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BACKGROUND

Significant quantitative research has demonstrated the impact of the classroom teacher on students' academic and economic outcomes, and the high cost of teacher turnover. Studies show students cumulative earnings positively affected by effective teachers (Chetty, Freidman, & Rockoff, 2014). Research indicates that PD programs correlate to student learning. Quantitative analysis of exams are used by districts to measure student learning outcomes, but research highlights the shortcomings of the data. These studies also suggest more qualitative research is needed in order to better understand how certain factors influence teachers and students.



The goal of this research is to conduct a product evaluation case study of Charlotte Teachers Institute in order to make informed judgments about its value. CTI is an educational partnership among UNC-Charlotte, Davidson College, and Charlotte Mecklenburg Schools (CMS) that offers innovative teacher professional development (PD). PreK-12 Teachers from Charlotte Mecklenburg Schools (CMS) participate in content-based, collegial and collaborative seminars led by UNC-Charlotte and Davidson faculty. The seminars take place from April to December with the summer months used for independent research. Each teacher produces a 15-25 page curriculum unit to be taught in their classroom.

METHODS

The CIPP model (Stufflebeam, 2003) was the evaluation framework for the product evaluation used in this study. Product evaluation provided a guide to assess CTI's goal of retaining highly qualified teachers. A multi-case study method was used to take an in-depth view on two CTI Fellows. The Fellows were chosen through a criterion based on selected questions from 2016 Fellows' Questionnaire. The questions selected encompassed the topics of experience, and CTI impact on staying in CMS, teaching, and student learning. Both participants are public school teachers with varying years of experience, teaching different grade levels and subject areas. A grounded theory methodology was adapted for data triangulation. Primary data consisted of semi-structured interviews and follow-up questionnaires. Secondary data included 2015-2017 artifacts (e.g. school demographics, CTI Fellows' Questionnaires, CTI Curriculum Unit Usage surveys, and EVAAS data). The collected data was analyzed through pattern-matching and cross-case synthesis divided into three phases: coding, categorizing, and identifying themes.

Criterion for Selected Fellows		Data Analysis	
*Data from 2016 Fellows' Questionnaire		Question: What impact did your unit have on your students?	
Category	Criteria	Response	Codes
Years of experience in CMS	>= 8	"Students would seem excited to do a writing activity and I could definitely see more engagement and pride in my students while they wrote. Many simply began writing more, even when it wasn't required. They seemed to really enjoy writing (probably because it was made easier and less daunting)." Student Participation Student Learning Student Impact	
CTI Impact on staying in CMS	To		
CTI Impact on teaching	A		
CTI Impact on student learning	Great		

RESEARCH QUESTION

"How has CTI impacted the growth of Fellows through teacher retention and student learning?"

RESULTS

Michelle, 2nd & 3rd Grade Teacher
 J H Gunn Elementary School
 B.A. & M.A. in Education, National Board Certification
 African American Female, 31-40 years old

13 Years of Experience	13 Years of Experience in CMS	8 Years of Experience in CTI
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School Level Data	
63.77% EDS* *Economically Disadvantaged Students	J H Gunn Elementary School (K-5 th) Proficiency Demographics
EVAAS 2015: 2.52 Exceeded Expected Growth	EVAAS 2016: 1.03 Met Expected Growth

Teaches Students: Below, At, Above Grade Level		
2015-2017 Academic School Years		
Year	Grade	Subject
2015-2016	3 rd	All
2016-2017	2 nd	All

2015-2016 CTI Seminar Experiences	
Year	Seminar
2015	Fundamentals of Mathematics
2016	How Science is Done: A Behind the Scenes Look at Scientific Research

"CTI gives us a way to be very creative instead of being so structured and that gives us an opportunity to kind of think outside the box so that all of our kids can think outside the box."



Taylor, K-6th Spanish Science Teacher
 Collinswood Language Academy
 B.A. & M.A. in Spanish (Lateral Entry Teacher)
 Caucasian Female, 31-40 years old

10 Years of Experience	8 Years of Experience in CMS	2 Years of Experience in CTI
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School Level Data	
53.5% EDS* *Economically Disadvantaged Students	Collinswood Language Academy (K-8 th) Proficiency Demographics
EVAAS 2015: -1.89 Met Expected Growth	EVAAS 2016: -3.43 Did Not Meet Expected Growth

Teaches Students: Below, At, Above Grade Level		
2015-2017 Academic School Years		
Year	Grade	Subject
2015-2016	Kindergarten	All in Spanish
2016-2017	K-5 th 6 th	Science in Spanish Science

2015-2016 CTI Seminar Experiences	
Year	Seminar
2015	The Origins of Human Language
2016	How Science is Done: A Behind the Scenes Look at Scientific Research

"CTI is one of those things that even though it's really hard and very time consuming it is rewarding because it makes you feel like you're doing everything that you can for your kids, everything that you can to make education better as a whole and to contribute to the field."



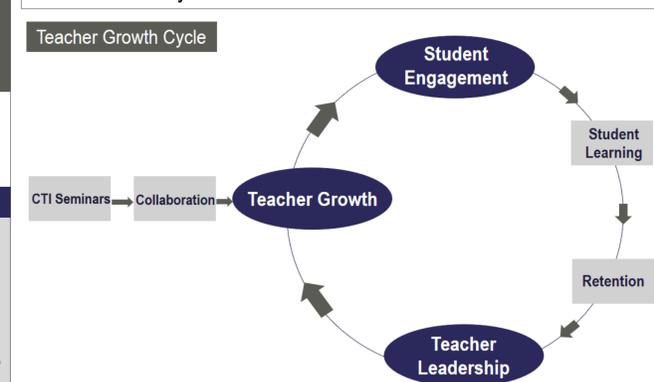
Multi-Case Study: Cross-Case Synthesis Summary Results

Questions	Summarized Responses		Emerging Themes
	Michelle	Taylor	
What teaching practices were gained from participating in CTI?	"A big one is collaboration because I've learned to work with other teachers and I don't have to do the same things as someone else, but we can all share ideas and that's what I want my students to know too. "	"CTI helped me not only discover how to effectively teach science ; it made me see science in a different light. I better understood how science "happens" and with that, how to better impart scientific knowledge to my students. "	Teacher Growth
What impact did your unit have on your students – or a particular student?	" Students were very engaged with this unit and were able to apply it to real life situations, which can't always be measured through assessment tasks. "	"I could definitely see more engagement and pride in my students while they wrote. Many simply began writing more, even when it wasn't required."	Student Engagement
What specific leadership skills were developed/enhanced through CTI?	"It's helped me become a better leader because before, I would be, still am very quiet, but I'm more willing to share what CTI does with others because I've seen how it's helped me."	"As a result of CTI, I felt better prepared to apply for the School Executive Leadership Academy at Queens University and am now progressing through that program toward my principal certification. "	Teacher Leadership

Using grounded theory methodology and a multi-case study method three themes emerged: (1) teacher growth; (2) student engagement; (3) teacher leadership. Fellows' data revealed teacher growth as a cycle of collaboration in CTI seminars to application of original curriculum units in their classrooms to student engagement and teacher effectiveness. Through data triangulation of Fellows' testimony, it was evident that student engagement increased student learning. Fellows were inspired by CTI to continue leadership roles in CTI and the school district. One Fellow is continuing their leadership journey while remaining in the classroom and the other in administrative leadership. Moreover, the three emerging themes played a role in the retention of the participants.

CONCLUSIONS

The product evaluation case study among the Fellows led to pattern matching and a cross case synthesis that underlined a teacher growth cycle in the participants. Through CTI Seminars composed of teacher and faculty collaboration, Fellows gained experiences they could implement in the classroom. In turn, it led to student engagement and learning which are some of the factors that inspired the fellows to continue teaching. Fellows are retained in CMS and continue to partake in leadership positions, and teacher growth continues. The cycle is shown below:



Through data triangulation it was evident that CTI is not the only factor responsible for the retention of Fellows in CTI. Studies suggest various factor attribute to retention including empowerment, benefits, and recognition (Johnson, Berg, & Donaldson, 2005). The table below concludes CTI's contributing retention factors according to CTI Program Evaluation Data since 2009 & case study testimony.

CTI Contributing Retention Factors		
Retention Factor	CTI Collected Data Outcomes	Fellow Case Study Testimony
Empowerment	98% of Fellows report CTI seminars led to professional and intellectual growth.	"CTI makes you feel important because people are dedicated." -Taylor
Benefits	52 seminars, 41 professors, 15,000 + PD hours, \$1,500 stipend	"CTI does a good job of having diverse seminars. " -Michelle
Public Recognition for Professional Accomplishments	Fellows have publicly presented their curriculum to 450+ other teachers at CTI educator events.	"You've done some research and you've shared it, published it. " -Taylor

Research defines effective teacher PD by seven elements: content focused, active learning, collaboration, modeling effective practice, expert support, sustained duration, feedback and reflection (Darling-Hammond, Hyler, & Gardner 2017). The multi-case study revealed room for improvement in the reflection of CTI's goal of retaining highly qualified teachers as multiple factors affect the retention of Fellows in CMS. Moreover, since 2011, CMS has measured teacher effectiveness through student achievement. This product evaluation highlighted the shortcoming to EVAAS data, a student growth measure, as it does not provide rich descriptions of a Fellow's teaching impact. To improve CTI outcomes it is recommended to require Fellows to pre and post assess curriculum unit implementation in their classroom through subject appropriate assessments. Data from these assessments can lead to a mixed method study on Fellows' students' academic journeys. Capturing stories on Fellows' student learning would aid in providing a complete picture on the effectiveness of CTI Fellows on student outcomes.

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