters](#) focused broadly on prior research about one to one laptop immersion projects and was not specific to reading and writing literacy skills. For my literature review, I propose focusing on research which focuses on the frequency of reading and writing activities in improving literacy skills. In his meta-analysis of academic research primarily focused on reading, Dr. Stephen Krashen ([“The Power of Reading, Second Edition: Insights from the Research”](#)) highlights a basic finding in literacy research: The more students read, the better they read. Krashen also reports research on writing skill improvement is tied more to student reading than to actual writing, although some research does support the common-sense conclusion that higher frequency of writing by students results in higher writing competencies. I propose the first area of focus for my literature review include this body of research on reading and writing improvement. What have academic researchers found in terms of the impact reading and writing frequency have on student reading and writing skills?

The second area of focus I propose for my literature review is previously published research specific to one to one laptop immersion projects, focusing on the reported

impact of these projects on student reading and writing skills. A likely conclusion of my dissertation may be that increased student access to laptops, online content, and digital curriculum materials for reading and writing could increase the frequency of reading and writing activities for students both during the traditional school day and outside of school, and thereby improve student literacy skills. To develop a relevant theoretical framework for my dissertation, a focus on reading and writing frequency research as well as laptop immersion project research involving student reading and writing activities as well as measured skills seems appropriate.

### **3. Data Ideas**

I had originally considered a comparative study between students at the TxTIP “control” campus of Slaton JHS and the TxTIP “immersion” (or “experimental”) campus of Floydada JHS. That type of a comparative study is the sort of analysis which TCER researchers are doing among all 44 control and immersion campuses involved in TxTIP. My informal research in talking with various teachers as well as professional development consultants working in and with those school districts leads me to believe there are a MYRIAD of confounding variables present which are going to call into serious question the validity as well as generalizability of the TCER research conclusions. As an example, while Floydada JHS students received their laptops in October 2004, some of the “immersion” campuses involved in TxTIP did not actually distribute laptops to students until AFTER all state-mandated testing was completed in the spring... in April 2005! The TCER studies are treating immersion campuses equally in making comparisons to non-immersed, control campuses, but the differences between



the experiences of teachers, administrators and students on these campuses has been quite diverse. Such diversity corresponds to questionable assumptions about the equitability of other factors not controlled for in the officially commissioned TCER research study.

In the public policy arena, meaningless test score comparisons are generally used in an attempt to measure “student achievement.” An example of this is evident in the schedule under which the State of Texas requires assessment of student writing skills. For the purposes of my dissertation and research question, it would be handy if student writing was tested every year: in fifth, sixth, seventh and eighth grades. As far as I know, however, Texas only assesses student writing skills three times during their respective K-12 educational careers: in fourth grade, in seventh grade, and at the EXIT level. In order to measure the impact of an educational intervention on measurements of literacy skills (in this case, the provision of wireless laptops and digital reading and writing curriculum to learners on TAKS reading and writing scores) it is important to measure change over time. I count it a benefit that almost four years have now passed since the inception of TxTIP, since it should now be possible to conduct a longitudinal, statistical analysis of measured student writing and reading skills. My sense is that this type of study will more authentically reflect the literacy skill impact (if any) experienced by Floydada Class of 2011 students by the laptop immersion program.

In conducting this study, I do not aspire to determine the causality of an expected change (improvement) in writing and reading skills for Floydada students involved in the TxTIP project since its inception. Rather, I want to attempt the less formidable task of

determining if a statistically measurable change in reported student literacy skills has taken place, and if so, if that change has been statistically significant.

I do not know at this point what types of benchmark reading and writing test results are still available in Floydada ISD for Class of 2011 students. I do anticipate officially reported TAKS scores for reading in all grade levels (5 - 8) are available at the student level, and I will be able to obtain those test results at the student level using an anonymizing algorithm which will permit student confidentiality to be preserved but still permit student-level analysis of test scores.

I acknowledge because of the relatively small size of the class (less than 100 students) I may not have much statistical power for this study. If district benchmark test scores are not available for writing, it may be necessary to focus exclusively on district reported reading scores at each grade level. I really want to focus on writing skills and the reading / writing literacy connection, however, so I hope to find a way to focus on writing as well.

Another data source possibility is the digital curriculum program “MyAccess Writing” which Floydada students and teachers have used as part of their vendor-purchased digital curriculum package since 2004. ([www.vantagelearning.com/myaccess/](http://www.vantagelearning.com/myaccess/)) One of the anecdotes I heard at Floydada JHS in 2005-2006 which helped inspire me to take this dissertation focus related to the impact of the MyAccess writing program on student writing frequency. One of the English teachers at Floydada ISD reported that in the same



grading period, her students had completed five or six essays with their laptops and the MyAccess Writing curriculum, whereas previously the same students would have only completed one or two essays. This marked increase in writing frequency should logically correspond to improved writing skills, reading skills, and overall literacy abilities for students which should be reflected on a variety of assessments. It may be possible to obtain student-level data from the MyAccess Writing program which Floydada Class of 2011 students have utilized in sixth, seventh and eight grades. If that is possible, that data might prove more useful to measure changes and test the statistical significance of those changes in writing scores than analog measures of writing like the 7<sup>th</sup> grade TAKS writing test or district-administered writing benchmark tests.

#### **4. Statistical Methodology Ideas**

At this point I do not have a specific statistical analysis methodology in mind for my study. Since I want to conduct a longitudinal study of writing and reading scores over a four year period, an ANOVA or MANOVA may be appropriate to this purpose. I am open to the suggestions of my committee members on the best statistical methodology to use in this study. Since my research method coursework and preparation was in quantitative statistical analysis, and since the analysis of data from a quantitative perspective can be less time consuming than qualitative analysis, I do want to exclusively use quantitative methods for my study and primary research question. I have considered the value and benefits of using a mixed methods study, and might subsequently conduct follow-up research on these issues using mixed methods, but for my dissertation I would like to focus exclusively on quantitative analysis.

## **5. Appendices Ideas**

Although I want to focus on quantitative analysis in my research methodology, I am intensely interested in the reasons which might explain a potentially statistically significant improvement in writing and reading skills at Floydada JHS since the inception of the TxTIP project. If possible and appropriate, I would be open to conducting a series of interviews with teachers and administrators at Floydada JHS to shed light on implementation issues of TxTIP which might have contributed to improved student literacy skills during this period. These interviews might suggest directions for future research. Some of the questions I would be interested in exploring would be:

1. How frequently did students utilize digital curriculum resources like MyAccess Writing in class for assignments during the school year?
2. Did the utilization of digital curriculum resources like MyAccess Writing change over the initial three years of the TxTIP project? If so, how?
3. How did writing and reading instruction, as well as the learning tasks assigned by the teachers to students at Floydada ISD, change over the three years of TxTIP?

These are all qualitative rather than quantitative research questions, and may not be appropriate to include in my study. If I can include them, I would prefer to include them as appendices to my study rather than part of the main research study.

## **6. Actionables / Next Steps**

I want to identify the “actionables” or “next steps” which I need to take to move forward in my doctoral research. These are some of the possible actionables I have brainstormed,

but I would like guidance on other items which need to be added and the order in which those items should be prioritized. At one point, Dr. Burley mentioned having a graphical “map” which laid out all the requisite steps required in the dissertation process. If available, I would like to obtain or create a map like that which will document the series of steps I need to complete to finish my dissertation.

1. Notify TTU Grad School of new planned graduation date (May 2008?)
2. Obtain recommendations of completed dissertations to read and review, to build my own background knowledge and expectations for the written product I am going to author in upcoming months.
3. Visit with Floydada ISD administrators about benchmark test availability for writing for the Class of 2011.
4. Discuss statistical methodology options with Dr. Burley, including procedures for anonymously obtaining student-level data which is still indexed with unique student “keys” or identifiers.
5. Obtain source recommendations for my literature review focusing on reading-writing connections, frequency of reading and writing activities to improve literacy skills, and other research on laptop immersion projects focused on student reading and/or writing skills.
6. Other?

I hope this document has successfully outlined my current thinking on my dissertation research, and will serve as a springboard to move forward in this process.