

Potential student outcomes for OOF teaching in Secondary Math and ELA in Texas, USA

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Teaching Out-of-Field

- When teachers teach classes for which they are not licensed, they are **teaching out of field** (OOF) (du Plessis, 2015; Ingersoll, 1998; 2019).
- OOF teaching is not due to a lack of basic education (ie. bachelor's degree or Initial Teacher Education ITE) or training but is a **mismatch between teachers' field of training and their teaching assignments.**



Teaching OOF and student learning

- Students show **less academic growth** when taught OOF (Clotfelter, Ladd & Vigdor, 2010; Lankford, Loeb, & Wyckoff, 2002).
- The likelihood of being taught OOF is **higher for students of color and Emergent Bilinguals as well as students in rural schools** (Beswick, Fraser, & Crowley, 2016; Nixon et al, 2017).
- In the US, rates of teaching OOF have **increased dramatically** since the “Every Student Succeeds Act” in 2015 (Van Overschelde & Piatt, 2020)



Teaching OOF and subject matter

- Between fall 2011 and spring 2018, more than 2 million classes in both English and Math were taught by a teacher OOF in grades 7-12 (in TX), the highest number of courses recorded.
 - English – 2,121,281 classes
 - Math – 2,058,826 classes
- More English and Math classes in Texas grades 7-12 are taught OOF than any other subject by number count.

(Van Overschelde & Piatt, 2020)



Research Questions

- 1) Does teaching OOF impact student achievement/growth in English and Math?
- 2) Does teacher preparation subject matter?
- 3) How many years of experience are required to eliminate the negative impact on student learning of teaching OOF?



Context

- Texas, USA
- State with the 2nd largest public student enrollment in the US (n=5.4 million)
- Demographically diverse
- Texas Longitudinal Data System (TLDS)

- Teaching OOF is clearly defined in Texas rules – specifies which teaching license is required to teach each class



Context

- Student learning in English and Math is measured by their scores on the end of course exams
- English is a required course for all students, primary and secondary years (PK-12)
- Math is required for all during the grades studied, but students can choose more options for Math (ie. Algebra early in 8th grade or on time in 9th grade)
- Standard state mandated curriculum in courses.
- Teacher preparation/training, state curriculum, and end of course assessments are all aligned



Texas Longitudinal Data System (TLDS)

30 years of student & teacher data

- 5.4 million P-12 students annually
- 400,000 teachers annually
- 1.6 million higher ed students
- Workforce – every worker in the state



Texas Longitudinal Data System (TLDS) Student Data

- Student enrollment, services received
- Student-teacher-course data
 - 473 million records
- State assessments in core subjects (English, Math, Science, History) linked to curricula
- State curricula linked to teacher preparation programs and licensure exams



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Method

- Three-level Value-added modeling (1. students, 2. teachers, 3. schools)
- Teachers
 - TPP-licensed
 - Test-licensed
 - Intern-licensed
 - OOF-licensed
- Accounted for
 - years teaching & years teaching course
 - student demographic & prior performance
 - school locale (e.g., urban, rural) & student body

Teacher licensure Groups



Licensure	Description
Fully prepared and licensed teacher in that subject	<p>Teacher who was trained in a teacher preparation program and graduated, fully licensed in the subject they are teaching.</p> <p>[ITE training, licensure and subject teaching all match]</p>
Test-licensed	<p>Teacher who is licensed in another subject; prepared for and passed the licensure test in the subject they are currently teaching (ie. licensed in History, prepared for and passed licensure test in English)</p> <p>[Did not get licensed through an ITE in the subject currently teaching but prepared for and passed licensure test for subject currently teaching]</p>
Intern-licensed	<p>Teacher who is not yet licensed and is in their initial teacher training and is considered the teacher of record at the same time (usually year 1 and/or 2 of teaching).</p> <p>[In service teacher candidates in their ITE in subject they are teaching]</p>
Out-of-field (OOF)	<p>Teacher who is teaching a class that is mismatched from teacher's qualifications (ie licensed in History but teaching English).</p> <p>[Licensed in an ITE in another subject; did not prepare and pass licensure in the subject currently teaching]</p>



Sample Size

Statewide from fall 2011 – spring 2018

	Students (n)
English	
Grade 10	1,660,693
Grade 9	1,778,308
Grade 8	1,734,412
Grade 7	1,786,012
Math	
Grade 8/9	1,750,027
Grade 8	1,376,783
Grade 7	1,712,551



OOF Deficit

- ❖ TPP licensed teachers are most effective
- ❖ Students learned significantly less when taught OOF



Study 1 – English OOF Deficit

OOF- License

Grade 10 29.1 Years

Grade 9 12.1 Years

Grade 8 10.6 Years

Grade 7
w/essays 9.7 Years



Study 2 – Math OOF Deficit

OOF- License

Grade 8/9 Math	23.9 Years
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Grade 8 Math	22.3 Years
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Grade 7 Math	12.1 Years
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Implications

- Teachers who are assigned to teach OOF have a negative impact on student growth.
- Research indicates the likelihood of having an OOF teacher is higher for already marginalized populations (Emerging Bilinguals, students of color, rural areas), exacerbating inequalities.



Policy Implications

- Subject-specific teacher preparation most effective
- Teaching-general abilities (e.g., classroom mgmt., lesson planning) seems less important than CK & PCK
- Teachers preparing for and passing licensure tests greatly reduces deficit of OOF preparation
- PD should be course-specific and tailored to CK and PCK of teachers' different TPP/licensure types



Contributions

- Context where preparation, curriculum, assessment are all aligned (in contrast to using PISA or other large-scale assessments)
- Large data set, significant analyses (HLM) that can account for differences across classroom and school contexts
- Adding English/ELA to the conversation (teaching OOF is **not** just a STEM phenomenon)



Limitations

- We are measuring student success with one assessment (EOC exam); we understand success is multidimensional.
- We know there are outliers; some teachers OOF have more success than others.
- We can describe the phenomenon but can't explain why. To further understand we seek qualitative follow up.



Where do we go from here?

- We have a teacher shortage and complex contexts (ie. Rural) so teaching OOF is not going away...
- How do we give the teachers what they need so students do not suffer?
 - Teachers who prepared for and took the subject licensure test did better than those who didn't. Why? Can we give all teachers at least this kind of “preparation”? What factors contribute to success (qualitative)?
 - Professional Learning needs to be differentiated, different prep = different needs



Questions & Comments

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