Fostering Effective Teachers: Examining Support and Impact of Preservice Teachers on P-5 Student Learning

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FOSTERING EFFECTIVE TEACHERS: EXAMINING SUPPORT AND IMPACT OF PRESERVICE TEACHERS ON P-5 STUDENT LEARNING

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The objective is to highlight the importance of using results of systematic investigation of preservice teachers’ impact on P-5 students to enhance teaching and learning during practicum courses. Content includes findings from a study we designed to examine preservice teachers’ support and impact on P-5 student learning with the end goal of teacher education programs in mind—to prepare teachers to positively impact student learning. We collected data from early childhood education candidates across three tiers of practicum courses, examined the support they provided to featured P-5 students during instructional units, and analyzed how that support impacted the young students’ learning. The quantitative results indicate a significant difference in the P-5 students’ scores on the pre- and post-unit assessments; no significant difference in scores between the tiers, gender, and subjects. The qualitative results reveal that the preservice teachers effectively support their P-5 students’ learning by providing accommodations and modifications, monitoring student progress, and offering recommendations to family. Recommendations include improving preservice teachers’ ability to analyze, interpret, and present data; and systematically collecting data on preservice teachers’ impact on P-5 students’ learning. Throughout the session, participants will be provided opportunity for discourse regarding improving teaching and learning in practicum courses.

Key words: teacher education, preservice teachers, enhancing teaching and learning in practicum courses.
Getting to Know You

• P-12 Teachers
• University Supervisors of Preservice teachers during Field Experience?
• Other?
A QUESTION FOR YOU

• How do you determine the impact of preservice teachers on P-12 student learning during their field experiences?
• How do your preservice teachers support their P-12 students’ learning?
Introduction

• The end purpose of elementary teacher education programs is to impact P-5 student learning outcome in a positive manner.

• It is continuously problematic in the research attempting to find evidence and prove the impact of practicum on P-5 learning when student teachers are working in the classroom.
Introduction (cont.)

• The majority of research on teacher preparation programs focuses on the process, rather than the P-5 student outcomes (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2009).

• Educational programs, departments, and colleges are constantly challenged by annual program assessment on preservice teachers’ impact on student learning due to the fact that it is a continuous missing piece.
  • (NCATE)
  • (SACS)
Introduction (cont.)

• To align with the upcoming state's Teacher Preparation Program Effectiveness Measure (TPPEM), a prioritized component of Georgia's Race to the Top (RT3) initiative

• To meet the state mandates for the teacher education program to enhance the level of involvement of partner schools (GAPSC-505-3-.01)
Introduction (cont.)

• Collaborative relationships between university programs and partner schools have positive impact on the K-12 students (NCATE, 2006).

• It is recommended that further research on teacher education be conducted.
Purpose of the study

• To systematically investigate preservice teachers’ impact on P-5 student learning with the end goal in mind that our program prepares preservice teachers to have a positive impact on student learning.

• Specifically, this project addresses the effectiveness of the program field experiences at different levels for preparing preservice teachers to impact student learning.
Research questions

1. How does the support of preservice teachers at all practicum tiers impact featured P-5 students’ learning outcomes during a unit of instruction?

2. How do preservice teachers in different practicum tiers support featured P-5 students’ learning during a unit of instruction?
The Literature Review

“America's great educational challenges require that this new generation of well-prepared teachers significantly boost student learning and increase college-readiness. . . If teaching is—and should be—one of our most revered professions, teacher preparation programs should be among a university’s most important responsibilities.” (Duncan, 2009).
The Literature Review (cont.)

• Research on teacher education and the impact of teacher education programs began in the 1960s.

• There has been very little sustained support for teacher preparation research (Wilson, Floden, & Ferrini-Mundy, 2001).

• Most of the literature available highlights case studies.
Two of the four factors that contribute to teachers’ influence on student achievement are related to the teachers’ preservice field experience: diversity training; hands-on experience (Darling-Hammond, 2003).
The Literature Review (cont.)

• Noting the scarcity of literature on this topic, Clark (2012) writes, “education programs should collect data more systematically to determine the preservice teachers’ impact on the elementary students’ (mathematics) achievement.

• Oregon State teacher licensure system focuses on student outcomes; prospective teachers required to provide evidence of their impact on students’ learning during two separate units of instruction (Schalock, Schalock, & Myton, 1998).
The Literature Review (cont.)

- Preservice teachers who worked one-on-one with their students in 3rd, 4th, and 5th grade reading classrooms contributed significantly to their young students’ advancement in reading levels (Hedrick, 1999).

- Preservice teachers working with small groups in mathematics instruction contributed significantly to P-5 student’s achievement (Mewborn, 2001).
The Literature Review (cont.)

- Preservice teachers’ beliefs can positively impact the achievement and attitudes of the P-5 students (Clark, 2012; Stuart & Thurlow, 2000).

- Reflections (from preservice teachers) demonstrated that the P-12 students benefitted from the preservice teachers’ knowledge of the individual child and delivery of higher level of instruction (Broaddus, 2000; Knowles, 1992; Smith & Straughan, 1997).
The Literature Review (cont.)

• Design and reporting of research on teacher preparation must be explicit about connections to improving student achievement.

• It is seldom practical to gather student achievement data as part of teacher preparation research.

*Teacher Preparation Research Study*
(Wilson, Floden, & Ferrini-Mundy, 2001)
Method

• Design: a mixed study
• Data: one portion of a unit required across all three field experiences: featured student
• Quantitatively: the pre- and post- assessment results of a required unit assignment for a featured student
• Qualitatively: preservice teacher’s description and comments on the performance of the featured student(s)
Tiers of practicum

• METHODS I (MI): (180 hours) 4 hrs. a day, 2 days a week, 3-day unit; Feature 1 student- Grades K-2

• METHODS II (MII): (400 hours) All day for 10 weeks, 5-day unit; Feature 2 students- Grades 3-5

• STUDENT TEACHING (ST): (600 hours) All days for a semester, 10-day unit; Feature 1 student- Various Grades
Method

• 74 P-5 featured students included (MI= 19, MII= 37, ST=18)

• Q1: How does the support of preservice teachers at all practicum tiers impact featured P-5 students’ learning outcomes during a unit of instruction?
  • Software: SPSS
  • t test
  • ANOVA tests

• Q2: How do preservice teachers in different practicum tiers support featured P-5 students’ learning during a unit of instruction?
  • Software: NVIVO
  • Inter-rater reliability test
  • Constant comparative approach
Results

Q1: How does the support of preservice teachers at all practicum tiers impact featured P-5 students’ learning outcomes during a unit of instruction?

Four steps of analysis employed to answer this question:

- the statistics of pre- and post- assessments of each tier (Table 1)
- A t test to compare the means between pre-assessment and post-assessment (Table 2)
- ANOVA test to conduct multiple comparisons between assessments (Table 3)
- ANOVA tests to conduct multiple comparisons between subjects, genders, and groups (Table 4)
Results

Q1: How does the support of preservice teachers at all practicum tiers impact featured P-5 students’ learning outcomes during a unit of instruction?

Table 1

*Pre- and Post-Assessments Statistics*

<table>
<thead>
<tr>
<th>Group</th>
<th>P-5 S</th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>M</td>
<td>S.D.</td>
</tr>
<tr>
<td>MI</td>
<td>19</td>
<td>42.11</td>
<td>36.16</td>
</tr>
<tr>
<td>MII</td>
<td>37</td>
<td>39.11</td>
<td>26.98</td>
</tr>
<tr>
<td>ST</td>
<td>18</td>
<td>46.78</td>
<td>21.32</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>41.74</td>
<td>28.23</td>
</tr>
</tbody>
</table>
### Results

Table 2

**Pre- and Post-assessments Test**

<table>
<thead>
<tr>
<th>Paired Differences</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-assessment – post-assessment</td>
<td>-43.176</td>
<td>25.719</td>
<td>2.990</td>
<td>-14.44</td>
<td>73</td>
<td>.000</td>
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</tbody>
</table>

P<.05
Results

Table 3

ANOVA results of multiple comparisons between three tiers

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>pretest</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>357.83</td>
<td>.44</td>
<td>.644</td>
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<tr>
<td>Within Groups</td>
<td>71</td>
<td>809.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>posttest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>892.19</td>
<td>2.52</td>
<td>.088</td>
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<tr>
<td>Within Groups</td>
<td>71</td>
<td>353.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>73</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P<.05
Results

**Table 4**

*Tests of Between Subjects Effects*

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<thead>
<tr>
<th>Source</th>
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<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
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<td>238688.63</td>
<td>285.81</td>
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<tr>
<td>subject</td>
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<td>1115.51</td>
<td>1.34</td>
<td>.269</td>
</tr>
<tr>
<td>gender</td>
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<td>1</td>
<td>124.16</td>
<td>.15</td>
<td>.701</td>
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<tr>
<td>group</td>
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<td>2</td>
<td>262.13</td>
<td>.31</td>
<td>.732</td>
</tr>
<tr>
<td>subject * gender</td>
<td>2922.27</td>
<td>3</td>
<td>974.09</td>
<td>1.17</td>
<td>.331</td>
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<tr>
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<td>6</td>
<td>753.53</td>
<td>.90</td>
<td>.500</td>
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<tr>
<td>gender * group</td>
<td>752.34</td>
<td>2</td>
<td>376.17</td>
<td>.45</td>
<td>.640</td>
</tr>
<tr>
<td>subject * gender * group</td>
<td>510.00</td>
<td>2</td>
<td>255.00</td>
<td>.31</td>
<td>.738</td>
</tr>
</tbody>
</table>

P<.05
Results

Q2: How do preservice teachers in different practicum tiers support featured P-5 students’ learning during a unit of instruction?

• Accommodations and modifications
  • Diversifying teaching strategies: Students with learning difficulty or behavior problems or gifted students
• Student progress during stages of unit instructions
  • **Beginning**: Featured students were mostly with different levels of difficulty in learning or behavior.
  • **Mid-point**: Featured students mostly were still struggling in MI and MII classrooms. Those in ST progressed better.
  • **Ending**: All three tiers of preservice teachers celebrated their featured students’ achievements over the course of learning.
• ST: The only group required to write a letter to family communicating kids’ learning during the unit instruction
Results

Q2: How do preservice teachers in different practicum tiers support featured P-5 students’ learning during a unit of instruction?

• **Accommodations and modifications**
  
  • **MI**: described how they accommodated and modified their instructions in order to help students learn during their teaching during the three days of unit instruction in the most detailed manner.
  
  • **MII**: did not provide substantial description over this area.
  
  • **ST**: had the most comprehensive and extensive illustration regarding how they helped students during their two-week unit instruction.
Accommodations and modifications

- Diversifying teaching strategies:
  - Students with learning difficulty or behavior problems: resorting to personal support including helping student connect content to real life, providing extra verbal prompts and guidance, extra materials and time, giving specific examples, asking specific questions, allowing them to work with pals or even separating them from pals to maintain focused, repeating directions or content, sitting in proximity, modeling the process, reminding to stay focused, and differentiating products.
  - Gifted students: providing higher level thinking questions and requesting products that required higher order of thinking
Student progress during stages of unit instructions

Beginning

Featured students were mostly with different levels of difficulty in learning or behavior.

- **MI**: *Features 1 student*, struggling with reading and getting discouraged, functioning at beginner reading level, struggling with what to do on the assessment, needing motivation to complete an activity, Excelling in math but struggling with reading, exhibiting behavior problems which contributed to dependency on the teacher and lack of participation in lessons.

- **MII**: *Features 2 students*, diagnosed with ADD/ADHD, ELL, struggling with assignments including reading; lack of focus on tasks.

- **ST**: *Features 1 student*, shy and timid, non-participatory, diagnosed with ADD, cerebral palsy, a lower ability level, motivated, well-behaved, and worked well with others, creative.
Student progress during stages of unit instructions

Mid-point

Featured students mostly were still struggling in MI and MII classrooms. Those in ST seemed to progress better.

- **MI:** students demonstrating eagerness to participate, struggling with content, being able to identify details, guessing a lot; getting confused on the assessment, struggling with reading and writing, walking around during the assessment

- **MII:** students’ struggles, not following directions, lacking confidence, guessing, not behaving

- **ST:** spent time documenting students’ progress, noting improvements along the way; consistently making 100% on assignments, becoming actively involved, demonstrating a wonderful attitude, and exhibiting no problems with content or following directions, students getting upset, disturbance at home, quiet and only answering when called upon
Student progress during stages of unit instructions

**Ending**

All three tiers of preservice teachers celebrate a lot how their featured students’ achieved over the course of learning.

- **MI:** only missed two out of six by the end of the third day, got a perfect score, exemplified an enormous amount of confidence

- **MII:** Volunteered to answer questions, getting them correct, did very well, extend his understanding of the concepts taught

- **ST:** Picking up as if he’d never missed a day, progressed dramatically, continuing to become a better writer every day, the amount of effort he exerted over the course of the unit, struggling this semester, but he defiantly [sic] kept up during my unit, becoming more interested in this study, raising her hand more often to answer questions, amazing behavior during the unit
Communication with parents/guardians

**ST:** The only group required to write a letter to family communicating kids’ learning during the unit

- Encouraged family with student positive performances
- Described student learning, progress, and problems during the unit learning
- Made recommendations for further support at home
**Quote: Encouraging family**

- “I am very pleased with the hard work that your child did to learn the material that I taught her about multiplying fractions. Fractions, in general, are difficult for many students to understand. Your child was always very attentive in class, and her confidence soared as she realized that she knew how to solve the problems correctly. I am pleased to inform you that she scored a 95 on her unit test. I am so proud of her” (ST1).
Quote: Learning and Progress

• “Your daughter missed several days of instruction because of her absences from class. Overall, she made a score of 65 for her post-test. This is a significant increase in achievement from her pre-test, of which her score was a 10. This proves that she learned quite a bit and achieved a great amount of knowledge throughout her time of instruction. She particularly excelled with the foundational content of the economics unit, such as goods, services, wants and needs. She struggled with more complex concepts, such as consumers, income, taxes, surplus and interdependence. Many of these concepts were learned during her absence” (ST2).
Quote: Recommendation

• “To help her keep up with the comma rules, I recommend parents going online to *Eats, Shoots, and Leaves*. On this website, your child is able to see the rules and examples, get extra information, practice with the rules, and play a fun game with the comma rules! Another helpful site is *Quia*. Just sign-on and search commas, and you should be provided with plenty of effective and fun comma games” (ST3).
Discussions

Q1: How does the support of preservice teachers at all practicum tiers impact featured P-5 students’ learning outcomes during a unit of instruction?

- Significant difference found in P-5 featured students’ performance between pre- and post- assessments after unit instruction by preservice teachers

- No significant differences in featured student learning outcomes in other aspects, including between assessments, groups, subjects taught, and genders.
Discussions

-Possible reasons for significant differences found in student learning outcomes

1. Featured students: Students receiving special support may perform better than those who do not, which is supported by the literature (Broaddus, 2000; Knowles, 1992)

2. Varied placements may contribute to preservice teachers’ ability to perform in the field.

3. Guided supervision by the university supervisors and clinical supervisors may have immensely contributed to preservice teachers’ performance in teaching and learning
Discussions

Q2: How do preservice teachers in different practicum tiers support featured P-5 students’ learning during a unit of instruction?

1. PTs diversified teaching strategies allowing substantial learning to occur to featured students with learning difficulty or behavior problems and with special gifts.

2. Eventually PTs’ instruction to featured students is effective. PTs in the higher tier enjoyed better student learning outcome at an earlier instructional stage, which is supported by the qualitative and quantitative results, and is consistent with research findings that the more experienced preservice teachers are, the more effective their instruction (Darling-Hammond, 2003).

3. PTs in ST are required to extend attention to family communication in order to augment student learning. The results indicate that they are able to make effective communication through letters to home.
Discussions

Assignments

1. The unit assignment appears to present a progressive, logical, and developmentally appropriate sequence.

2. A 3-day unit required for MI preservice teachers to test the theory they learn on campus into practice, a 5-day unit for MII preservice teachers with a little more professional ability, and a 10-day unit for ST preservice teachers to solo teach.
Discussions

Assignments

• Levels of focus and involvement
  • **MI: 1** FS, more intense description on accommodations and modifications, recommendations for future learning
  • **MII: 2** FS who are different types of learners and have distinct instructional needs, the descriptive instruction of the assignment tends to be general, which reflects in their final works
  • **ST: 1 FS**, required to monitor his/her progress closely throughout the instruction of the unit, and to investigate the case more in-depth in the area of daily performance, how they contribute to their learning achievement, and communication with parents.
Limitations

1. Received only $\frac{1}{4}$ of requested unit portions
2. Only featured students, instead of all P-5 students taught by our preservice teachers
3. Preservice teachers were inconsistent in analyses, interpretations and presentations of learning results
4. MII presented simple and lean description of their featured students
Conclusions

The significance of this study is three-fold:

1. **Professionals**: Our work indirectly impacts student learning in public schools through our preservice teachers.

2. **Program and College**: Aids in program evaluation; adjustments and restructuring of practices.

3. **Larger Professional Community**: Contributes to literature base; benefit to those interested in researching same topic.
   - Unique: focus on both a case study and an overall measure of student learning outcomes.
Recommendations

- **Practice**

- Continue training of University Supervisors (US) for continuity in their expectations across the tiers

- Strengthen the students’ ability to interpret and present assessment data

- Examine descriptions of the assignments across the tiers to ensure clarity in advance of students’ beginning the case studies, especially MII
Recommendations

- **Research**

- Design studies that do not ignore the impact on the P-5 students during field experiences

- Collect data systematically in regards to the preservice teachers’ impact on their students’ learning during their practicum experiences

- Conduct future study(s) to include impact on *all* students, not just featured students.
THINK-PAIR-SHARE

• How do you make sure you are informed of your preservice teachers’ impact on their students?
• If you were the researcher…….