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Interdisciplinary Learning for Pre-service Teachers

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Abstract: In this action research study, the researchers worked collaboratively to integrate curriculum in four ways: 1. Professors engaged students in an interdisciplinary project, 2. Students performed a real-world task, 3. Students worked in small cooperative learning groups, and 4. Students engaged in helping young students experience a positive holiday season. The purpose of this study was to review how these integrative principles effected the preservice teachers academically, socially, and emotionally. Two cohorts of preservice teachers were enrolled in the same three courses during this study. One cohort of physical therapy (PT) majors were enrolled in a course developed to assist PT professionals with their communication skills, understanding of basic psychology, and special needs principles. The preservice teachers were learning how to teach: (a) penmanship, (b) letter writing, and, (c) promotive small group social skills for their future students. Seventy-nine students (54 pre-ervice teachers and 25 physical therapy students) participated in this action research project by engaging in a Santa writing experience. Young students in four schools wrote letters to Santa, and the university student participants responded to the letters of young students. Four professors collaborated in this project. The teachers included: a language and didactics professor, a curriculum professor, a writing (penmanship) professor, and an adjunct professor working with first year physical therapy students. Results of the study indicated that students: 1. found the process to be more difficult than they first thought; 2. appreciated the opportunity to help young students celebrate their holiday dreams; 3. felt they learned more deeply the goals of their classes; and 4. were proud to help young people enjoy their holidays. This process was fairly complex and, in spite of that complexity, the majority of students found the experience worthwhile from a teaching and learning perspective and from an existential perspective.

Keywords: *interdisciplinary learning, collaboration, real-world performance tasks.*

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1. Introduction

For too many years, the paradigm for teaching and learning has been on the verge of making significant changes for how teachers teach and how students learn. Sir Ken Robinson (2010) was one of the biggest voices, as he advocated for educators to begin a revolution to change our outdated educational system. He and people like Caine (2018), Ravitch (2020), Sousa (2017), Wagner and Dintersmith (2016), and Zhao (2012) have been warning educators that if the educational system is not changed, then students will fall behind the rest of the world that is changing. Alexander (2020) indicated that higher education must revise how professors view education or many schools of higher education will cease to exist. Some of his dire predictions are now coming true in terms of the present pandemic and social unrest due to inequitable education, social, economic, and health systems in the US and around the world. Andrusiak et al. (2020) described different ideas and techniques to make teaching and learning become much more student-centered. Learning is a social enterprise (Vygotsky, 1978) and a personal journey (Glasser, 2006), and the old views of education as a sorting place for those ready for college and those ready to work in factories are outdated, and quite frankly, dangerous (Wagner and Dintersmith, 2016).

In the case of the authors of this study, the goal was to attempt to make the work that students do become more meaningful and real for them by integrating their classes into the creation and implementation of one integrated project. Understanding that this project was simply one way of the many available ways to integrate curricula, the authors set out to assess the strengths and/or weaknesses of integrating three different aspects of the curriculum for students in the preservice teacher certification program for future preschool and primary school teachers. Additionally, the study integrated a class of students from the Physical Therapy program into this project.

The data were very promising. Because this was a small study (79 participants), the results are not generalizable. They do, though, show promise of helping the authors and other educators in developing more ways to integrate curriculum for the benefit of students. Student participants indicated (100%) they found the work motivating and felt very satisfied with the fact that they were helping young students feel positive. Ninety-eight percent of the participants also believed their work was more thoughtful and satisfying and helped them to feel like they accomplished something important, which helped participants feel better about themselves.

1.1. Background

Our, the authors of this study, experience at the university has indicated that too many students have not been generalizing the work they do in individual classes to their overall work as future teachers. For example, when students learn a teaching technique in one class (e.g. teaching language), they often fail to employ that or a similar technique in another class (e.g., teaching science). Students often have not thought it important to preteach important vocabulary in math or science, even though the same students do preteach important vocabulary in language and literature classes. Or, students develop a hypothesis and a plan within the science classroom, but fail to do so in their language or literature classes.

The four instructors in this study sought to develop a way to help students more effectively understand how all of the curriculum is related and can and should be integrated as often as possible for deeper learning to occur (Mehta & Fine, 2019). The teachers taught four different classes and discussed how they might integrate their classes for the benefit of their students. Three of the four classes being taught were part of the preservice certification program. These classes included methods of teaching: language, penmanship, and cooperative learning. The fourth class was developed for physical therapy majors and was entitled: Communication, Basic Psychology, and Special Needs for the Physical Therapy Professional. Through discussions among the professors, the group developed the idea of writing response letters to young students who had written letters to Santa. This project appeared to be a great fit for all four classes of students. The four teachers discussed the possibility of working together on this project and most of the students were very enthusiastic about joining together to write responses to children.

1.2. Literature review

According to Alexander (2020), Andrusiak et al. (2020), Davidson (2017), and Robinson (2017) the future of schooling must change to help more students become successful. Education, according to these and other educators, must become more personal and more personalized (DiMartino & Clarke, 2008). Schools, in the views of these authors, have been wasting for too much talent by continuing to employ methods and attitudes that were developed for times long past. Politicians and bureaucrats have tried to make teachers, principals, students, and parents more accountable, but it has not worked (Ravitch, 2020). There is little, if any proof, that all of the attempts to force educators to shove meaningless curriculum down the

throats of our students has accomplished anything other than the alienation of millions of students (Ravitch, 2020; Robinson, 2017). According to Dr. Burke Harris (2020), our young people are more stressed than ever, and this stress is causing emotional and physical harm that persists throughout life. The resolution to the harm caused by stress, according to Robinson (2010; 2017), is not to become more controlling of our teachers and their students, but rather to harness the energy, intelligence, curiosity, talents, and creativity of our teachers and students. Caine (2011; 2018) also advocated that teachers must help students become more in charge of their learning, and that teachers must help students by working with them to engage in complex immersion experiences and projects. Costa and Kallick (2008), Wagner and Dintersmith (2016), and Zhao (2012) have discussed ideas about critical thinking being as important as, if not more important than, the traditional curriculum. By not preparing our students to become the problem solvers and critical thinkers they will need to be in the future, Davidson (2017) has warned that students and their parents have no idea how underprepared educators are leaving graduates.

According to Sousa (2016; 2017), emotions are an important aspect of all learning. It is common knowledge by now that the brain's main function is to keep people safe and alive. Therefore, a vital function of the brain is the safety system, the fight, flight, freeze, or hide function when something threatens us. When students are in fear at school or living in fear, it is very difficult to learn, because when the safety function of the brain is turned on, other functions of the brain do not work as well, or are turned off (Sousa, 2017). Thus, in order to help students learn effectively, teachers should make classrooms be safe environments. Helping students to find and use their voice is an important aspect of creating a safe environment (Cohn, 2012; Preble & Gordon, 2011; Quaglia, 2014). Voice is just as important for teachers, if they are going to be leaders in the educational process (Kahlenberg & Potter, 2014). Every person in the school needs to have their voice, and those voices need to be heard. Look at the Black Lives Matter movement all around the world. In addition to the horrendous physical and emotional results of institutional racism, millions of people of color have been stripped of their voice—millions of young people are denied, on a daily basis, the basic human right to be heard. Sir Ken Robinson (2010) has been warning educators for more than a decade that schools must change. He has been asking educators to create an educational revolution. It appears that we are now on the brink, either educators create an educational revolution, or the people are likely to embark in a civil revolution.

Classrooms must be created so that students and teachers needs are met (Andruziak et al., 2020; Fitzgerald & Johnson, 2013; Glasser, 2006; Laurian-Fitzgerald & Fitzgerald, 2016, 2018; Maslow, 1970, 1971). In addition to making classrooms safe environments physically and emotionally, teachers must also help students feel cared for and about, by giving them the ability to care about and for other people. Students also must feel competent and talented, be heard, have fun, do meaningful work, and have freedom of choice. Every teacher, every day, must work to help all students believe in their worthiness—every student (Hammond & Jackson, 2015; Jennings, 2019). Any teacher who is not willing to put forth the effort necessary to help all of their students be successful in school should find another profession.

According to Papert and Harel (1991), to learn deeply, students must be engaged in the creation of meaningful work that is presented to an audience. Sitting at their desks filling out worksheets does not lead to deep understandings and does not help students make important connections. Papert and Harel believe that the act of publicly presenting the results of their work and projects helps students cement their learning. Kraus and Boss (2013) have advocated that students should be involved in meaningful project-based learning activities both individually and in small groups. Working on important projects in teams gives students the opportunities necessary to problem solve, debate, negotiate, create, be inventive, gather executive functioning skills, make connections, integrate their learning, and produce important products (Andrusiak et al., 2020; Kraus & Boss, 2013; Papert & Harel, 1991; Robinson, 2017; Sousa, 2017). These kinds of cross-disciplinary work give students the transdisciplinary skills they will need in the real world in their adult lives.

2. Research questions/aims of the research

The overall purpose of this project is to integrate four disciplines in order to assess the effects of integration of curriculum in a real-world project on student motivation, ability to learn, and attitudes towards course work. The second goal for this study is to assess the effects that helping other people has on student motivation, ability to learn, and attitudes towards course work. This study was guided by the following questions:

1. What effects does writing for a real audience have on the perceptions of the students about their learning experiences?

2. What effects does working on an integrated project in small groups have on students' attitude about their learning experiences?

3. What effects does working on an integrated project have on student attitudes related the discipline of teaching penmanship?

4. What effects does working on an integrated project, designed to engage university students in helping younger students, have on the attitudes of the university students about their learning experiences?

The purposes and research questions for this study are based on four hypotheses: 1. In order to learn curriculum more deeply, students must be engaged in work or projects that are complex (Caine, 2018; Caine & Caine, 2011). 2. Students must work in small groups when working on complex assignments or issues to help them successfully employ and practice the appropriate social and critical thinking skills essential to solve real-world problems (Johnson and Johnson, 2009). 3. To reach their full potential students must engage in work that benefits other people (Alexander, 2020; Andruziak et al., 2020; Dweck, 2016; Maslow, 1970, 1971; Norton, 2012). 4. When solving complex real-world issues, people must integrate their knowledge and skills (Costa & Kallick, 2008; Davidson, 2017; Wagner & Dintersmith, 2016).

3. Research methods

3.1. Participants

All of the participants in this study voluntarily agreed to participate. All students were assured that any student was free to volunteer or not, and that no negative consequences would occur for not participating or for dropping out of this project. Students also could choose to participate in the same work, but not participate in the project (i.e., not have their data used for the study). Additionally, students were offered the option to do a completely different project, either individually or in a small group. Every student in the four classes of students successfully completed a project.

All students were from the university in which the four professors teach. There were 54 students from the PreSchool and Primary School Teacher Certification program and 25 students from the Physical Therapy program. For the certification students, 21 were from the weekend hybrid program, and 33 were from the traditional day program. Students from four preschool or primary schools wrote letters to Santa: one kindergarten class, a first grade class, a second grade class, and a kindergarten class from a school designated for students with special needs. Two schools were from the city in which the university sits, one from a village outside of the city, and the fourth school was from a smaller city two hours from the university. There were 100 letters written from students. Teachers in each preschool or

primary school classroom volunteered to participate in the study, and they worked with parents to gather consent to allow their children to participate. The four preschool and primary school teachers assisted their students to develop their ideas and "write" their letters. Teachers also wrote additional information about their students so that "Santa" could add some personal information (e.g., the students love music or football or cooking with mom). Only first names were used for each elementary or preschool student, and the university participants did not know what schools were involved in this study. The letters were exchanged through the teacher of each school and one of the professors from the university. All information used in the study was confidential, and no names or other identifiers are used in this study. All of the work accomplished by students was normal work accomplished in teacher preparation programs and/or preschool and primary school programs.

3.2. Materials and instruments

Both qualitative and quantitative data were collected for this study. There were four forms of information gathered to answer the research questions. First, students rated 20 statements related to this study on a five-point Likert scale, from Totally Disagree to Totally Agree (scored 1–5). Statements related to the three teacher education courses—letter writing (language), cooperative learning (pedagogy), and penmanship (methods), and questions related to the engagement, effort, and meaningfulness of the process. The statements also related to the course taken by the physical therapy students—Communication, Special Education, and Psychology for the Physical Therapist. Second, students were asked at the completion of the project to add comments about their experiences during this project. Students were asked for their thoughts about their experiences and recommendations to help the professors (and other professors) in their future work. Third, at the completion of the project, one of the researchers interviewed each participating teacher to gather their thoughts about the project and to get recommendations about how we could be more effective in future projects. Finally, the professors shared their reflections from their research journals and other observations of this process. The professors debriefed our efforts and the information we received from our students in order to develop recommendations for future efforts with students. The professors reviewed and analyzed the data and developed recommendations for: (a) future research, (b) colleagues who might be interested in developing projects with their students, and (c) our individual and collective growth.

The survey statements were organized into four categories: 1. Real-world writing, 2. Cooperative learning, 3. Penmanship, and 4. Helping other people. The following statements were used to gather the ratings from the university students about their ideas:

Real-World Writing:

1. Participating in writing letters to real students made the assignment more meaningful to me.

2. Participating in writing letters to real students helped me to learn the process of writing and teaching letter writing more deeply

3. Responding to real students helped me to be more thoughtful in my writing.

4. Knowing I was writing to real students motivated me to do a good job with my letters.

5. This process encouraged me to create real-life activities for my students when I become a teacher.

Cooperative Learning:

6. This process helped me to understand cooperative learning more thoroughly.

7. Integrating work for three subjects modelled the importance of cooperative learning.

8. Because the process was complex, it was important to have other students help me.

9. Observing the cooperation among the four teachers helped me understand the importance of teaching cooperative learning when I become a teacher.

10. Working in cooperative groups doing a real-world task was beneficial to my professional development.

Penmanship:

11. My penmanship skills improved because I was writing for real audience.

12. Because I knew real people were going to be reading my letter I put in more effort into my penmanship.

13. Participating in this project helped me understand the importance of good penmanship.

14. This process helped me to think about ways to teach penmanship for my students.

15. I will use real-world experiences for my future students when I teach penmanship.

Helping Other People:

16. I felt good about myself knowing that the letter I was writing was going to help a real student.

17. Even though this process was complicated I feel good about what I accomplished.

18. Helping a real student enjoy the holidays was very satisfying to me.

19. Because of this process, I want to teach my future students to help other people.

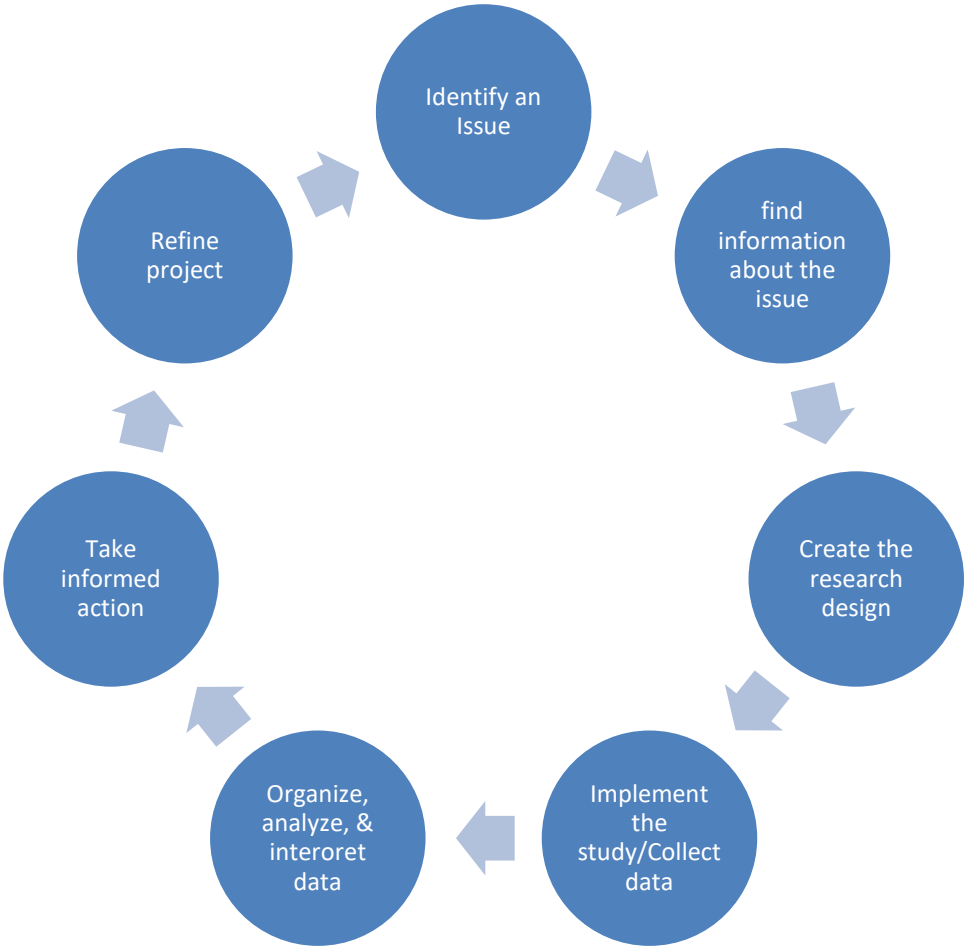
20. I feel good about becoming a teacher because I know I will make a difference in the lives of my students.

3.3. Procedure

The professors and students agreed to participate in this collaborative and participatory action research project. According to Efron and Ravid (2020), collaborative and participatory action research is a process that is constructivist in nature, situationally based, practical, systematic, and cyclical. Teachers and students were co-researchers, working in real-time to address an issue identified by the co-researchers as being important to improve the education process for the sake of students and their instructors. The action research process is cyclical in that once implemented, as data is collected, it is analyzed in order to refine the process. For example, when participants began to draft their responses for students, it became very apparent that writing responses that would be meaningful to young students is more complicated than students first imagined. Signing the letters so that all 100 signatures looked like the same person's signature was also more complicated than first thought. Students in the physical therapy class were not as used to creating something for the public consumption of young people, and students were nervous that young students would not be happy with their letters. Adjustments had to be developed to overcome these issues. In addition to the peer assistance developed in their cooperative groups, some students volunteered to become "experts" in different areas—addressing the envelopes, signing the letters, copying the letters (for people who wanted more proficient handwriting), and editing the final letters. This process, as displayed in Figure 1, was iterative and cyclical until the study was completed. Then the final results were analyzed and interpreted. From this data, researchers made recommendations for: (a) future research, (b), our future practice, and (c) colleagues.

Figure 1. The Collaborative and Participatory Action Research Process

(Source: Authors own contribution)



According to Sagor (2000), action research is a seven-step process: 1. Selecting a focus, 2. Clarifying theories, 3. Identifying research questions, 4. Collecting data, 5. Analyzing data, 6. Reporting results, and 7. Taking informed action. Sagor (2000) also related that action research is important for teachers because the teaching and learning process is complex, and, in order to improve our effectiveness, educators must make decisions based on our data. One of the issues related to educational reform is that many

reforms are forced onto schools from organizations or people outside of the school. The people most affected by these reforms (students and teachers) have had little to no say in the reform efforts (Robinson, 2017). According to Bolman and Deal (2018), this causes educators and students to feel alienated by the system. This alienation causes problems of buy-in on the part of teachers and students. Instead of forcing teachers and students to meet the agendas of other people, Sagor (2000) has discussed the notion that teachers should form Professional Learning Communities (PLC) within their schools to discuss ideas for improving teaching and learning. As members of the PLC identify issues, they can plan an action research study to address those identified issues, implement their intervention, collect and analyze data, develop recommendations, and take informed action.

4. Results

4.1. Results

Four data collection tools were incorporated in this study: 1. A university student survey in which students rated their agreement with statements based on a five-point Likert scale from Totally Disagree to Totally Agree. There were 20 statements on the survey that were divided into four areas (5 statements in each area): (a) Real world writing, (b) Cooperative learning, (c) Penmanship, and (d) Feeling positive about helping younger students. 2. Students were given an open ended prompt asking them to give recommendations to the professors and other comments about the project. 3. Teachers, in the schools from which students wrote letters to Santa, were asked for feedback about their experiences and those of their students. 4. The professors involved in the study were asked to share their observations of the project and recommendations for future projects.

4.2. Survey results

Table 1 displays the results from the student survey. The feedback from the students were scored on a five-point scale, from Totally Disagree (1) to Totally Agree (5). For the purposes of the study, the level of mean scores were determined according to the following: 1–1.9 = Very Low; 2.0–2.75 = Low; 2.76–3.75 = Medium; 3.76–4.49 = High; 4.50–5.00 = Very High. The range of mean scores was 4.15–4.93; every mean score was considered to be either High or Very High. Ten scores (statements 3, 4, 7, 9, 12, 16, 17, 18, 19, and 20) were in the Very High range, while the other ten scores were in the High range. For the four sections of the statements, the means were as follow: Real World Writing = 4.66 (Very High); Cooperative

Learning = 4.45 (High); Penmanship = 4.42 (High); and Feeling Good about Helping a Student = 4.80 (Very High). The overall mean score was 4.59 (Very high).

Table 1. Student Survey Results (Source: Authors own contribution)

Statements	Mean	% Agree & Totally Agree
1. Participating in writing letters to real students made the assignment more meaningful to me.	4.52	93
2. Participating in writing letters to real students helped me to learn the process of writing and teaching letter writing more deeply	4.54	93
3. Responding to real students helped me to be more thoughtful in my writing.	4.82	98
4. Knowing I was writing to real students motivated me to do a good job with my letters.	4.89	100
5. This process encouraged me to create real-life activities for my students when I become a teacher.	4.54	87
6. This process helped me to understand cooperative learning more thoroughly.	4.24	83
7. Integrating work for three subjects modelled the importance of cooperative learning.	4.63	96
8. Because the process was complex, it was important to have other students help me.	4.41	89
9. Observing the cooperation among the four teachers helped me understand the importance of teaching cooperative learning when I become a teacher.	4.57	98
10. Working in cooperative groups doing a real-world task was beneficial to my professional development	4.41	85
11. My penmanship skills improved because I was writing for real audience.	4.06	74
12. Because I knew real people were going to be reading my letter I put in more effort into my penmanship.	4.69	98
13. Participating in this project helped me understand the importance of good penmanship.	4.72	93
14. This process helped me to think about ways to teach penmanship for my students.	4.15	72
15. I will use real-world experiences for my future students when I teach penmanship.	4.50	89
16. I felt good about myself knowing that the letter I was	4.80	98

writing was going to help a real student.		
17. Even though this process was complicated I feel good about what I accomplished.	4.87	98
18. Helping a real student enjoy the holidays was very satisfying to me.	4.93	100
19. Because of this process, I want to teach my future students to help other people.	4.67	96
20. I feel good about becoming a teacher because I know I will make a difference in the lives of my students.	4.74	96

To further assess the trends for the 20 survey statements, we determined the percentage of students who chose Agree or Totally Agree with each statement. For the purposes of our study we determined the following scale: Very High = 90–100%; High = 80–89%; Medium = 70–79%; Low = 50–69%; Very Low = < 50%. Thirteen statements were rated in the Very High range of scores (statements 1, 2, 3, 4, 7, 9, 12, 13, 16, 17, 18, 19, and 20). Five score fell in the High range (statements 5, 6, 8, 10, and 15). Two statements fell in the Medium range of scores (statements 11 and 14). For each of the four categories three scores were in the Very High range (Real World Writing = 94%; Cooperative Learning = 90%; and Feel Good about Helping = 96%) and one score was in the High range (Penmanship = 85%). The overall percentage of Agree and Totally Agree was 92% (Very High).

Our project assessed four research questions:

1. What effects does writing for a real audience have on the perceptions of the students about their learning experiences?

2. What effects does working on an integrated project in small groups have on students' attitude about their learning experiences?

3. What effects does working on an integrated project have on student attitudes related to the discipline of teaching penmanship?

4. What effects does an integrated project, designed to engage university students in helping younger students, have on the attitudes of the university students about their learning experiences?

The data for question one (What effects does writing for a real audience have on the perceptions of the students about their learning experiences?) indicate that doing work for a real audience made an important difference for our students. All students agreed or totally agreed that they were more motivated to do well, because they knew their work was going to be used by real people. Almost all students (98%) agreed or totally agreed that doing work for real people made them be more thoughtful in

their efforts. Additionally, 93% of the students rated that doing work for real people made their efforts become more meaningful and helped them to learn how to teach writing more deeply. Most students (87%) agreed or totally agreed they were encouraged to bring real-life lessons into their future teaching and learning activities. These results display that doing real-world work helped our students to be more motivated, more thoughtful, and learn more deeply how to write and how to teach writing to their future students.

The data for question two (What effects does working on an integrated project in small groups have on students' attitude about their learning experiences?) indicate that almost all university student participants believe that the model of their professors integrating their disciplines (96%) and working together as a cooperative group (98%) was an important factor in motivating students to believe that cooperative learning is an important pedagogical tool. Most students also found the cooperative learning process is important when students are working on complex issues (89%) and real-world issues (85%). Most students (83%) also believed that experiencing this cooperative project helped the university students to more thoroughly understand cooperative learning.

A review of the data as it related to question three (What effects does working on an integrated project have on student attitudes related to the discipline of teaching penmanship?)

indicated that almost all students rated they worked harder on good penmanship (98%) because they knew they were writing for real students, and participants realized that good penmanship is important (93%). Most students (89%) rated that they will use real-world experiences when they teach penmanship to their future students. The majority of students (74%) rated that their penmanship improved due to this project, and this project helped students to contemplate about how they might teach penmanship for their students (72%).

Data connected to the fourth research question (What effects does an integrated project, designed to engage university students in helping younger students, have on the attitudes of the university students about their learning experiences?) indicate that almost all of the students believed that helping other students had a major positive impact on the university students. All of the students indicated that helping others made our students feel very satisfied with their efforts; 98% of the students indicated they felt good about themselves, and although the process was complicated, students were very satisfied with their efforts and work; almost all of the students (96%) rated they will help their future students help other people, and our

students feel good about becoming teachers because they believe they will help their students.

Our conclusion from the student survey results is that students believed their efforts were very worthwhile. It was interesting to observe how many of these future teachers scored the statements about feeling good about helping another person at such a high rate. That is a great sign for their future students. These participants also scored at very high rates the importance of doing their work for real people. This integration process, though fairly complicated, indicates that students enjoyed the challenges and saw the utility of this process for working with their future students. Students believed they were doing worthwhile work and that helped them to more deeply learn their curricula.

We also asked students to give recommendations and/or comments about this process (see Table 2 and Table 3). There were 47 comments/recommendations written by the participants. The students took their work very seriously, and we were told by a variety of students comments similar to this student's words, "I need help to figure out how to word my letter. I do not want my kid to be unhappy with the response. It is really important to get this right." Our students understood how important their responses would be for the younger children.

In their recommendations, 17 students wrote about how this process was complex, and they felt they needed help to accomplish their work well (see Table 2). One student wrote, "Be more organized, we needed more time to write the letters." Another student said, "This is a lot harder than I thought it was going to be." Their recommendations were very accurate, and it was eye opening to see how important it is to anticipate the seriousness of doing the work for real people.

Eight students recommended that professors do more of these kinds of projects, and they connected their ideas with helping children. One student wrote, "Practice these types of activities more often, for other holidays, make it for a charitable cause." Another student wrote, "I wish that for 8th of March to write letters to kids who do not have parents close by, especially mothers." Their ideas remind us of the research that indicates that when people do good things for other people, both parties benefit (Norton, 2012). Norton related how people who do things to help other people are happier people. As the old saying goes, "It is better to give."

Five students made comments about learning about how important cooperative learning is for teachers. One student wrote, "It made me realize how important is cooperative learning, working with my peers." Another student put it this way, "It was a real pleasure to work with my colleagues. It

made me realize how important cooperative learning is." Their reminder was great information for the professors in this project. Working with groups and projects is more complex, but it is so important to help students critically think and sharpen their social skills (as well as learn more deeply).

Finally, five students wrote about their pride in not giving up even though the process was complex. One student said, "I did not give up, and that was the greatest thing." Another student put it this way, "It was hard, but I am very satisfied that I did not give up." Dweck (2016) reminded us how important it is to help students learn to persevere throughout schooling (and throughout life). What a great lesson for future teachers to learn.

Table 2. Recommendations (Source: Authors own contribution)

Complexity—Need Help
Be more organized, we needed more time to write the letters
This is a lot harder than I thought it was going to be
Do More
Practice these types of activities more often, for other holidays, make it for a charitable cause.
I wish that for 8th of March to write letters to kids who do not have parents close by, especially mothers.

Table 3. Comments (Source: Authors own contribution)

Helping Children/Childhood Memories
Participating it made me think of my childhood. It is good to stop from time to time and hep whoever we can, to bring joy to children's souls.
This activity made me realize that the letter is really getting to a real child. This filled my soul with pride and satisfaction.
Cooperative Learning
It made me realize how important is cooperative learning, working with my peers.
It was a real pleasure to work with my colleagues. It made me realize how important cooperative learning is.
Persistence
I did not give up, and that was the greatest thing.
It was hard, but I am very satisfied that I did not give up.

4.3. Teacher comments

The researchers also talked with the teachers of the students who wrote letters and received comments. Each teacher related how excited their students were to receive their letters. Many students were happily surprised

to read about good things "Santa had heard about" the students. One teacher related a child had run to her and exclaimed, "Look he (Santa) really knows me. I did not tell him I loved football, but he knows it!" Two of the teachers related how students or their parents had told the teacher about a child who was not sure they should any longer believe in Santa. One teacher said, "It was heartwarming to hear how he was so happy to be able to believe longer." Another teacher said, "It is like magic to see a child being so happy to be a child." A teacher from the school for children with special needs said, "My kids were so excited. I was almost in tears in front of them." When told about how the children our students had written to had responded so happily, one of our students said, "That warms my heart." One teacher related how a student with special needs told the teacher and the class that Santa had written, "You will do better in the new year," she related that the class applauded the student and many students said they would help him do better.

4.4. Professor comments

At the completion of the process the professors debriefed in order to think about how to improve the process for projects such as this one. All of the professors felt that most of the students were very excited about this project. Even though some of them were nervous about writing to real students, they came to class ready to try. Many students rewrote their letters multiple times, asked for help from teachers and peers, and accepted advice. Students had to put in great effort to complete the project well. One professor said, "Even though they were tired, the students maintained their enthusiasm and energy." Another profess stated, "I was so impressed with how caring my students were in their letters." Another professor stated, "This was a great experience for my students, because in these days, opportunities to practice beautiful writing are rare." Finally, another professor said, "This was a great way for students to integrate their learning and to work in cooperative groups. Usually, there is not enough time to offer these kinds of deep experiences."

5. Discussion

The researchers for this study have created the following recommendations for future research: 1. Research in relationship with helping other people should be expanded into all areas of education (K–12 and university). 2. Educators need training with how to help students develop their own projects in which professors become advisors for

students, instead of the professors developing the projects. Thus, research is needed to find or develop best practices in that process. 3. Research on best practices for cooperative learning and other kinds of teams is necessary. For example, how do educators help students learn specific skills in their groups/teams (e.g., leadership skills, problem-solving skills, negotiation skills). 4. Research on the changing roles of teachers and students should be explored to explicitly develop best practices to help students move from receivers of knowledge to creators of knowledge; and for teachers to move from professors of knowledge to co-creators of knowledge.

This research group has one recommendation for themselves and our colleagues. As one student told us, "Do not be afraid to try these kinds of experiences. Your students will learn so much, even if the project does not work as you would like it to work." We are reminded that courage is not the lack of fear, but rather, courage is being afraid and moving forward anyway. We recommend for ourselves and our colleagues to move ahead one small step at a time, but to move forward. We cannot make progress if we retreat into the same old, same old. Equity and inclusion will not happen through magic (CAST, 2018), it will take courage and hard work on the part of all educators. So, we say, be afraid, and go forward anyway, because it is the right thing to do for the right reason.

6. Conclusions

There are several important conclusions from this study. First, a very high percentage of the students grew during this process. As students worked in their groups, they gained confidence in their selves and with each other. At the beginning, some students struggled with the group work, but as they realized they needed each other's help, they overcame their misgivings about working with different people. In terms of Johnson and Johnson (2009) the groups developed a sense of "positive interdependence" in which they realized they would be helped when needed, and they would help when others needed assistance. The real world nature of their work was more important to do well than was their unease of working in new groups.

Second, the seriousness with which students took their work was very encouraging for the professors. Students were reaching out to each other and to their professors for help, because they wanted their letters to be great for their young people. For some students, we had to help them to overcome their perfectionist attitude. There were some great discussions about the difference between doing one's best and the feeling that whatever they did would never be good enough. Some students learned that asking for

help is a sign of strength, not a sign of weakness. It was beautiful to watch students accept help from their peers (and their professors).

Third, for the students from the physical therapy department, the professor was nervous that students who were not elementary school majors would think writing letters to young children would be childish. Not only did the students step out of their comfort zones, they did so with enthusiasm. When asked if they would want to view the movie Klause (an animated movie), the class unanimously voted to view it to set the tone for writing their letters. The students showed up to class for the movie and were attentive throughout. At the end of class, many students thanked the professor for bringing in the movie. It was a lesson about how important it is for people to do something nice for children, no matter one's position.

Fourth, the idea of creating opportunities for our students to help other people is an important one. As Norton (2012) points out, it is not important that the good deed is a big deal, the size of the good deed is not as important as is the mentality of wanting to help in some way. Doing the right thing for the right reason appears to be very motivating for our young people. That is so exciting to see in the next generation of teachers and other professionals.

Finally, it is important to center the work of schools on the students. It is vital to help students become fully engaged in their learning. Student-centered teaching and learning is important, and we believe that all of us have to work hard to understand how to change our roles and what we do as professors. Critical thinking, learning how to work in teams, gaining real problem-solving skills, and helping students own their learning cannot occur under traditional systems of schooling. Most importantly, for schools to be equitable and inclusive, teachers and administrators must change the paradigm of education, the practices of education, and the goals of education to become fixed on student success and growth, and that can only be done by shifting the relationship between teacher and learner into a much more collegial one, where professors guide, advise, mentor, co-create, and honor the potential of every student with whom we work.

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