

21st Century Fieldwork: How Pre-Service Teachers Connected Theory and Practice in a Hybrid High School Setting

Trabajo en Terreno en El Siglo XXI: Cómo Los Futuros Profesores Relacionaron Teoría y Práctica en un Marco Híbrido de Enseñanza Secundaria

Ginger Goldman Malin

Assistant Professor of Teacher Education
DePaul University
Chicago, IL 60614 USA
gmalin@depaul.edu

Abstract

All teacher education programs strive to provide ways for their students to make the necessary connection between theory and practice, as this is the foundation of excellence in teaching and learning. As technology tools become more ubiquitous and 21st century definitions of “literate” involve utilizing technologies to learn, the need for pre-service teachers to be knowledgeable and innovative about the efficacy of these tools in classrooms as a means for interacting, engaging, and communicating with students is vital to their future success as educators. Furthermore, given the rise in K-12 online learning programs, it is important that future teachers are prepared to teach in virtual environments. As such, this paper describes a pilot study of 23 pre-service teachers who, as part of their fieldwork experience in a content-area literacy course, taught a 4 lesson thematic unit to 61 students attending an urban hybrid high school. Data from reflective documents and surveys regarding the pre-service teachers’ experiences in this environment suggest that they advanced their competency in bridging theory and practice by delivering engaging content-driven in-person and online lessons while also gaining comfort in utilizing various technology tools to support student learning.

Keywords: Virtual Fieldwork, Teacher Education, Online Instruction, Theory into Practice, Hybrid High School

Resumen

Todos los programas de formación de docentes se esfuerzan en proporcionar medios para que los alumnos puedan unir la teoría y la práctica, ya que esa es la base de la excelencia en la enseñanza y el aprendizaje. Las herramientas tecnológicas son cada vez más omnipresentes y las definiciones letradas del siglo XXI incluyen utilizar la tecnología para aprender, la necesidad que los futuros profesores sean innovadores y tengan conocimientos sobre la eficacia de estas herramientas en las aulas como medio para interactuar, participar y comunicarse con los alumnos. Por otra parte, dado el aumento de programas de aprendizaje online K-12, es importante que los futuros docentes estén preparados para enseñar en entornos virtuales. Este trabajo describe un estudio piloto de 23 estudiantes de pedagogía que, como parte de su experiencia en terreno en un curso de contenidos sobre leer y escribir, enseñaron 4 lecciones de una unidad temática a 61 estudiantes de una escuela secundaria urbana de formación híbrida. La información de documentos y estudios sobre las experiencias de futuros profesores en ese entorno, sugiere que avanzaron en su capacidad de unir la teoría y la práctica, focalizando el contenido en persona y la experiencia online al mismo tiempo, mientras se les hacía más cómoda la utilización de diversas herramientas tecnológicas para apoyar el aprendizaje de los alumnos.

Palabras clave: Trabajo en terreno virtual, formación de profesor, instrucción online, de la teoría a la práctica, enseñanza híbrida

Introduction

Fieldwork experiences are an important aspect of all teacher education programs. As in other professional hands-on career fields, these experiences allow novices to essentially act as apprentices to an experienced mentor, or in Vygotsky’s (1986) terms a “more knowledgeable other,” so that they might develop the experiences, skills, and strategies to become expert teachers themselves. As pre-service teachers progress through their programs, they are expected to form their teacher identities by making connections between theory and practice. They do this by constructing a grounded understanding and philosophy about subject matter, child development, teaching methodology, and student learning through their coursework (theory) and through their fieldwork experiences (practice) (Allen, 2005; Killian, 2003).

However, unlike other career fields, when students enter teacher education programs, they are preparing to work in a field in which they already have an established attitude and great deal of experience having been students themselves for so many years (Papert, 1993). Yet, with the nature of learning environments rapidly changing, at approximately an increase of 30% annually, from traditional schoolroom-based practices to more alternative forms of academic delivery that employ various forms of digital technology, pre-service teachers need to be prepared to instruct using these tools and modalities in traditional, hybrid, and online environments (Berge & Clark, 2005; Deubel, 2008; Johnson, Levine & Smith, 2009). In other words, beginning secondary teachers can no longer fall back on the model of schooling that they have experienced as students, and instead need to be immersed in the new technical world in which their adolescent students live and learn.

Based on this need, this paper discusses a fieldwork experience designed to provide pre-service teachers with an opportunity to teach at an urban hybrid charter high school in which, under the supervision of the cooperating teacher and the university instructor, they taught a 4-lesson, thematic unit on the topic of "discrimination." This fieldwork experience included teaching 2 two-hour, in-person lessons and 2 online asynchronous lessons/modules to a small group of 3-5 high school students. The major purposes of this fieldwork experience were: 1) to provide an opportunity for pre-service teachers to create and implement a unit that connected theory with practice, and 2) to offer pre-service candidates the opportunity to gain hands-on experience with online instruction by teaching a unit in a hybrid school environment. The study sought to understand the implications of this project on the pre-service teachers' ability to integrate technology into their lesson design with particular attention paid to their comfort in teaching both in-person and online lessons. To further understand the pre-service teachers' learning that occurred as a result of this project, information about the high school students' interest in the unit, their responses to working with the university students, and learning about university culture were also gathered

Method

Participants and Setting

The teacher education course was made up of 23 university students with various content area specialties including: 7 history majors, 9 English majors, 3 foreign language majors (2 Spanish and 1 French), 2 biology majors, and 2 math majors. The course was a program requirement for graduation and teacher certification.

As part of their content-area literacy course and part of a mandated 100 hour fieldwork requirement for secondary teacher certification, the university students in this study were required to perform 20 hours of fieldwork in which they needed to be actively involved with students and a certified teacher in a secondary school setting. Unlike other courses in their program in which these pre-service teachers typically set up their own fieldwork placements in a school with a cooperating teacher and completed the expected necessary reflective assignments, this opportunity was different because all of the university students were required to complete a hands-on project in a common setting that was highly guided and directed by the instructor and required a good deal of planning, preparation, teaching, and reflection on the part of each university student.

The hybrid high school in this study served 61 students and was a tuition-free, urban public charter school that offered a blend of online learning and traditional, brick-and-mortar schooling (i.e., "hybrid"). A for-profit education company created and provided the online curriculum and also hired the online instructors. The online learning portion was asynchronous and each student progressed through the content at his or her own pace. In terms of their instruction, the teachers used a student management software system adopted by the hybrid high school called "Elluminate" to deliver the online modules and communicate with their students. Each student was given a laptop computer at the beginning of the school year to support the applications required for online learning. The in-person brick-and-mortar portion was held once a week for two hours at a central location and was taught by a certified teacher hired by the urban school district.

Research Design

As part of the teacher education course, each pre-service teacher designed a 4-lesson unit plan that connected his or her content to the real world under the umbrella topic, "discrimination." Working in a quarter system of 11 weeks, the pre-service teachers spent the first 3 weeks learning theories about curricular design, content-area literacy practices, and student engagement (both online and in-person). The next 4 weeks were spent integrating these theoretical concepts into their unit and lesson plan designs with the instructor's support. The following 3 weeks of the quarter were spent in the field, both in-

person and virtually, teaching their units and reflecting on both their own and their students' learning. The last week of the quarter (week 11) was spent revising the unit plan and reflecting on the process through a class presentation and a reflective paper.

To design their units (weeks 4, 5, 6, 7) the pre-service teachers were divided into content-specific cohort groups in which they worked together on a common unit topic and devised a general overall unit plan. The foci of the units included: An English unit based on the novel *To Kill a Mockingbird*, a history unit on the Civil Rights movement, a math unit on statistics that focused on the success of urban youth who attend college, a biology unit on spinal cord injuries and the nature of handicap issues in our society, and a foreign language unit on immigration and language barriers in the United States. During week 5, the general unit plan options were shared with the high school students and they chose the content-area unit that they wanted to study for the project. The students were then divided into smaller content-based groups of 3-4 students to work with an individual pre-service teacher.

After the common content-area unit plan was devised, each pre-service teacher was then responsible for individually creating the 4 lessons for his or her unit. To get feedback on these lessons for the purposes of revision, they presented them to their cohort group each week (4, 5, 6, 7) for critical comments. After they honed and revised their lessons based on the feedback, they spent weeks 8, 9, and 10 of the quarter delivering them to their high school student groups and documenting the learning process and progress that occurred.

Measures

An anonymous survey (Appendix A) was designed to assess the pre-service teachers' comfort in utilizing technology in their lesson design, their perceptions regarding the need to use technology to engage secondary school students and their experiences regarding linking educational theory from this and prior courses into their fieldwork practice. It was designed to evoke both quantitative (questions 1, 2, 7, 8, 11) and qualitative responses (questions 3, 4, 5, 6, 9, 10, 12) with the goal of more fully understanding the benefit of this particular fieldwork experience for these students. This survey was administered to the 23 university students in class at the end of the course and all 23 students responded.

Each pre-service teacher's ongoing learning regarding technology implementation, student engagement, and connecting theory with practice was documented through their unit plans, a culminating reflective paper, and a class presentation delivered during week 11 (created using an online social networking educational tool called Voicethread) that discussed and visually displayed his or her growth as a teacher in terms of his or her ability and perceptions about utilizing technology to engage secondary school students, connecting content-area literacy and curricular design theories to practice in fieldwork, and in terms of delivering both engaging in-person and online lessons. Throughout the project, they documented their high school students' in-person engagement with still photos and flip video recordings, work samples and artifacts, and grades on their participation during in-class activities. The high school students' online learning and engagement was also considered and documented through recorded Eluminate sessions, student-produced artifacts, examples of lesson activities, responses to Powerpoint presentations, virtual field trip responses, and through a culminating reflective product that each high school student produced based on the theme "discrimination."

The university instructor and high school teacher also kept running records of their impressions regarding all students' learning and progress throughout the 11-week project. In addition, at the end of the project, the high school students were asked to complete an anonymous survey in class to aid the researcher in understanding the implications of this project on both the pre-service teachers' ability to integrate technology into their lesson design and the high school students' engagement in the unit. 22 of the 61 students from the high school responded to this survey.

Results

The results from the university students' surveys were analyzed to qualitatively and quantitatively determine their perceived growth in terms of 1) their ability to link theory and practice and 2) their comfort and ability to integrate technology into their lesson designs by teaching both in-person and virtual lessons. Results from the high school students' surveys were also qualitatively and quantitatively analyzed to determine the high school students' overall engagement and interest in order to assess the pre-service teachers' ability to design engaging lessons that bridged theory and practice. Additionally, the documents produced during the project by the university students (unit plan, reflective paper, and Voicethread visual presentation) and the high school students (reflective product, various in-class

artifacts, taped Elluminate sessions) were reviewed and analyzed qualitatively to gather data to inform the above-mentioned concepts.

Based on the analysis of the data (Table 1), it was very clear that the pre-service teachers' understanding of how to engage students in a unit, their own growth and competency in both their in-person and digital lesson delivery, and their ability and comfort in implementing technology into their lessons had increased over the course of the project.

Table 1. *University Students' Knowledge Advancement Categories*

Categories	Number of Students Reporting (23 total)
Increased ability to connect theory and subject matter instruction	19
Increased confidence in utilizing "best practice" teaching delivery methods	15
Increased confidence to engage students online	22
Increased confidence to engage students in-person	23
Increased perception of need to utilize technology in lesson delivery	11
Increased comfort in utilizing technology in lesson design	19
Increased understanding of need for preparation and organization in unit design	8
Increased understanding of need for flexibility in lesson design	11
Increased understanding of need for clarity in designing materials and documents	9
Reported understanding of increased knowledge of assessment skills	7
Appreciation of online fieldwork opportunity	20

In particular, the university students showed significant increases in their perceived ability to connect educational theories to their instructional practice (19 students reported an increase), utilize "best-practice" teaching methods (23 responses) and design lessons for positive student engagement (22 responses). They also reported and displayed significant growth in their perceived competency to deliver engaging and meaningful lessons as both in-person and online instructors. Specifically, the university students mentioned that they "got to see firsthand the impact that technology has on engagement" and "loved the opportunity to learn about teaching by first designing a unit and then implementing it with real students before actually doing student teaching." Although a few university students mentioned that they did not feel totally prepared for the high-stakes nature of teaching actual students (4 responses), a majority (15), "wished we could have more opportunities in our program to work directly with students" and "loved the opportunity to teach online" as it, "will give me the ability to differentiate myself from my competition" for future jobs and "will be the future of teaching."

In terms of their perception of this unit project (Table 2), the high school students responded positively about their interest in the topics presented (17 students rated 4 or 5) and their instructors' ability to deliver both the in-person and online content (15 students rated 4 or 5).

In particular, the students mentioned that, "it was cool to work with a university student," "the unit was hard, but the stuff I learned was different than my other stuff for school" and "I actually wanted to do the work." Additionally, all of the students who responded to the survey mentioned the "university visit" and working with a college student as a very positive experience that, "helped me know what college is like and how I need it for my future." Overall, the surveys and project outcomes indicated a positive experience for both the university and high school students and both expressed a desire to be offered this opportunity again in the future.

Table 2. High School Students Response to Fieldwork Opportunity

Categories	Number of Students Reporting (22 total)
Interest in Unit Study (very or extremely interested)	17
Perceived university students' ability to teach online (very or extremely good)	15
Perceived university students' ability to teach in-person (very or extremely good)	15
Perceived university students' ability to use technology (very or extremely good)	16
Visit to University was positive	20
Additional work for unit was acceptable	13
Additional work for unit was unacceptable	6
Student would participate in this project again	18

Discussion

As the nature of instructional delivery changes with more opportunities for students to learn online and use technology to enhance their learning, the need to prepare pre-service teachers with the skills and habits of mind to be able to develop online and in-person curricula, teach in virtual settings, and instruct using innovative technology tools is vital to their future success in the teaching profession. Furthermore, teacher education programs have clearly identified a need for creating ways to meaningfully bridge the gap between theory and practice (Kervin & Turbill, 2003). The virtual fieldwork project described in this study is a powerful option for accomplishing these purposes.

In general, there seems to be great potential in creating opportunities for pre-service teachers to connect theory and practice when they work directly with students in fieldwork placements in which they design units and/or lessons and implement them in actual classroom situations (rather than simply observing a teacher from the back of the room). The analysis of findings here also suggest that when given the opportunity to use technology in real ways with actual students, pre-service teachers' comfort and ability to use these tools in their future practice increased significantly. Based on the information offered here, the question that still remains is not whether or not teacher education programs should design fieldwork opportunities that train pre-service teachers to connect theory and practice, teach in virtual settings, and utilize technology, but rather how can teacher education programs make the philosophical, methodological and programmatic changes needed for this kind of learning to occur. In this vein, teacher education programs need to train teachers to be ahead of the learning curve, to be prepared to teach tomorrow's children, and to be innovative thinkers who engage students in every way possible.

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Appendices

Appendix A

HYBRID HIGH SCHOOL FIELDWORK PROJECT REFLECTION SURVEY

As we have discussed throughout the quarter, even though this was a rigorous and highly organized fieldwork project, my goal was to give you an opportunity to really teach and authentically utilize the unit you created for our class. As such, I would like you to reflect on your learning, your growth since the beginning of the quarter, and your struggles with this project. I would also like you to describe your reflections regarding your students' successes and difficulties. Please comment on the following questions regarding this fieldwork project:

1. Before designing and implementing this unit for our course, how would you rate your ability to connect theory from coursework into your practice in fieldwork situations? Circle your answer.
 - 1- I was not able to connect theory and practice
 - 2- I was somewhat able to connect theory and practice
 - 3- I was able to connect theory and practice
 - 4- I was very able to connect theory and practice
 - 5- I was extremely able to connect theory and practice
2. Now that you have designed and implemented a unit in this course, how would you rate your ability to connect theory and practice? Circle your answer.
 - 1- I am not able to connect theory and practice
 - 2- I am somewhat able to connect theory and practice
 - 3- I am able to connect theory and practice
 - 4- I am very able to connect theory and practice
 - 5- I am extremely able to connect theory and practice
3. What theories in particular did you feel you implemented into practice in this unit?
4. Did you have an "ah ha" moment in connecting theory to practice during this quarter? If so, what was it?
5. Before taking this course, what were your perceptions about the need to utilize technology to engage learners in your instruction?
6. Now that you have completed this course, what are your perceptions about the need to utilize technology to engage learners in your instruction?
7. Before taking this course, how would you rate your comfort and ability to implement technology into your instruction? Circle your answer.
 - 1- I was not comfortable or able to implement technology into my instruction
 - 2- I was somewhat comfortable and able to implement technology into my instruction
 - 3- I was comfortable and able to implement technology into my instruction
 - 4- I was very comfortable and able to implement technology into my instruction
 - 5- I was extremely comfortable and able to implement technology into my instruction
8. Now that you have completed this course, how would you rate your comfort and ability to implement technology into your instruction? Circle your answer.
 - 1- I am not comfortable or able to implement technology into my instruction
 - 2- I am somewhat comfortable and able to implement technology into my instruction
 - 3- I am comfortable and able to implement technology into my instruction

- 4- I am very comfortable and able to implement technology into my instruction
 - 5- I am extremely comfortable and able to implement technology into my instruction
9. What was the most important thing that you learned regarding delivering an online lesson?
10. What was the most important thing that you learned regarding delivering an in-person lesson?
11. Was this fieldwork project useful and meaningful for your development as a new teacher? If so, how? If not, why not?
12. Do you have any further comments regarding this fieldwork project that were not captured by the questions in this survey? Please share them here.

Appendix B

HYBRID HIGH SCHOOL UNIT PROJECT REFLECTION SURVEY

As we have discussed throughout this unit project, even though this was sometime hard and challenging, my goal was to give you an opportunity to work with a University student/instructor and connect what we are learning in school to the real world through a unit project. As such, I would like you to reflect on your interest in the unit project, what you learned by doing this unit project, how well your University Instructor taught the unit project, and your struggles with this unit project. Please comment on the following questions regarding this unit project:

1. How would you rate your interest in this unit study about discrimination? Circle your answer:
- 1- I was not interested
 - 2- I was somewhat interested
 - 3- I was interested
 - 4- I was very interested
 - 5- I was extremely interested
2. How would you rate your University Instructor's ability to teach the online part of the unit? Circle your answer:
- 1- It was terrible
 - 2- It was not good
 - 3- It was good
 - 4- It was very good
 - 5- It was extremely good
3. How would you rate your University Instructor's ability to teach the in-person part of the unit? Circle your answer:
- 1- It was terrible
 - 2- It was not good
 - 3- It was good
 - 4- It was very good
 - 5- It was extremely good
4. How could the University Instructor improve his or her teaching? Can you list one major way he or she could improve as a teacher?
5. How well did your University Instructor use technology in his or her teaching? Circle your answer:
- 1- Terribly
 - 2- Not well
 - 3- Well
 - 4- Very well
 - 5- Extremely well

6. What was the best aspect of this unit project?
 7. What was the worst aspect of this unit project?
 8. Would you like to do another unit project like this in the future? Why or why not?
 9. What was the most interesting thing that you learned about attending a University or being a college student?
 10. Do you have any further comments regarding this unit project that were not captured by the questions in this survey? Please share them here.
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