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Applied Learning on a Study Abroad: Teaching Community Emergency Preparedness in the Balkans

LEE DAYBERRY
Capella University
JOHN FISHER
Utah Valley University

ABSTRACT

Natural disasters and human-made hazards in the Western Balkan region have led seven countries and territories to meet, discuss, and attempt "to create a sophisticated network of disaster experts and officials" (United Nations Development Programme, 2017). This is the fourth study abroad where students from Utah Valley University went to Kosovo and North Macedonia to study emergency response and teach community preparedness. In addition to earthquakes, fires, floods, and other disasters, the region has suffered through wars, forced-evacuations, economic and political instability and other human-caused tragedies. In 2015-2016, these countries were faced with a large migration of refugees from passed through to Western Europe. Most students on the study abroad were studying emergency response and community resilience. The Western Balkan region provided an ideal situation to learn about disasters and refugees. This study shows how applied learning approaches like a study abroad, community service, and teaching practicum can enhance student learning and prepare them for future careers.

LITERATURE REVIEW

In the literature review, various studies concerning applied learning are examined, including the incorporation of reflection in applied learning and the utilization of study abroad programs as a means of applied learning. It also provides details about the CERT program and offers background information about the Balkans. The section dedicated to the Balkans contains a depiction of the dangers that impact the region, as well as the Sendai Framework, a program sponsored by the United Nations aimed at addressing these hazards. This information holds significance because the study abroad program focuses on training local individuals to effectively handle hazards and the subsequent emergencies. The literature review serves as a framework for analysis of the data gathered in this study.

Applied Learning

According to Schwartzman and Bouas Henry (2009), “applied learning” relates more to a spirit or movement in education than to a definitively bounded subject matter (p. 4). In the context of this study, applied learning refers to educational approaches related to engaged scholarship, civic engagement, communities of practice, experiential education, and critical pedagogy where students take experiences and apply them to their classroom studies and life. Although diverse, these approaches have some common features. They all emphasize the importance of "learning by doing" through concrete experiences. In other words, students are actively engaged in putting theoretical concepts into practice, making applied learning a form of active learning. Trolian and Jach (2020) propose applied learning in and outside the class as a means of motivating students.

Applied learning can take various forms, including curricular or co-curricular activities related to coursework or other institutional opportunities like student service projects. Such practices always have an educational aspect that distinguishes them from volunteer work done solely for its intrinsic value, as observed by those involved in service-learning. While they expand beyond the traditional classroom setting, applied learning practices complement, rather than replace, other teaching methods. Higher education typically sees applied learning practices in forms such as studying away in off-site environments like studying abroad or community-based learning, service-learning, independent research, and internships, practica, or clinical experiences. The distinguishing feature of these practices is the educational component at their core, setting them apart from extracurricular activities carried out purely for their inherent humanitarian worth (Schwartzman & Bouas Henry, 2009).

Philosopher Gilbert Ryle made a clear distinction between applied learning and theoretical knowledge. Ryle (1949) proposed that intelligence combines two types of knowledge: "knowing that" and "knowing how." "Knowing that" involves understanding theory and mastering facts and principles, while

"knowing how" involves demonstrating skill in performing a task. The integration of these two types of knowledge is essential to intelligence. Applied learning extends beyond job training and aims to connect knowledge to lived experience. Scholarship on applied learning investigates the relationship between understanding theory and skillful practice. For example, when learning how to play a game, "knowing that" involves internalizing the rules, while "knowing how" involves the ability to execute moves in the game.

According to Ryle (1949), having practical skills alone, without a theoretical understanding, may not produce the intended outcomes consistently. Even the fastest runner cannot win a race without knowing the correct direction to run in. Ryle suggests that combining theory with practice allows learners to go beyond mere training and develop self-discipline, which is a hallmark of lifelong learning. He argues that being intelligent involves not only meeting standards but also applying them, regulating one's actions, and not just being well-regulated. “To be intelligent is not merely to satisfy criteria, but to apply them; to regulate one’s actions and not merely to be well-regulated” (p. 28).

The idea of applied learning is frequently mentioned in academic discussions about vocational education. Scholars have recognized that in order to adapt to a knowledge-based economy, individuals must be able to apply their knowledge to various tasks, which can only be achieved through hands-on experiences that go beyond traditional classroom settings (Kolde, 1991). There is an increasing demand for higher education to be more applicable to real-life situations, which has led to a greater emphasis on applied learning, not just for job training purposes but for the general public who believe that knowledge should be connected to real-world experiences.

Fisher, Means, and Corson (2014) validate that the exercise and training methods required by U.S. National Incident Management System (NIMS) for first responders are effective for educating and training students about emergency preparedness. Simulation-based exercises also provide practical learning opportunities that complement traditional classroom instruction. Participating in emergency response exercises helps students boost their confidence, improve their teamwork skills, establish personal and professional relationships, and test and enhance their knowledge and abilities related to disaster response. The CERT program provides the training and exercises students can use to develop skills and knowledge about emergency preparedness.

Reflection in Applied Learning

Maxfield and Fisher (2012) experimented using reflection techniques among students taking an online Homeland Security course. The course followed Kolb's (1984) four-stage cycle of experiential learning, where in stage two students used reflective observation to explore how they could apply their new knowledge in their workplaces. While traditional students were prompted to relate their learning to future work experience, non-traditional students

leveraged their work experience to enhance their learning. The diverse knowledge and experiences of non-traditional students added value to the learning environment for all students. Case studies, reflective papers, simulations and training, role playing, journaling, and discussions were used to help students apply their learning (Jarvis, 2001).

The DEAL model (Ash and Clayton, 2009) was used as a means of encouraging critical reflection among students. The DEAL model consists of three steps: a) description of experiences in an objective and detailed manner; b) examination of those experiences considering specific learning goals or objectives; and c) articulation of Learning, including goals for future action that can then be taken forward into the next experience for improved practice and further refinement of learning (p. 41). Students responded to the questions: What did I learn? How did I learn it? Why does it matter? What will I do in light of it?

The Homeland Security course utilized discussion and critical reflection exercises to provide both cognitive and emotional learning opportunities that allowed students to make sense of their experiences. Through contemplation, reflective practice, and experimental learning, students were able to achieve a deeper level of learning. Journaling helped students become reflective learners who could examine their own personal growth and feelings of empowerment. As a result of this approach, students were able to think outside the box, consider new ideas, and explore alternative options. They gained a better understanding of the subject matter and became more knowledgeable.

Russell and Fisher (2014) did a follow-up study, based on Maxfield and Fisher's initial findings (2012). Reflective thinking and keeping a journal can be used to evaluate students' achievement of stated objectives, as well as uncover any implicit objectives. By engaging in reflective journaling, it is possible to identify unintended learning outcomes among students. These techniques are particularly useful for emergency services and homeland security education, which often involve non-traditional students who are already practitioners in the field. Additionally, reflective journaling is an effective way to gauge how well a course addresses affective objectives, such as developing "global awareness" and an "awareness of vulnerabilities to the nation."

Study Abroad as Applied Learning

The study abroad is one of many alternatives in applied learning (Schwatzman & Bouas Henry, 2009). Study abroad programs typically involve students traveling to a different country to study and immerse themselves in a different culture. These programs go beyond just visiting tourist attractions and offer valuable experiences that enhance the students' learning. While colleges and universities commonly offer study abroad programs, there are also independent organizations that provide such opportunities. These programs can range from a few weeks to an entire academic year or more and offer various academic subjects and cultural experiences. Students may attend local institutions or study centers, participate in cultural activities, language

immersion programs, internships, or volunteer work. The main objective of these programs is to help students broaden their knowledge, gain new perspectives, and develop intercultural competencies that will prepare them for a globalized world.

The academic community has frequently discussed the significance of service-learning and study abroad programs in higher education, but there has been little written about the link between the two. Typically, the connection between these two entities is described as participating in service-learning projects while abroad. However, there is another relevant link that is not frequently addressed, which involves using service-learning after returning from studying abroad to share firsthand experiences with the local community. Davis & Tietz (2012) reported their experience where, after returning from a study abroad in Central America, Tietz presented information and answered student questions in an afterschool program in Missouri. Tietz was able to provide the children firsthand accounts, knowledge, pictures, and objects, which sparked their curiosity and motivated many of them to learn more about the world beyond their immediate surroundings. By introducing this intercultural perspective and dialogue at an early age, these children may become better equipped to function effectively in a diverse and globalizing world. This increase in desire to learn and development of relationships is a common benefit of service-learning, and this project combining service-learning and a study abroad embodies it.

Fisher, Means & Corson (2014) introduced National Incident Management System (NIMS) training and exercises into a study abroad. The study reported on the use of CERT as one vehicle for this training. Students developed skills through practical application in simulated disaster scenarios. The exercises promoted teamwork and leadership among the students, while also allowing them to establish relationships with professionals that could benefit them in their future careers. Ultimately, the hands-on experience gained from training and exercises enhances the students' classroom learning and gives them greater confidence in their ability to respond effectively under pressure.

Community Emergency Response Team (CERT)

CERT is a training program for citizens to help them prepare for disasters or other emergencies and provide them with skills they can use if called upon to assist first responders. It is ideal for students who want life skills to supplement their main area of studies. It also fits the applied learning model where students learn outside the class skills and knowledge they can apply to their studies. It also fits into a study abroad program because it provides students' opportunities for community service, training and teaching, and experiential learning.

In 1985, the Los Angeles City Fire Department developed and put into action the CERT concept. The need became more evident with the Whittier Narrows earthquake in 1987, which highlighted the risk of a massive disaster in California and the requirement to train ordinary people to fulfill their urgent

requirements. The CERT program was adopted at the national level in 1993, and it is now operational in all 50 states, as well as several tribal nations and U.S. territories. Each program is specific to its region, and they are all essential in establishing a preparedness culture in the United States. There are now more than 2,700 local CERT programs across the country, and over 600,000 people have been trained since the program became national (FEMA, 2022).
CERT certified individuals are considered an asset while performing emergency functions needed after a disaster or emergency, while waiting for the emergency responders to arrive. Once the emergency responders have arrived, "CERT members can continue to assist where required" (Fisher, Means, & Corson, 2014).

The program provides a model for training and exercises that covers the basic skills people need to know to meet the community's immediate needs following a disaster or emergency. CERT members take training from a sponsoring agency, like an emergency management agency, fire department or police department in the area where they live or work. CERT training uses a combination of orientation seminars, drills, and tabletop exercises followed by a final simulation. CERT course contents have nine units which consists of: Unit 1: Disaster Preparedness, Unit 2: Fire Safety, Unit 3: Disaster Medical Operations- Part 1, Unit 4: Disaster Medical Operations- Part 2, Unit 5: Light Search and Rescue Operations, Unit 6: CERT Organization, Unit 7: Disaster Psychology, Unit 8: Terrorism and CERT, Unit 9: Course Review, Final Exam, and Disaster Simulation (FEMA, 2022).

According to the Unit 1 Instructor's Guide, CERT is about helping prepare individuals to protect themselves, and their communities while helping others have the ability to "do the greatest good for the greatest number after a disaster" FEMA (2022). In the Balkans study abroad, we used CERT training to give students an opportunity to give community service by teaching emergency preparedness. It also opened doors to learning from local officials and first responders.

Background of Situation in the Balkans

A variety of hazards have put the lives of people in Macedonia, Kosovo, and Albania at risk. Some of these hazards are the "result from the geography of the region whereas others are a product of human action/inaction" (United Nations Development Programme, 2016). The natural hazards and human-made hazards can have an effect not only in North Macedonia, Kosovo, and Albania but others in the region of the Balkans. These countries are seeking new approaches and knowledge that can have an effect for the Western Balkan region to be able to cope with the increased risk of hazards. The focus has been on saving lives. Setting up early warning systems, evacuation centers, and local response teams has helped. However, while these efforts are essential, they may not be sufficient in minimizing the effects of hazards on people's livelihoods, and in facilitating a swift recovery for households and communities. There is a

need to focus on building strong, resilient communities, which are prepared to address the specific disaster risks of the area. Involving community members in disaster response programs will encourage the communities to rely on their own resilience and community-based interventions (United Nations Development Programme, 2016).

Hazards

"Natural hazards are unavoidable and inevitable" (Federal Emergency Management Agency, 2013). Areas of Western Balkan regions are more prone than other areas to specific kinds of natural hazards (geo-physical, hydro-meteorological), hazardous events, and at certain seasons of the year. Factors for natural hazards can include the location of the community and its "topography, geology, ecology and patterns of land-use" (Federal Emergency Management Agency, 2012). The Western Balkan region has multiple common natural hazards which consists of "earthquakes, landslides, floods, droughts, heatwaves, and wildfires" (United Nations Development Programme, 2016).

Man-made hazards can be a direct or indirect threat and a source of a hazard that can possibly influence a disaster and put at risk the communities and the environment itself. These hazards can be the result of "human economic and industrial activity but also individual and societal behaviour" (United Nations Development Programme, 2016). The Western Balkan Region is a rich environment in mineral resources of base metals (aluminum, chromium, cobalt, copper, iron, lead, magnesium, zinc, etc.), precious metals (gold, platinum, etc.), coal, natural gas, and petroleum which are important sectors for jobs in the region but mining these can cause disastrous effects.

Due to the conflicts and wars of the past within the region of the Balkans, "landmines, unexploded ordnance (UXO) and surplus ammunition" remain as hazards to the community (United Nations Development Programme, 2016). According to Dr. Muhaedin Bela and Zijavere Keqmezi, "dismantling of weapons was a priority that the government of the Albanian state had undertaken with NATO. There were close to 100,000 tons of old ammunition from 40-50 years" (Bela & Keqmezi, 2018). The presence of these wartime products leftover from conflicts has left the region more susceptible to hazards and put the community members at high risk. This impedes the development and maintenance of the necessary infrastructure for land-use.

Sendai Framework

The Sendai Framework for Disaster Risk Reduction 2015-2030, which was adopted and endorsed by the UN General Assembly at the Third World Conference for Disaster Reduction in March 2015 "places strong emphasis on disaster risk management with a view to achieving substantial reductions in disaster losses over the next fifteen years" (United Nations Development Programme, 2016). The Sendai Framework is aimed to be implemented globally as a multi-hazard management of disaster risk for different countries to adopt.

The Sendai Framework can be used at all levels of government which could apply the framework to "small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters, caused by natural or manmade hazards as well as related environmental, technological and biological hazards and risks" (United Nations Development Programme, 2016). The Sendai Framework outlines the scope and purposes of the program, the expected outcomes, goals, seven target areas, four priorities areas for action, and thirteen guiding principles.

In the 2015 meeting, an initiative to incorporate the Sendai Framework was proposed and agreed upon between seven countries in the Western Balkans for the next fifteen years. The region has a target goal to achieve an increase in "the number of cities and human settlements adopting and implementing integrated policies and plans" to become more resilient and prepared for disasters (United Nations Development Programme, 2016). The Western Balkan region aims to address disaster risk through the encouragement of global commitments and the exchange of experiences which could be translated "into local action and communicated to local audience in ways that bring about changes in behaviour" (United Nations Development Programme, 2016).

Purpose of the Study Abroad

Utah Valley University (UVU) has sponsored five study abroad programs in southeastern Europe. The group in this study abroad included seven Utah Valley University students, two faculty, and two faculty spouses. In addition, the study abroad was joined by an alumnus who had participated in three prior programs, two hosts with local knowledge and connections, and a bus driver. The students used CERT as the basis for training and panel discussions with University of Tetova students, Kosovo Academy of Public Safety (KAPS) students, local municipal officials, local emergency responders, Red Cross officials, Red Cross volunteers, community volunteers, and other community members from North Macedonia and Kosovo. In addition, UVU students had the opportunity to experience multicultural aspects of North Macedonia, Kosovo, Albania, and Greece.

The plan was intended to:

- involve students in training exercises and demonstrations;
- incorporate, reinforce, and verify the lessons learned by students; and
- identify and add to the preparedness capabilities of the local citizens.

PROBLEM STATEMENT

Natural and human-made hazards have accentuated the need for community preparedness and response. Typically, community members are the first to help before emergency responders can arrive. It is important to recognize preparedness as a system, requiring the continuous integration of plans, training programs, exercises and evaluations for the community. This research focuses on the impact of Community Emergency Response Team (CERT) training and

panel discussions offered by UVU students to target groups in the Balkans.

Research questions

The first research question is: Will the Community Emergency Response Team (CERT) training build confidence, develop teamwork, establish relationships, and test the knowledge and skills of the study abroad students while encouraging the local students, municipal officials, emergency responders, and community volunteers to become agents of change for their respective communities?

A secondary research question is: Would the Community Emergency Response Team (CERT) be considered an effective program in building a community of resilience for the countries of North Macedonia, and Kosovo?

Significance of the study

The study sought to determine if students on a study abroad would benefit from community-service where they taught and discussed emergency preparedness with local citizens. The primary goal of the Community Emergency Response Team (CERT) training and panel discussions was to orient the local students, community members, and professionals to the CERT program and allow for an increase of cohesion and resilience for their community in preparation for an emergency or disaster. The study explored how well the study abroad students did in achieving these goals while satisfying their own personal needs whether for a successful multicultural experience or for developing skills and knowledge they could apply in their own studies and lives.

METHODOLOGY

A qualitative approach was used for this study. Ethnography, which uses observation, provided a foundation for the study, allowing the researchers to provide rich data and assure the validity of information gathered from an online qualitative survey. Robson and McCartan (2016) describe ethnography as a method that "provides a description and interpretation of the culture and social structure of a social group" (p. 157). The qualitative ethnographic design allowed the researchers to "observe and study the group in its natural setting, and to take part in what goes on there" (p.158).

When used, the participant observer method "involves not only a physical presence and a sharing life experiences but also entry into their social and 'symbolic' world through learning their social conventions and habits, their use of languages, and non-verbal communication" (Robson & McCartan, 2016, p. 323). As participants in the study abroad, this approach allowed the researchers to gather information with "an open, nonjudgmental attitude, being interested in learning more about others, being aware of the propensity for feeling culture shock and for making mistakes, the majority of which can be overcome, being a careful observer and a good listener, and being open to the unexpected in what is learned" (Kawulich, 2005; DeWalt & DeWalt, 1998). Through this approach, the

researchers intended to observe and explore a lived experience during the study abroad program. The flexibility of the approach allowed the researchers to determine the amount of their participation (DeWalt & DeWalt, 2002).

Sources of Data

The participants were seven Utah Valley University students, four of which were graduates in the Master of Public Service program and three undergraduates in various programs throughout Utah Valley University, two Master of Public Service professors who led the study abroad program with their wives, and one former Utah Valley University student who was brought to assist with instructing CERT training. The researcher used participant observation and descriptive observation to take field notes about the different interactions of the cultural differences, panel discussions or trainings of CERT, and the overall experience of the study abroad students. A focus group of the Utah Valley University students was held at the end of the study abroad experience and participants received a critical reflection questionnaire on Qualtrics about their experience of training and teaching CERT and the study abroad experience. Daily meetings were held where participants were involved in an After-Action Report (AAR) in the evening and planning session in the morning.

Utah Valley University Study Abroad to the Balkans

The study abroad was designed for the students to gain the real-life experience of humanitarian interactions with international professionals, and train community members and students at universities in the Balkans. The study abroad required pre-requisites for the students to have CERT training and attend the Utah Valley University humanitarian service class. While in the Balkans, the students would be able to share their background and CERT training experience with other international students, international professionals, and community members. They had a teaching opportunity, participated in panel discussions of local disasters, and had a multicultural experience of the Balkans countries. Utah Valley University (UVU) students visited North Macedonia and Kosovo, where they met with and had panel discussions to exchange information and learn from professionals about their programs, disaster response structure and procedures in their respective countries. The students met with (a) the mayor of Tearce, North Macedonia, (b) the vice director, administration and faculty of University Tetova, (c) the director and officials of the North Macedonia Protection and Rescue Directorate, (d) the director and officials of North Macedonian Crisis Management Center, (e) the director of the North Macedonia Transit Center, an active refugee camp), (f) the director, administration, and faculty of the Kosovo Academy for Public Safety (KAPS), (g) the mayor's executive assistant and officials of Gjilan, Kosovo, and (h) Red Cross officials and volunteers in Gjilan, Kosovo.

The American students had an opportunity to teach CERT and hold training demonstrations to (a) local municipality officials in Tearce, North Macedonia,

(b) university students at University Tetova, (c) university students at Kosovo Academy for Public Safety (KAPS), Vushtrri, Kosovo (d) community members in Pristina, Kosovo, and (e) municipality officials, local municipality emergency responders, and Red Cross officials and volunteers. The seven Utah Valley University students divided into teams of two or three to teach the various portions of CERT. Most of the students did not have previous emergency training, so this was interesting for them to learn about the various portions of CERT which includes CERT structure, firefighting, disaster response principles, triage, and emergency medical care. Training simulations were integrated in the end of each training portion of CERT. This allowed for the local participants of the CERT training to be involved and have an opportunity to apply their new skills.

A UVU professor and student and KAPS student had an opportunity to be a part of an interview with Kosovo Public Television to present information of the CERT program and the cooperation of the CERT training between the two universities.

In total, the Americans visited four countries in the Balkans - North Macedonia, Kosovo, Albania, and Greece - to participate in a multicultural experience. KAPS students traveled with the UVU students to most places in Kosovo. The students had the opportunity to (a) visit Old Bazaar in Skopje, North Macedonia, (b) partake an educational tour of University Museum of University of Tetova in Tetova, North Macedonia, (c) visit the Painted Mosque in Tetova, (d) hike Mount Vodno, and explore the cave in Matka Canyon, outside of Skopje, Macedonia, (e) visit an active refugee camp near the North Macedonia and Serbia border, (f) visit the city and a war museum in Pristina, Kosovo, (g) visit the marble caves in Gadime, Kosovo, (h) visit the city of Mitrovice, Kosovo, (i) visit the city and fortress at Prizen, Kosovo, (j) visit a windmill plant and a house serving as a war memorial near Gjilan, Kosovo, (k) visit Butrint National Park and the city of Sarande, Albania, (l) visit the island of Corfu, Greece, (m) visit the spring of 'Blue Eye', the cities of Gjirokaster and Pogradec, Albania, and (n) visit the city of Lake Ohrid, North Macedonia.

Date	Location	Activity	Detail
Wednesday, June 5	Arrive in Skopje, North Macedonia	Orientation	Orientation and tour
Thursday, June 6	Tearce, North Macedonia	Meet Tearce Municipality officials and Teach CERT	Presented CERT information, performed some CERT lifts
Friday, June 7	University of Tetova, Tetova, North Macedonia	Meet University of Tetova staff, Teach CERT, educational tour of University History	Presented CERT information, toured University Museum, visited Painted Mosque

Date	Location	Activity	Detail
Saturday, June 8	Mount Vodno and Matka Canyon	Hike Mount Vodno and Tour Canyon	Hike, boat ride, and visit cave
Sunday, June 9	Skopje, North Macedonia	Church and Old Bazaar	Tour Old Skopje and New Skopje
Monday, June 10	Skopje, North Macedonia	Meet with officials, tour Refugee Camp	Crisis Management Department, Protection and Rescue Directorate, and Refugee Camp
Tuesday, June 11	Vushtrri and Pristina, Kosovo	Teach CERT	Visit caves in Gadime
Wednesday, June 12	Vushtrri, Kosovo	Teach CERT	Visit mountain village
Thursday, June 13	Vushtrri,, Kosovo	Teach CERT	Visit Prizen,, Interview of CERT information on Kosovo Public Television
Friday, June 14	Gjilan, Kamenica, Kosovo and Skopje North Macedonia	Teach CERT	Visit windmill power plant, and memorial of an Intelligence Officer's house
Saturday, June 15	Thessloniki, Greece, Sarande, Albania	Travel	Travel
Sunday, June 16	Sarande, Albania	National Park and Beach	Butrint National Park, and Beach
Monday, June 17	Corfu, Greece and Sarande, Albania	Sight See	Travel to Corfu and tour the island, explore Sarande
Tuesday, June 18	Pogradec, Albania	Travel	Visit Blue Eye, Gjirokaster, Albania, Pogradec, Albania
Wednesday, June 19	Lake Ohrid, North Macedonia	Lake Ohrid and Travel	Visit Lake Ohrid
Thursday, June 20	Skopje, North Macedonia	Departure	Catch flights

Table 1. Travel and Event Itinerary

Data Collection Procedures

The primary sources for data collection consisted of observations between the participants and panel discussions and training, field notes, questionnaire of critical reflection, and study abroad journals. At the completion of the study

abroad program, the participants received a questionnaire to provide reflective comments about the study abroad program and the panel discussions and CERT training. The questionnaire, using a modified version of the DEAL model of critical reflection, provided feedback from the participants. The modified version of the DEAL critical reflection (Fisher, Means, Corson, 2014; Fisher & Mittleman, 2013; Ash & Clayton, 2009) asked students to answer the following questions:

1. What did I learn?
2. How did I learn it?
3. Why does it matter?
4. What will I do in light of it?

In addition, students were asked: How well did you think the CERT training went? What would you have done differently with the teaching of CERT? What did you learn from this study abroad program? How did you learn it? What kind of relationships did you establish with your fellow classmates and people with whom we have interacted through the training?

Once the study abroad program was completed, the field notes were summarized. The questionnaire was provided in the form of a Google document for each participant to fill out voluntarily. The data from these forms were transcribed into a Word document and then entered into Qualtrics, a free measurement tool through Utah Valley University. The participants' anonymity was assured. Any identifiers to them were removed and assigned with alphanumeric symbols of R1, R2 and so forth.

Data Analysis Procedures

Data analysis began after the field notes, questionnaires, and study abroad journals were received by the researcher and were transcribed into a word document. To analyze the data, the researcher used thematic coding analysis within multiple phases of the data provided by field notes, questionnaires of critical reflection questions, and study abroad journals. Thematic coding analysis was used because "it was a realist method, which reports experiences, meanings and the reality of participants" (Robson & McCartan, 2016, p469). The first phase of the analysis was used to familiarize the researcher with the data. This allowed for the researcher to take notes of any initial ideas for possible themes of coding. The second phase was used to generate initial codes with the ideas that have been noted. The third phase was used to code the themes to be identified as a main theme or sub-themes. This allowed for the data to be relevant to the designated themes. The fourth phase put together the data in accordance with their content with the themes. The fifth phase is to capture the essence of the data and to check if the themes were clearly defined within the data.

FINDINGS

Seven student participants, one professor and professor's wife responded to the critical reflection questionnaire. Four students voluntarily provided their study abroad journals to be used in this research study. Their responses from the critical reflection questionnaire and input from the study abroad journals were grouped under themes. From the analysis of the data the following themes emerged: Cultural Awareness, Differences in Handling Disaster Response, Interactions with the Balkan People, and Training and Discussion. Sub-themes were also discovered which are: Resources for an Emergency Response, Desirability of CERT Program, Teamwork, Skill Development and Applied Learning.

Cultural Awareness

Students on the study abroad were immersed in the "rich history and culture" of the Balkans. "I was pleasantly surprised," said R7. He thought he was "going into a region that is rebuilding as a third world country" due to the many wars. He had no idea how receptive the Balkan region would be towards the Americans and was "nervous enough to be cautious during the trip." He quickly found that throughout the Balkan region, the locals were "welcoming, nice, eager to learn what information we can pass on to them, and the people were educated."

Americans are liked and accepted in most areas of the Balkans. An older community member in Kosovo stated in a discussion that Kosovars are "eager to work with Americans, because in the Kosovo War, the U.S. forces helped save the oldest nation in the world." On the day of the discussion, when the study abroad group went to teach in a local community, it was the twentieth anniversary of the intervention of U.S. forces under NATO in the Kosovo War. The students observed a pro-American spirit. Throughout Kosovo they saw many American flags.

A greater appreciation of the culture and understanding of "the people as a whole," R2 stated has helped "find better ways to serve" people in her professional job. She added, "It was an incredible experience to see an established and functional refugee camp set up to provide necessary care and tracking of those individuals and families who had to leave their homeland due to a conflict or a myriad of social, cultural, or political reasons." R3 stated hearing the refugees' stories and "seeing their faces was incredibly sobering. It opened my eyes to the trials some people face."

One thing that stood out in a couple of cities of the Balkan countries were the divisions among the people. The students saw cities had sections for different ethnic groups. One was in Skopje, Macedonia which is divided by the Vardar River where Slavic-speaking Macedonians, who are mainly Orthodox Christians, live on one side of the river and the minority ethnic Albanians, who are mainly Muslim, live on the other. The Ibar River similarly divides the city of Mitrovica in Kosovo. Ethnic Serbians live on the north side of the river; ethnic

Albanians live on the south. Kosovo's population is over 90 percent Albanian while the rest of the people are divided among other ethnic groups, including Serbs.

R2 described "the bridge that divides the Albanian and Serbian sides of Kosovo." In Mitrovica, as a group "we came upon a bridge, which was patrolled 24/7 by the Italian army, … and it has been that way for 20 years... After the war there was still so much division in the country, [security] wasn't even being handled by them." (The Italian army were members of the NATO Kosovo Force, shortened to KFOR.) When she asked if it was safe to cross the bridge, she was told: "You could, but you would probably get attacked since you came from the Kosovo side of the bridge." She added "the hatred between the Serbians and Albanians is real and it's extremely sad. I've never seen prejudice this close up before; it really changed my perspective."

Although the division exists among the people in the Balkans, it hasn't lingered towards foreigners. As R8 mentioned, "They will do anything to help foreign visitors because they are still hidden gems. There are still not many people that visit these countries or know about them."

Differences in Handling Disaster Response

The study abroad trip to the Balkans helped the Utah Valley University students to gain a greater appreciation and understanding of the importance of disaster preparedness. R4 indicated that she gained more of an insight into how responding to emergencies is different in other countries than in the United States. She described "the way the people in the Balkans handle things." Then, she said, "We can't expect what works for us to automatically work for them as well." She also noted, "We have to consider their surroundings, the types of disasters they face and the resources they have access to. Their countries aren't organized the same as ours. In some areas there is no organization at all and it's every man for himself."

In a presentation with the North Macedonian Crisis Management Center, R7 stated that he was impressed with "how different their emergency management system is than what is implemented in the United States and their pre-disaster response and post-disaster plans they have in place for the various disasters." From the discussion, R3 stated she felt the thing of "greatest significance was addressing and providing aid to the refugee population coming to their southern border." Following the visit, the students went to see a refugee camp. R2 expressed that it was "cool to see a functioning refugee camp, even one that people move through quickly." It showed her firsthand how the North Macedonian Crisis Management Center addresses a crisis.

Discussions with municipal officials, local responders, and university students in North Macedonia and Kosovo helped provide R6 a comparison between community preparedness in the United States and these countries. R6 described how the United States has the 911 system, where "all children know to dial if a witness to an emergency." In North Macedonia and Kosovo, each

country has three different numbers to call for each emergency service department and then a municipal number to help them "decide if it's an emergency or non-emergency."

A KAPS student stated, "Most of the people are interested in this program [CERT] because it is something that is not very common in our society…. It is normal for people to have the lack of knowledge of basic first aid or training." The community members rely on the local or national emergency responders because "our community is not really familiar with how to react to situations like these." A second KAPS student added, "It varies from area to area. Some understand how to prepare better. Some want to be taken care of. We desire for everyone to be resilient and prepared. Sometimes churches and culture help in preparedness. The desire is that those who can take care of themselves, but the government will help with those most in need."

Resources for an Emergency Response

UVU students were surprised to discover that in the Balkans not all areas have emergency coverage and that those communities that do are inadequately supplied and have little modern equipment. From discussions with municipal officials and local emergency responders in North Macedonia and Kosovo, R1 learned "the countries have not been able to gather the necessary resources to meet some of the basic requirements for strengthening their critical infrastructure, provide tools and equipment for emergency responders, and focus necessary funds on building their emergency management communities."

"We learned a lot about their situation and the types of disasters they face here. They don't have the same resources that we do," stated R2. She pointed out how people have learned they can't rely on first responders to come in an emergency because "they are limited on money and resources." R7 mentioned he was "surprised that volunteers in North Macedonia are professional ex-mountain rescuers." However, "community members can respond quicker," he discovered because it takes "approximately three hours to gather enough personnel to deploy the rapid response teams, and they have to meet in Skopje to receive their equipment."

In discussions and when presenting CERT to the university students, local emergency responders, Red Cross officials and volunteers, and community members, the American students learned the various methods used in the Balkans and about the available resources. They found out about different techniques, methods, and resources used for firefighting, medical triage, and search and rescue. In one presentation, a firefighter showed the UVU students how "they fight fires in their town" by showing a video clip on his cell phone of their response to a fire. It was a surprising lesson to the Americans to see the methods and resources available to local firefighters. To deal with these shortages, local responders must be resourceful and community members have to be resilient.

Desirability of CERT Program

The various audiences - students, community members, first responders, and local officials – were receptive to the UVU student messages about preparedness and appreciated learning CERT skills. Many indicated they would have liked more information and more extensive training.

Through the panel discussions and training sessions about CERT, R1 "saw that many of these individuals had a strong desire to receive more information and training on how to become better prepared…. Even at the national level, we saw the desire for more resources and focus to provide better opportunities for mitigation, equipment, and personnel toward strengthening their emergency preparedness programs."

R5 was surprised at "how involved they were and the questions they asked because it showed what they were understanding and what they were unsure of." In some locations, "the language barrier was a little tougher, so I don't think they got as much out of the lessons, but I still think they understood the benefits of this program. It seemed to me like they all found value in this program, and they all wanted more teaching of it."

Of the CERT program, a KAPS student said, "It was worth it. I liked the way you all teach the things to us, because we don't learn in that way at school…. We don't learn about these things in school…. Teachers don't focus that much on these things that are very important for us and the community as well." Because of the lack of formal emergency training, he said most of the citizens of Kosovo learn to cope for themselves in disasters.

One municipal official stated, "Thank you for coming here and taking the trip to take care of our community. This is the first time in twenty years someone is coming from the outside to have this discussion." Another one expressed that this training has been "opening eyes to us for the future. From this conversation, maybe we will save someone." A third official expressed his desire to see the 20-hour CERT program taught. "As soon as possible would be best!"

R1 noted that "each group saw value in what we presented." They were "appreciative of our attendance and willingness to visit with them…. [We] felt like we needed to provide something to them they could keep after we left."

Interactions with the Balkan People

One area of interactions was with the faculty and students at the Kosovo Academy for Public Safety (KAPS). Another area was with the community members and students of other institutions. These interactions resulted in relationships of friendship and collaboration that would be lasting.

According to one of the faculty hosts from KAPS, "This activity with UVU has created a very high level of professionalism and friendship. It's made a strong bridge of friendship." R2 responded, "The interaction that we had was pretty good because we all connected. This allowed for them to be more open, friendly, and willing to participate in the training. They felt comfortable with us." R4 added, "It was great to see everyone laughing and having a good time,

getting involved with the activities because we are all friends now and it makes everything so much easier."

"The interactions with those who we have taught or been in discussion went into a deeper part of building a mutual relationship when they have introduced us to their recent history, culture, and values they have," added R7. The relationship made the trip "authentic" allowed the UVU students to "experience the different cultures in the Balkans." A KAPS student invited the Americans to join him to see his city of Mitrovica. Most of the UVU students went and had the opportunity to experience the night life of the city. R5, one of the students who went on this spontaneous side trip, commented, "The night life here is crazy. There were so many people just walking around, getting a drink, and hanging out." (Most people in Kosovo do not drink alcohol. Having tea and coffee are daily rituals, usually with friends and colleagues.)

R9 stated that he was pleased by how the UVU students were treated by the various agencies, local officials, community members and university students where they visited and presented. An atmosphere of mutual respect was created. "They respected us and were eager to hear of what we had to say. This allowed for the discussions to be more in-depth on how each place did things and they listened to us on how we did things in United States."

Throughout the study abroad presentations, R7 stated "all of us exchanged contact information through business cards, Facebook, Snapchat, and Instagram with the people we have interacted with or taught." As part of the formal introductions at presentation and discussions, the professors and hosts exchanged gifts. The UVU delegation had challenge coins and patches which they shared with everyone they taught and had discussion with. In exchange, students received patches from the various organizations. At the end of presentations, the hosts would often provide certificates of participation. UVU provided t-shirts to both KAPS and UVU students. These helped the students from both institutions to identify with each other and become united.

Teamwork

Collaboration among the UVU students and their professors helped build teamwork, which led to a better teaching experience. The former UVU student, who had been on three previous study abroad trips, contributed greatly to planning and execution. R9 observed that the teaching "went better and better as the trip progressed! Our students did a great job teaching so that even with a language barrier, the concepts could be understood."

Before the trip to the Balkans, the UVU students held meetings to discuss how they would teach CERT. They decided it was best to split into groups. Each group focused on one section of the training. R4 commented that focusing on one area "made the lessons easier to plan, and they flowed better. It was also a good way to involve everyone and split responsibility."

The teams worked under time constraints with only a certain amount of time to teach each topic. R6 mentioned, "We didn't have as much time as we thought

to teach, and it was even shorter because of the translation." According to her, they had to reduce the amount of content in the lessons, or they ended up pushing parts to the next day. The instruction helped participants "to become prepared and to develop the necessary skills to provide some level of assistance if the need arises."

As for the first day of presentation, R5 stated, "We were not prepared for this experience; however, we quickly figured out what to do and those who received the training were very pleased and were not aware of how unprepared we felt." At the end of the day, UVU students held a daily debriefing or After-Action Report (AAR) to evaluate the success and shortcomings of the day's discussions or presentations. Collaboratively, they determined the content, duration, and presentation format for each session, whether it be through a panel discussion or instructional demonstrations.

Skill Development

In the Balkans, the students had a chance to practice and enhance their emergency response abilities by training others and through discussions. These skills were also taught to others, leading to an increase in self-assurance because of the training. The training sessions and discussions offered an applied learning experience that complemented and expanded upon their online classroom education.

"I think it went very well considering the lack of in-person training most of us had," said R4. She liked the training sessions where "we spent quality time with students or other members of the community. I don't feel that any of our trainings were a waste, but I do think we could've related better to people if we had spent more time with them, instead of doing a rushed job."

On the first day of training, R5 commented that they were unexpectedly thrust into the situation without any prior preparation or practice. "Thank goodness, we have a couple guys in the group that know what they were doing. The rest of us feel completely lost." Respondent 2 expressed concerns about the lack of a prior group meetings and uncertainty about available resources and format. "However, it ended up going really well."

R3 stated that by incorporating the knowledge gained from CERT course training into his teaching, he acquired a better understanding of what CERT members do. R7 learned "how to teach and to keep words simple for the translator."

R6 believed that her involvement in trainings and listening to the experiences of others enhanced her knowledge and skills. She emphasized the importance of asking questions and appreciated the respectful approach used in teaching others. "We didn't tell them they were doing anything wrong or that they needed to do it our way. We simply shared ideas."

It was eye-opening and significant that the passing of information increased the knowledge and skills for both UVU and the audience in the trainings and discussions. R1 stated that he "personally appreciate[d] the latitude we were

given to expand the class to cover more information with our participants than just CERT." He felt that was really where our audience caught on to our presence.

R8 said "the teaching of CERT concepts went very well. However, there was not enough time to deliver the full course, which would have been a better."

It was a valuable experience for both UVU students and training participants as sharing information led to an increase in knowledge and skills. R1 stated that he "personally appreciate[d] the latitude we were given to expand the class to cover more information with our participants than just CERT." He believed that it helped the audience connect with the material. R8 felt that although the teaching of CERT concepts was successful, there was not enough time to provide a complete course, which would have been preferable.

Applied Learning

Students agreed that teaching CERT principles as well as meeting with officials and others helped them learn more than if they were learning in the classroom. A University of Tetova student expressed that practicing concepts they were taught offered a more effective educational experience.

R6 mentioned that while she did gain knowledge about CERT from the online course, it wasn't something that stayed with her for long. However, she found that teaching others helped her retain the information better. This hands-on experience also taught her how to "simplify the information" she was teaching, which she believes is crucial, especially when dealing with medical terms that many people may not be familiar with. She believes that teaching is the most effective way to simplify and communicate information to others.

R4 expressed that applying their knowledge enabled them to enhance their teaching skills, resulting in improved learning. "We made sure to involve our students and check comprehension, so I think the things we taught will stick with them for a long time."

R2 elaborated on how he gained knowledge "by talking to people," while R5 learned "through observation and discussion with the participants as well as with the other students from our group."

In the process of teaching, R9 discovered that the local responders were using some outdated practices, such as not using tourniquets. She also found that the idea of volunteerism was relatively unfamiliar to their audiences. "I love to analyze how those we teach are interpreting what we teach. I think there was a lot that could be understood better had we had time to recap and test their understanding." R9 expressed an interest in analyzing how the students interpreted what they were taught and believed that taking the time to review and assess their understanding would be beneficial. She thought that coming back to "teach again would allow us to know what would best help them and mean the most to them."

Summary Comments and Recommendations

The UVU students made recommendations for the future suggesting more time for training, more planning and preparation before the study abroad, and bringing training equipment and supplies with them from the United States. They also recommended offering the whole CERT program or limiting the experience to panel discussions about emergency preparedness best practices.

While the panel discussions and trainings benefited everyone, R1 indicated that it was difficult to get adequate time to teach all that needed to be taught. "The students did the best they could with the information they had and time available to them. Often the times allotted for instruction was interrupted by [other] events." By knowing the audience and allotted time beforehand, R9 indicated "we could have been more prepared with both the material and highlighting the most important concepts."

R6 proposed that to manage the limited time available, upcoming groups should schedule multiple meetings prior to their departure from the United States. This approach would enable the group to build rapport, get accustomed to a consistent training schedule, and utilize the available time to learn, prepare, and rehearse as a team.

R2 recommended having "the necessary equipment available to undergo practical training scenarios and to experience a training exercise applying CERT concepts." Trainees would be able to "gain the necessary experience and skills" they could use in emergencies.

R7 suggested future study abroad students teach the whole CERT course instead of just spending a couple of hours with each group. He said, "We need to have more interaction with the students who were supposed to be teaching to be a trainer for the CERT program in their university and community."

Instead of CERT training, R1 suggested they have more panel discussions introducing the CERT program to municipalities. "Vulnerability assessments, ways to mitigate hazards, and providing best practices from like organizations in the U.S. would be more beneficial."

A Kosovo Academy of Public Safety student suggested that the trainers should "prepare a handbook with instructions for the CERT program and then give that to the people who you are going to train/teach and that will visualize what the students are explaining."

DISCUSSION

Study abroad programs offer a transformative opportunity for students to broaden their horizons, both academically and personally. They provide a unique platform for immersive learning experiences that extend far beyond the boundaries of a traditional classroom. In this discussion, we will explore the outcomes of a study abroad program, specifically focusing on three goal areas that highlight its multifaceted impact. (a) aligning with applied learning objectives, (b) addressing the preparedness requirements of the local community, and (c) offering field experiences that enrich students' educational experiences

within the classroom.

A Study Abroad Program as an Applied Learning Experience

A study abroad program, when designed effectively, can serve as a powerful form of applied learning. In this context, the study abroad program aligns with the applied learning model by emphasizing hands-on learning and offering students unique opportunities to engage in experiences that directly contribute to their education (Schwartzman & Bouas Henry, 2009).

Hands-On Learning: Applied learning is all about practical application and the study abroad program does this exceptionally well. Students involved in this program can apply theoretical concepts they've learned in the classroom to real-world situations. In the case of the CERT principles and skills, students actively put their knowledge into practice during field experiences. This hands-on approach not only reinforces their understanding but also equips them with valuable skills that can be applied in emergency response situations. It bridges the gap between theory and practice, making education more meaningful and applicable.

Civic Engagement: The study abroad program incorporates civic engagement as a central component. This is significant because applied learning often seeks to connect classroom knowledge with active community involvement. By studying CERT principles and skills, students are not just learning in isolation but are actively preparing themselves to contribute to the safety and well-being of their communities. This kind of engagement fosters a sense of responsibility and social awareness, which are essential attributes of well-rounded citizens.

Experiential Learning: Experiential learning is a key component of applied learning, and the study abroad program provides students with rich experiential opportunities. By visiting historical and cultural sites in the Balkans countries, students immerse themselves in diverse cultural experiences. This kind of experiential learning goes beyond textbooks and lectures, allowing students to gain a deep understanding of different cultures and their histories. It promotes cultural competence and empathy, qualities that are highly valuable in our interconnected world.

Service Learning: The instructional component of the study abroad program also serves as an example of service learning. Service learning combines meaningful community service with classroom instruction, emphasizing reflective thinking and civic responsibility. As students engage in CERT training and visit historical sites, they are not only learning but actively contributing to the community by acquiring life-saving skills and appreciating the cultural heritage of the Balkans. This combination of learning and service benefits both students and the communities they interact with.

In summary, the study abroad program described here effectively integrates applied learning principles into its curriculum. It goes beyond traditional classroom instruction and engages students in hands-on experiences, civic

engagement, experiential learning, and service learning. As a result, students are not only gaining knowledge but also developing essential skills, a sense of social responsibility, and a broader worldview. This approach enriches their education and equips them with a well-rounded skill set, making it a prime example of how study abroad can be a valuable form of applied learning.

The Study Abroad Meeting Local Community Preparedness Needs

Emergency preparedness is a critical aspect of community resilience, and it's essential to tailor preparedness efforts to meet the specific needs and challenges of the local population. In this context, the study abroad program focused on local needs for preparedness can be seen as a valuable approach to building capacity and enhancing disaster resilience. Fisher, Means, and Corson's 2014 study suggests that one effective way to address local needs is by implementing Community Emergency Response Team (CERT) training, using exercises and training methods aligned with the National Incident Management System (NIMS). This approach has been found to effectively meet the specific preparedness needs of the local citizens.

CERT programs provide community members with essential skills and knowledge to respond to disasters and emergencies effectively. By aligning these programs with NIMS, a standardized framework used in the United States for managing incidents, it ensures that the training is consistent and in line with national best practices. NIMS provides a structured and systematic approach to incident management, emphasizing the importance of clear roles, responsibilities, and communication, which is invaluable in disaster response.

Additionally, it's worth noting that preparedness efforts are not isolated from global initiatives aimed at reducing disaster risk. The Sendai Framework for Disaster Risk Reduction, adopted in 2015, is a prime example of a global commitment to reduce disaster risk, minimize the impact of disasters, and enhance resilience. This framework is a significant step towards a more resilient and sustainable future. It emphasizes the importance of understanding disaster risk, strengthening preparedness, and investing in disaster risk reduction measures.

The link between the CERT training, NIMS alignment, and the aims of the Sendai Framework can enhance Southeast Europe’s preparedness goals. CERT programs provide local communities with practical skills and knowledge that directly contribute to reducing disaster risk. By ensuring that these programs are in line with NIMS standards, they become part of a broader, nationally coordinated approach to disaster response. This integration not only ensures consistency in preparedness but also strengthens the capacity of communities to work in tandem with regional and national agencies during large-scale incidents.

Moreover, this training directly contributes to fulfilling the objectives of the Sendai Framework, as it focuses on reducing risk and building resilience at the local level. The Framework encourages the development and implementation of disaster risk reduction policies and practices, including local action plans. CERT

training and NIMS alignment are practical steps that can be taken at the local level to implement these policies and enhance disaster resilience, aligning well with the Sendai Framework's goals.

In conclusion, the combination of CERT training tailored to local needs and aligned with NIMS standards is a practical and effective way to enhance emergency preparedness within a community. By doing so, it not only meets the specific needs of the local population but also contributes to the broader global goal of reducing disaster risk, as outlined in the Sendai Framework. This integrated approach strengthens the overall resilience of communities, making them better prepared to respond to and recover from disasters.

Achieving Students' Personal Educational Goals

Students are asked to reflect upon their experience. The findings in this study are evidence of that reflection. Students were asked to use the DEAL approach, which required they identify what they have learned (Ash & Clayton, 2009). Both traditional and non-traditional were able to leverage their classroom learning by having field experiences through the study abroad (Maxfield & Fisher, 2012). Students identified additional learning outcomes through reflection, like the differences in handling disaster response and lack of resources for emergency response (Russell & Fisher, 2014).

The study abroad program is not just an opportunity for students to explore new cultures and environments but can also be a powerful tool for achieving their personal learning goals. Through reflective exercises and practical experiences, students can make significant strides in their personal development and education. Here's how the study abroad program facilitates the achievement of students' personal goals:

Reflective Learning*:* One of the key aspects of the study abroad program is encouraging students to reflect upon their experiences. By using the DEAL approach (where they identify what they have learned), students are prompted to think critically about their experiences (Ash & Clayton, 2009). This reflective aspect of the program helps them gain a deeper understanding of their personal growth and the knowledge they've acquired during their time abroad. It encourages self-awareness, which is an essential component of personal development.

Integration of Classroom Learning*:* Both traditional and non-traditional students can leverage their classroom learning effectively through the study abroad program (Maxfield & Fisher, 2012). This integration of theoretical knowledge with real-world experiences is a powerful way to reinforce what they've learned in a traditional academic setting. By applying their classroom learning in practical situations, students not only solidify their knowledge but also see the relevance and applicability of what they've been taught.

Identification of Additional Learning Outcomes*:* The process of reflection often leads to the identification of additional learning outcomes (Russell & Fisher, 2014). Students realized that they've gained insights and knowledge

beyond what was initially anticipated. For example, they discovered differences in how disaster responses are handled and the challenges of resource scarcity for emergency responses. These additional insights are valuable as they broaden students' perspectives and encourage critical thinking.

Personal and Professional Growth*:* Study abroad experiences can significantly contribute to personal and professional growth. Through exposure to different cultures, languages, and ways of life, students become more adaptable, open-minded, and culturally competent. They develop skills such as cross-cultural communication and problem-solving, which are not only beneficial in their personal lives but also highly attractive to potential employers.

Global Perspective*:* Exposure to different disaster response and resource management practices can help students develop a global perspective. They gain a deeper appreciation for the complexities of disaster management and resource allocation on an international scale. This kind of insight can be especially valuable for students pursuing careers in fields related to disaster response and emergency management.

In conclusion, the study abroad program serves as a unique and enriching platform for students to achieve their personal learning goals. It encourages reflective learning, the integration of classroom knowledge with real-world experiences, and the discovery of additional insights. Furthermore, it fosters personal and professional growth, develops a global perspective, and equips students with valuable skills and knowledge. By participating in such programs, students not only broaden their horizons but also take significant steps toward fulfilling their personal and educational aspirations.

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Learning and Applying Constructivist Approaches to Elementary Classrooms

HARUKA KONISHI
Missouri Western State University

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Abstract

Project Construct is a learner-centered constructivist framework that values positive teacher-student relationships, autonomy, and child-led experiences. Constructivists believe that learners actively construct their own knowledge rather than passively receive information. Prior research shows that constructivist approaches positively influence cognitive, behavioral, and academic outcomes (Lerkkanen et al., 2016). Despite the significance of constructivist approaches, education students tend to emphasize teacher-directed activities and behaviorist frameworks or approaches that shape behavior through external factors such as rewards. The present pilot study investigated whether the opportunity to learn and apply constructivist teaching approaches in an elementary school setting would affect education students' constructivist practices and beliefs. Eight education students participated in a four-week summer undergraduate class in a public-school setting. Students' comprehension of constructivist pedagogy was assessed through a 30-statement questionnaire. Results showed that Education students' knowledge of principles of constructivism grew significantly from the beginning to the end of this semester. Pre-service teachers also presented their experiences at a college wide undergraduate conference. Education students reported that such experiences were beneficial. These findings highlight the importance of applying constructivist practices in K-12 classrooms and benefits of pre-service teachers engaging in research in teacher education programs.

Introduction

Early childhood teacher education programs play an important role in forming preservice teachers' knowledge, beliefs, and practices (Darling-Hammond & Baratz-Snowden, 2007). Education students have their own beliefs, experiences, and misconceptions about teaching and learning. These beliefs tend to be traditional or behaviorist and are a result of students' experience with their own educational experiences (Holt-Reynolds, 1992). Yet, a large number of modern early childhood curricula draw on constructivist theory or, the idea that students construct their own knowledge through a variety of experiences, to conceptualize how children develop and are supported in the classroom (Murray, 2015). Constructivist theory also underlies developmentally appropriate practice created by the National Association for the Education of Young Children (NAYEC). Thus, it is essential for Education students to adopt more constructive beliefs and child-centered practices in early childhood education. To meet this shift in pedagogical beliefs and practices, Education students need to develop and employ constructivist instructional approaches during their preservice training. The present study examines whether application of constructivist practices affects pre-service teachers' knowledge of constructivist pedagogy.

Constructivism in Early Childhood: Project Construct

Constructivism has its origins from the philosophical underpinnings of cognitive theorists Piaget and Vygotsky (Bredekamp, 1994). Constructivist educators work under the assumption that children are actively creating their own meaning and knowledge by exploring and experimenting with materials and people (DeVries & Kolhberg, 1990). The role of the teacher is to scaffold and serve as a guide based on children's interests. Research shows that child-centered curricula and constructivist pedagogical approaches and beliefs that emphasize positive relationships, child-led experiences, and adaptation to individual differences, are associated with positive cognitive and behavioral outcomes (Cornelius-White, 2007; Lerkkanen et al., 2016). Additionally, studies have found that constructivist practices engage student interest, active exploration and experimentation, and promotes cooperation (DeVries & Zan, 1994).

Project Construct is a learner-centered constructivist framework that is approved by the Missouri Department of Elementary and Secondary Education that encourages children to acquire knowledge through interactions with the environment (Schattgen, 1997). Project Construct is influenced by the work of Piagetian scholars (Devries & Kohlberg, 1990), constructivist educators (Ray, 2002), and best practices in early childhood education (Katz, 1988). The Project Construct framework is guided by four principles of child development and related practices: 1) children have an intrinsic desire to make sense of the world, 2) children actively construct knowledge and values based on the physical and social world, 3) in their struggle to understand the world, young children's

thinking will contain predictable developmental errors, 4) another focus of the Project Construct approach is for teachers foster the development of each child as an autonomous individual. Additionally, Project Construct highlights the idea that children learn best and make better choices within a context of positive relationships with adults and peers. Research supports the effectiveness of Project Construct (Pfannenstiel & Schattgen, 1997), as children who were in classrooms that endorsed Project Construct displayed benefits relative to business-as-usual classrooms. Despite the impact of constructivist beliefs and practices on child development, novice teachers and education students tend to rely on behaviorist approaches that are teacher centered and are heavy on direct instruction (Applefield et al., 2000).

Pedagogical Beliefs and Teacher Education Programs

Pedagogical beliefs are important indicators of whether pre-service teachers engage in specific practices (Handal & Herrington, 2003; Karchmer-Klein & Konishi, 2021). Research on pre-service teachers suggest that perceived importance of a pedagogical approach was a significant predictor of whether they engaged in that particular pedagogical practice (Karchmer-Klein & Konishi, 2021). Early childhood teachers' beliefs are among the key predictors of their classroom behaviors and practices (Buchanan et al., 1998; Vartuli, 1999). Teachers' beliefs shape their thinking and behavior in the classroom (Rimm-Kaufman et al., 2007). Although other factors, such as teachers' self-efficacy, parents' and administrators' expectations, and classroom size, also contribute to teachers' classroom practices (Buchanan et al, 1998; McMullen, 2001).

Research on early childhood teacher education programs revealed that students who are further along in the program hold more developmentally appropriate beliefs and child-centered views than do students who are either not enrolled in a teacher preparation program or who are just beginning the program (Scott-Little, La Paro, & Weisner, 2006). Studies that have shown positive shifts in constructivist beliefs among student teachers can be characterized as providing concrete constructivist teaching skills and scaffolding strategies (Baik & Charlesworth, 2006) and exposing preservice teachers to course content that describes constructivist teaching principles (Scott-Little, La Paro, & Weisner, 2006). This shows that exposure to concrete constructivist teaching practices and principles affect preservice teachers' knowledge of constructivism. Another approach that has shown to be effective is for preservice teachers to *observe* constructivist instructional strategies in both university and early childhood classrooms (Lim & Chan, 2007; Scott-Little, La Paro, & Weisner, 2006). The literature on whether *applying* constructivist practices in university and early childhood classrooms can facilitate constructivist practices and beliefs is limited. Constructivism can also be further promoted through involvement in research. Indeed, the scientific method starts with an authentic question and follows a process of inquiry which are essential elements of constructivist practices.

Recent research has shown benefits in pre-service teacher research in various countries (e.g., Aspfors & Eklund 2017; Cochran-Smith et al. 2009). Inquiry is a natural process of assessment which is also an integral part of evaluating learning and being an effective teacher. Further, using inquiry can help pre-service teachers and teachers become more cognizant of the scientific literature that support their practice (Darling-Hammond et al., 2017). However, the literature on pre-service research has focused primarily on master's degree programs; less is known about pre-service teacher research in bachelor programs (Munthe & Rogne, 2015). The process of presenting at an undergraduate research conference may boost Education students' conceptualization of constructivism as research and constructivism go hand and hand.

Investigating how constructivist beliefs and practices become valued by teachers is an important area of research, given the efficacy of constructivist pedagogy on student outcomes. A study compared constructivist versus non-constructivist teaching beliefs and practices by distributing questionnaires to non-constructivist and constructivist teachers. Findings showed that children from constructivist classrooms performed better on tests of writing, reading, math and language, suggesting that constructivist practices facilitate academic achievement (Pfannenstiel & Schattgen, 1997).

Despite the importance of constructivism, early childhood teachers find it difficult to implement constructivist pedagogy in the classroom, due to the structural constraints of the school, standards and curricula, and pressures of standardized assessments (Buchs et al., 2017). There are various competing factors that get in the way of implementing constructivist practices. The need to explore how pre-service teachers adopt constructivist practices is critical, as misalignment in pedagogical beliefs between the teacher and the school can have negative consequences on children's social emotional development and teacher retention (Buehl & Beck, 2015).

Present Study

The present pilot study investigated whether learning and applying constructivist teaching approaches in an elementary school setting would affect pre-service teachers' knowledge of constructivism. Education students participated in a four-week summer undergraduate class in a public-school setting. Education students' knowledge of constructivist principles was assessed via a survey before and after the four-week undergraduate course. Education students were also given the choice to present their implemented constructivist lesson plan at an university wide undergraduate conference. The conference presentation is another layer of application that has the potential to deepen student knowledge of constructivism, as students must present and explain constructivist pedagogy to conference attendees who are unfamiliar with constructivism.

Methods

Preservice Teachers

Eight female early childhood pre-service teachers participated in a four-week course that incorporated the core principles and practices of Project Construct in a public school classroom setting. Half of the students chose to present at a university wide undergraduate conference at Missouri Western State University when given the opportunity to do so. We did not require students to present at the conference because the conference took place several months after the summer class and because giving students choices is a constructivist practice. These participants were predominantly white and female; their average age was 21.4 years old.

Facilitator of Project Construct

A trained facilitator of Project Construct taught the four-week summer course. She has over 20 years of experience as a public school teacher and has done Project Construct training and workshops for over 10 years.

Project Construct Class for Pre-Service Teachers

This was an undergraduate four-week class which met four times a week for three hours per day. This course occurred in an elementary school where summer programming was taking place (Figure 1). Each student was allowed to pick the grade level of their choice but were randomly assigned to an elementary school classroom. The first hour and a half of the class involved the pre-service teachers learning about constructivism through lecture, discussion, and activities. Pre-service teachers read the Project Construct framework textbook and other articles on constructivism (Missouri Department of Elementary and Secondary Education, 2013) to learn about Project Construct and constructivism. The second half of the class was focused on observing and applying concepts, strategies, and lesson plans to children in the classroom. The course consisted of reading and having discussions about constructivism, the instructor modeling constructivist strategies and pre-service teachers experiencing constructivist practices, observing and implementing constructivist practices in K-12 classrooms by the pre-service teachers.

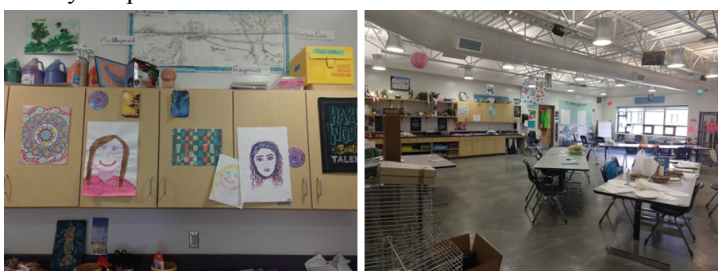

Figure 1. Artwork that education students created and the classroom that students took the 4-week class in.

Pre-service teachers learned about foundational beliefs about constructivism which states that learning is a dynamic process of creating meaning from experiences where students learn to make sense of the world through application with the teacher as a facilitator to scaffold their learning and offering choices along the way. Co-construction of knowledge was emphasized in the course through discussions and working collaboratively on lesson plans and assignments. Education students were given ample opportunity to discuss what constructivism is and is not in groups. Pre-service teachers were also asked many open-ended questions about the nature of constructivism to probe their critical thinking skills. Pedagogical practices that are consistent with constructivism were modeled in the course that the pre-service teachers experienced and were explicitly labeled as constructivist practices. For example, students engaged in community building activities as a way to build positive relationships between students and faculty. Another example was when students were given a say in creating classroom norms and the structure of assignments.

After having learned about constructivism through readings and classroom discussion, pre-service teachers spent every class observing children in classrooms. Such observations allowed students to identify which practices were consistent or inconsistent with constructivism. For example, kindergartners were given at least 30 minutes of open-ended center time to engage in experiences of their choice (e.g., building towers in the block area) at the school that they were in. This practice is consistent with Project Construct, as children are given time to explore their environment and materials freely. Pre-service teachers also observed children receive extrinsic rewards and punishment through the use of behavior charts and discussed how this approach does not align with a constructivist framework. The idea of punishing unwanted behavior is more in line with behaviorist approaches. Education students had opportunities to observe and reflect on examples as well as non-examples of constructivist teaching practices. These observations often led to discussion of misconceptions about constructivist practices. An existing misconception was that constructivist classrooms are a free-for-all. Instead, education students learned that although children are afforded the opportunity to make autonomous decisions and use critical thinking, there are boundaries that will be held which are often associated with safety.

Finally, pre-service teachers had opportunities to apply constructivist practices in K-12 classrooms with children. For example, pre-service teachers created an art integration lesson plan and implemented it in the kindergarten classroom. Although there were restrictions about the learning standard that pre-service teachers used in their lesson plan and incorporating constructivist pedagogy, they were free to design an art integration lesson plan of their choice. In sum, the course involved reading and having discussions about constructivism, modeling and experiencing constructivist practice, observing and implementing constructivist practices in K-12 classrooms. The question was whether these approaches would create a shift in pre-service teachers' thinking

about constructivism. To measure Education students' knowledge of constructivism, students were asked to fill out a questionnaire at the beginning and end of the four-week course.

Measures

Project Construct Survey

A survey that captures the core principles and practices of Project Construct was developed. The survey contained 30 statements that examined students' knowledge of Project Construct principles. Most of the items on the survey were sampled from the Project Construct Early Childhood Classroom Observation Scale (PC-ECCOS) which has reliability and validity. The PC-ECCOS Students were asked to rate the extent to which Project Construct teachers should engage in the following practices on a one (Agree) to five scale (Disagree). The following are some of the statements on the survey: Teachers should focus on isolated skills without context to teach conventional knowledge, children should be encouraged to develop logical thinking through everyday experiences, teachers should ask children open-ended questions to facilitate child involvement and understanding. All students filled out the survey before and after the four-week class.

Presented at the Multidisciplinary Research Presentation

All Education students were invited to present a poster of the art integration lesson that they implemented at a university wide undergraduate conference at Missouri Western State University. Students received support and scaffolding from faculty but they were given the choice to present, to present on a topic of their choice, and to choose to work as a group. These pedagogical decisions are in line with constructivism. Four Education students chose to collaborate and present one poster at the undergraduate research conference. Their posters met criteria determined by the instructor. First, the topic has to involve constructivist practices. Second, posters must express the importance of the topic. Finally, students had to demonstrate their findings using authentic assessment.

Results

Pre-Service Teachers' Knowledge of Project Construct

A paired-samples t-test revealed that preservice teachers' overall knowledge of principles of Project Construct grew significantly from the beginning (M=121, SD=8.84) to the end of this four-week period (M=125.75, SD=8.64), $t(7) = -2.378$, $p = .04$. In particular, there was significant growth in items that described the importance of allowing children to contribute to classroom discussions and read alouds $t(7)=2.346$, $p=.05$, and the importance of teachers' modeling metacognition or their thinking process out loud $t(7)=2.646$, $p=.03$ (Figure 2). Kurtosis was within the acceptable range of -1 to 1, which suggests an approximately normal distribution of the data.

Figure 2. Education student's knowledge of constructivist beliefs and practices before and after the 4-week class.

Pre-Service Teachers' Lesson Plan Implementation

Education students explored whether writing and implementing an art integration lesson plan with a constructivist view with elementary school students might affect children's creativity and critical thinking skills in K-12 classrooms. The lesson plan consisted of pre-service teachers reading a book and offering an open-ended art experience with a variety of open-ended materials. For example, some education students read a story and children were asked to create a piece of artwork that represented the main message of the story. Education students took anecdotal notes on what children (N=18) said during the lesson and photographs of children's work as a part of their assessment. This authentic assessment approach is considered best practice in the field of early childhood.

Indications that children have shown creativity and critical thinking skills include the ability to take the artwork in an unexpected direction, using rich vocabulary to describe their work, employing agency to make their own decisions and display flexibility (Figure 3). A first grader displayed creativity and imagination when they said, "I put the toothpaste in the play dough to make it smell like toothpaste. So the tooth fairy will fly in and get trapped." Children also used rich vocabulary to display their mathematical knowledge by using math vocabulary, "We build our robot out of spheres. The hat is a cube." These qualitative data taken by Education students showed that children used materials in a variety of ways and used rich vocabulary that demonstrates critical thinking and understanding of a variety of mathematical concepts.

Figure 3. Artwork that elementary school students created as part of the lesson plan that the pre-service teachers implemented.

Pre-Service Teachers' Presentation at an Undergraduate Conference

Education students were offered the choice to participate in a poster presentation at a university-wide undergraduate conference at Missouri Western State University. The poster summarized the art integration lessons that four Education students implemented with first and third grade students. Students received significant support and scaffolding from the instructor to prepare for the poster presentation. We debriefed with education students after the research conference. Students commented that they appreciated the opportunity to share their work with other students, exposure to other research presentations and learning about how conferences work (Figure 4).

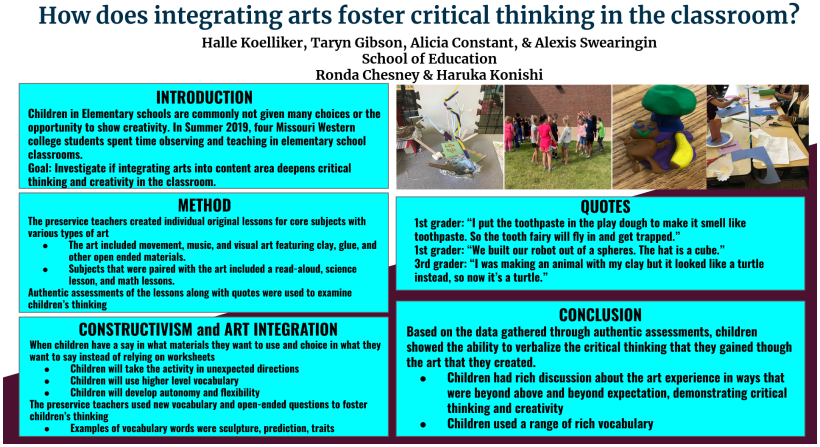

Figure 4. A poster that pre-service teachers presented at the Multi-Disciplinary Research Day.

Discussion

Shift in Constructivist Practices and Beliefs in Pre-service Teachers

The present pilot study found that Education students made significant shifts in their knowledge of constructivist practices and beliefs over a four-week period. These findings are consistent with prior studies that have found that intervention courses designed to change pedagogical beliefs have promoted constructivist beliefs among student teachers (DiPietro, 2004). Results of the present study are unsurprising given that the four-week course incorporated a variety of factors that were found to be helpful in boosting education students' beliefs in prior work. Lee, Baik, and Charlesworth (2006) showed that explicitly incorporating concrete teaching skills and scaffolding strategies resulted in positive shifts in teacher beliefs. Like past studies, the present study explicitly discussed constructivist principles, beliefs, and practices (Scott-Little, La Paro, & Weisner, 2006). Additionally, similar to prior studies, the present study not only allowed pre-service teachers to observe constructivist practices in both university and early childhood classrooms, they also got to implement those practices with children in classrooms. The results of the present study could be attributed to the combination of these effective strategies and the added layer of the opportunity to apply constructivist practices.

The opportunity to apply constructivist pedagogy with young children in the classroom may have had an effect on Education students' knowledge of constructivism. Education students spent every class period interacting with children in classrooms and engaging in a variety of community building activities with them. Education students implemented an art integration lesson plan in the classroom that they spent time in. This art integration lesson plan involved a constructivist framework, as children were given the agency to make choices. The autonomy element is evident in the art component of the lesson, as children could use any materials to create a visual representation of the story. The positive relationship that Education students had built with the children and the process and choice-based nature of the art lesson allowed children to successfully represent and articulate the main message of the story. Engaging in constructivist practices, allows students to experience the benefits of those evidenced based approaches. Furthermore, growth in student knowledge of constructivism could have occurred due to the alignment in beliefs between the instructor and the practices that the instructor and the education students engaged in. Because teaching does not occur devoid of context, when there is congruence in belief systems, the likelihood of a shift in pedagogical beliefs and practice is greater (Buehl & Beck, 2015).

Presenting at an Undergraduate Conference

Education students presented at an undergraduate research conference. Students reported positive impressions of the conference and the experience. Prior research has shown that when students presented at undergraduate research

conferences, they suggested that the experience was relevant and in alignment with their education and career goals (Helm & Bailey, 2013). Students also reported greater long-term self-efficacy and motivation to learn about the profession (Helm & Bailey, 2013). Additionally, the Council for Accreditation of Educator Preparation (CAEP) has a standard that states, "Providers ensure that completers use research and evidence to develop an understanding of the teaching profession and use both measure their P-12 students' progress and their own professional practice." This supports the idea that teacher candidates should have opportunities to develop the various skills that are involved in conducting research and accessing research-based practices.

The presentation at the conference is not the only benefit of participating in a conference. The process of preparing for the poster presentation with the help of a mentor is equally impactful. Education students in the present study received significant mentoring throughout this experience. Mentoring or the process in which a mentee receives guidance, modeling, and encouragement to enhance their professional growth and development has been shown to lead to greater sense of connectedness and persistence through teacher education programs (Cokley, 2000). Working closely with a faculty member can sustain life-long human and intellectual connections with students in the quest of knowledge and lifelong learning (Legget, 2003). These values align closely with constructivist approaches, as positive relationships serve as the foundation for learning.

Additionally, exposure to undergraduate research helps education students experience the process of inquiry which is consistent with constructivist approaches. Students were given the opportunity to generate an authentic question. The instructor then helped students find and evaluate supporting research articles to learn more about the topic of interest. This process allowed students to learn more about educational issues and how to evaluate existing research for validity. Students were also given scaffolding when pursuing their question. The instructor and students discussed a variety of topics related to the lesson plan that would address the specific question such as choice of materials and how to authentically collect data. Education students then implemented the lesson, collected qualitative data, and created a poster for the conference. These experiences encourage students to apply knowledge and to problem solve with the help of a mentor. Prior research shows that education students develop critical thinking, problem solving, and communication skills by participating in research conferences (Kinkel & Henke, 2006). Our education students also reported that they appreciated learning about how conferences function, having exposure to research presentations and having opportunities to interact with other students from other disciplines. Overall, involving education students in undergraduate research is beneficial, as it encompasses inquiry that addresses a specific question, application of applied research methodology, and resulting in dissemination of findings (Merkel, 2003).

Limitations

The present study yielded findings that have implications for the field of teacher education. However, it is important to acknowledge a few limitations of the study. The study had a small sample size which can undermine the validity of the findings. The plan is to collect additional data in the future. Second, although the items from the questionnaire that we developed were from an established assessment (i.e., PC-ECCOS), we did not have sufficient data to run statistical analysis to establish validity or reliability. Future work will collect more data so that validity and reliability of the questionnaire can be fully investigated.

Implications for Future Practice

There are specific constructivist practices that can be gleaned from the present study as well as extant literature. Future courses focused on promoting constructivism should be developed with the following key principles and practices:

1. *Develop positive relationships with students by getting to know them, allowing them to learn about you as a person and engaging in community building activities.* The instructor should make an effort to learn and say the names of students and learn about their interests and preferences. Similarly, the instructor should share personal information about themselves that might be relevant to the class.
2. *Students are encouraged to be autonomous and make decisions in class and about the class.* For example, students should have a say in developing some norms of the class at the beginning of the semester (e.g., use of cell phones). When students contribute to the development of classroom norms they are likely to keep them.
3. *Build on student responses when making on the spot decisions about instructional strategies, activities, and content to be taught.* For example, if students become interested in a particular topic in class, they may be given the opportunity to pursue it even if it deviates from initial plans. Students may also be given the choice to choose between assignments or may contribute to creating their own assignment with appropriate parameters.
4. *Assess student prior knowledge about a concept before teaching it to them.* When students are evaluated on their prior knowledge, this allows for instructors to tailor the delivery of the content and address possible misconceptions.
5. *Model best practice and be explicit about when the instructor is modeling constructivist practices.* The instructor may implement a constructivist lesson plan with education students that they would engage in with children.
6. *Encourage student critical thinking by asking open-ended questions, providing ample opportunities for discussion and collaborative group*

projects. After students have done the reading, students should have an opportunity to have an open discussion about examples and non-examples of constructivist practices. Education students should be given the option to work collaboratively on group projects.

7. *Give students a long wait time after posing a question so that students have time to think about their answers and be able to respond thoughtfully.* Education students need sufficient time to explore newly acquired knowledge and to respond in meaningful ways.
8. *Have students observe examples of concepts or pedagogical practices in K-12 settings.* Students should be taken to K-12 classrooms to make observations about relevant constructivist practices and non-constructivist practices.
9. *Offer students the opportunity to interact with children and apply constructivist practices.* Students should be offered scaffolded opportunities to implement lesson plans.
10. *Preparing and presenting at conferences with the help of a mentor is beneficial for students.* With the help of a mentor, education students should have the opportunity to present their work through a process of inquiry in a professional setting.

Conclusion

Prior work has shown that explicitly seeing constructivist pedagogy in university and K-12 settings can promote comprehension of constructivism. The present study contributed to the literature by showing that *experiencing* and *applying* constructivist practices helps deepen pre-service teachers' knowledge of constructivism. All Education students implemented a lesson plan with a constructivist framework and collected authentic assessment data. The qualitative data showed that children engaged in creative thinking and used complex language to demonstrate their knowledge. Pre-service teachers who chose to present their constructivist lesson plan at a university wide conference, reported that they valued the opportunity to share their work. Overall, this work suggests that a four-week course in a K-12 setting can move future teachers' knowledge of constructivism, highlighting the importance of application in teacher education programs

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Applied Learning Through Action Research Projects

CARRIE KRACL AND PHU VU
University of Nebraska - Kearney

Abstract

This article explores the transformation of traditional comprehensive exams in a graduate master's program into real-world action research projects at a Midwest public university. It highlights the limitations of exams in translating theory into practice and introduces action research as a solution, aligning with recent trends in teacher action research. The article details the structure of the action research course and provides preliminary data on its outcomes, showcasing increased teacher confidence, impactful interventions, and successful academic journal publications. Ultimately, this innovative approach bridges the theory-practice gap, fosters professional growth, and positively impacts both graduate students and their classrooms, offering a practical alternative to traditional exams.

Introduction

Graduate Master's programs are designed to equip students with the necessary knowledge and skills to become experts in their chosen field. In many graduate programs, students are required to take comprehensive exams to demonstrate their understanding of the material. While these exams are important, they often fail to translate theory into practice. As educators, we know that the true measure of success is the impact we have on our students. To make a real difference in the lives of our students, as educators, we need to move beyond the theoretical and embrace real-world practical action research projects. By doing so, we can help our graduate students see the impacts of their work in their own classrooms, proudly share their findings with their colleagues and administrators, present at conferences, publish in international peer-reviewed academic journals, and move forward in their career. In this article, we will explore how a graduate master program at a midsize public university in the Midwest can transform a comprehensive exam with a fictional solution into a real-world practical action research project.

Action Research

Action research is known by many other names, including participatory research, collaborative inquiry, emancipatory research, action learning, and/or contextual action research. In recent years, the adoption of teacher action research has been on the rise in many schools across the United States. Walker and Vu (2023) observed that more and more schools are incorporating this practice into their evaluation processes, enabling educators to take charge of their professional growth while learning from their colleagues' successes and struggles in the classroom. The integration of action research into the evaluation process provides teachers with an opportunity to share their findings and collaborate with their peers, leading to a more collaborative and supportive school culture. Ultimately, the implementation of action research as a tool for professional growth and development has the potential to improve teaching practices and enhance student outcomes in classrooms across the country. Similarly, Alpert et al. (2023) emphasized the role of action research in cultivating a collaborative culture within schools, where educators engage in collective inquiry to address common challenges and drive continuous improvement. Vaughan (2019) highlighted how action research empowers teachers to investigate their own classroom practices, leading to a deeper understanding of students' needs and more effective instructional strategies. In the same vein, Bennett et al. (2022) thoroughly explained the concept of action research as a rigorous inquiry process that bridges the gap between theory and practice, fostering critical thinking and results-based decision-making. This method also empowers teachers to become active agents in their professional development, encouraging them to engage in reflective practice and continuous learning. Through action research, teachers can investigate and address issues that impact their students' learning outcomes, resulting in tangible improvements

in their teaching practices. In summary, these studies collectively underscore how action research serves as a potent tool for promoting teachers' professional development, enhancing their classroom effectiveness, and fostering a culture of continuous learning in educational settings.

Graduate Program Description

The Curriculum and Instruction Master's degree offered at the University is a thirty-six-hour program for graduate students that currently hold or have held a teaching certificate. Concentration areas include: Elementary Education, Early Childhood Education, English as a Second Language, Instructional Effectiveness, STEM, and Secondary Education. All students take the same twelve hours of core instruction that includes Research, Technology, Curriculum Development and Multicultural Education. The remaining twenty-four hours are classes from their specific concentration.

The practicum, or capstone, is the final fall or spring course students take in their Curriculum and Instruction master's program. Prior to Fall 2020, students enrolled in the capstone would complete a unit lesson plan to implement in their classroom. The comprehensive exam was an additional requirement for graduation and was completed on top of any other coursework. The written exam involved two tasks; one general: "Task 1A - Write a description/create a vision of an ideal 21st Century classroom that is designed to prepare students for living in an increasingly diverse, technological, and democratic society. Include the following rubric elements a. Curriculum Used, b. Instructional Methods, c. Classroom Environment, d. Classroom Rules and Procedures, e. Possible special needs (especially communication needs) of students with exceptionalities, f. Diversity, g. Technology. Write about what your ideal classroom at a specific grade level and/or subject area would look like". "Task 1B - Critically reflect on your current classroom/teaching situation. Identify specific examples where your teaching/classroom/school is particularly consistent with the idealized classroom you described about in Task1A. Identify specific growth points for your own teaching/classroom/school - changes that might be made in order to move your own teaching/classroom/school closer to the idealized classroom in Task 1A.

The second task was based on the student's concentration area. Task 2 - "Based on the knowledge you have gained from the courses in your specific concentration area, thoroughly address all of the following in paragraph form:

1. What do you consider to be one of the most important instructional issues you have encountered, or will encounter, in your concentration area?
2. Why is this issue important to your concentration area?
3. How will you address this issue as a teacher? If you are not in a teaching position, but are in a different position, such as an administrator, how will you address this issue as it affects your position?"

Answers to Task 2 were often weak and fictional with no teacher accountability attached. The Graduate Program Chair met with the team of professors that teach master level courses for the Curriculum and Instruction master's degree to discuss the concerns with the comprehensive exam and proposed an action research project where teachers would still identify a problem but instead of writing a fictional solution, teachers would actually implement an intervention and determine its effectiveness. A professor from the faculty developed the course and took the lead on guiding approximately twenty students each semester through the process.

Action Research Project as a Course

This graduate level course served as an alternative to the comprehensive exam, offering a unique opportunity for graduate students who were in-service classroom teachers to identify and solve a specific real life issue in their class instead of coming up with a fictional issue and/or solution. Graduate students/classroom teachers follow a step-by-step process, enabling them to brainstorm ideas, finalize, implement, evaluate, report and share their action research projects. To achieve this goal, the instructor broke down the course's assignments into six steps equivalent with six steps of a conventional action research project suggested by Ferrance (2000), including: Step 1: Brainstorming Action Research Project, Step 2: Finalizing and Writing Your Action Research Proposal, Step 3: Implementing Intervention, Step 4: Evaluation Results and Reflecting, Step 5: Reporting Your Research Project, Step 6: Sharing and Celebrating Your Work.

Step 1 of the project involves brainstorming. Students are encouraged to reflect on their classroom experience and identify an issue they would like to solve. This may include issues such as student engagement, classroom behavior, or learning outcomes. Once they have identified their issue, each of the students will have a 45 one- on- one meeting session with the instructor via Zoom, a proprietary video telephony software program, to work on developing a research question, which will guide their project, and most importantly identifying and forming a research- based and/or practice- tested intervention.

Step 2 involves finalizing and writing the action research proposal. Students will write a proposal for their action research project, based on the feedback they have from the 45 one- on- one meeting sessions with the instructor. They will then post their proposal into Canvas- based online course discussion section for peer review and feedback. The intention of this peer reviewing process is to enable students to familiarize themselves with the peer review process in the academic world. Through peer review, students receive feedback from their peers, helping them refine their proposal further. The proposal includes the research question, methodology, data collection, analysis, and expected outcomes.

Step 3 is the implementation of the intervention. This is the stage where students put their proposal into action, collecting data, and implementing the

intervention. They have up to 08 weeks to implement their intervention. During this step, the instructor offers optional 45 minute one- on- one meeting sessions via Zoom to review the intervention process before they implement the intervention. Students are encouraged to collect data from different sources to achieve reliable data through triangulation via a variety of means, including surveys, observations, and interviews. This data is then used to evaluate the success of the intervention.

Step 4 is the evaluation of the results and reflecting on the project. This is a crucial stage in the project, as it enables students to evaluate the success of their intervention. Through this process, students can determine what worked well, what did not work well, and why. This reflection process helps students develop a deeper understanding of the issue they were trying to solve and enables them to identify areas for future improvement.

Step 5 is the reporting process. Due to the course timeline, this step needs to be completed quite early. The reporting process involves summarizing the project, including the research question, methodology, data collection, analysis, and outcomes.

Step 6 is the sharing and celebrating stage. This is the final stage of the project and involves sharing the project with others. Students are encouraged to share their work with their colleagues, school administration, and the wider education community. This sharing process enables students to celebrate their work and provides an opportunity for others to learn from their success.
Below is the workflow of the course assignments in the course.

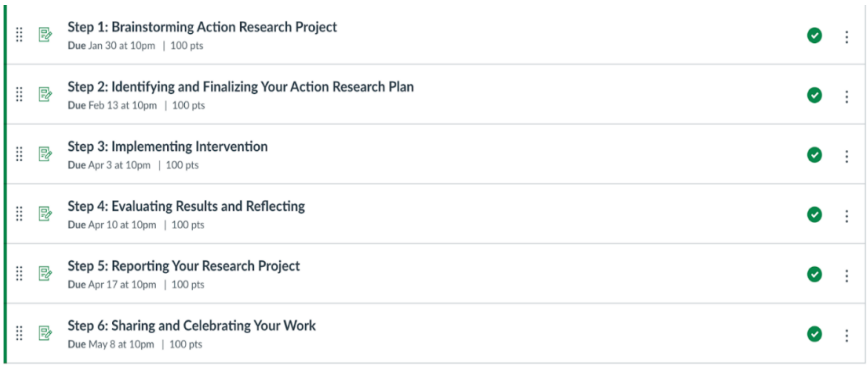

Figure 1. Steps of Action Research Project

Preliminary Data

This section will provide a preliminary analysis of the data informally collected on the choice of action research focus by the students, the outcome of their project, and students' shared written reflection. It is also noted that before the course started, the instructor got a blanket Institutional Review Board (IRB) approval tailored specifically for this course. This step was taken to enhance the educational experience for the students and to explore the potential for sharing

the collected data through presentations at conferences or publication in peer reviewed academic journals.

The data was collected from all students who enrolled in the course over the three regular semesters from 2022 to 2023, consisting of 60 graduate students, of which 36% chose reading for their action research focus, 20% chose classroom management, 15% chose other, 12% chose writing, and 12% chose low level math. The initial analysis of the data shows that reading is the most popular choice of action research focus among the students, followed by classroom management. This could be due to the increased emphasis on reading comprehension in the education system, leading the students/teachers to choose it as a focus for their research. The other category, which had 15% of the students, had a diverse range of topics that were not covered by the other categories.

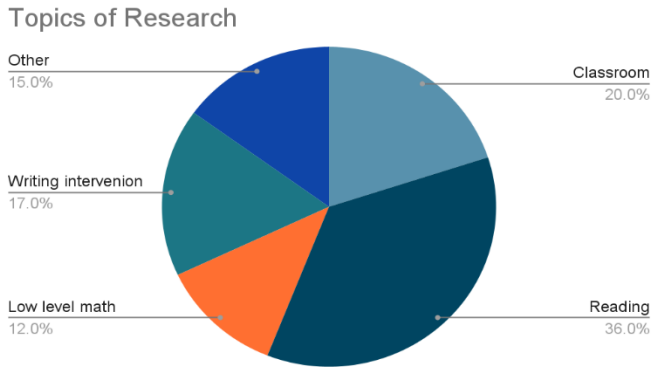

Figure 2. *Students' Choices of Research Topics*

Out of 60 action research projects completed by 60 students, the instructor worked with 10 of them to submit to relevant academic peer- reviewed journals. As of this paper was written, among these submissions, three papers have already been published, one paper has been accepted and is pending publication, and three papers have been accepted with required revisions. Additionally, four papers are currently under review. The fact that three papers have already been published suggests that the action research project in general and submitted papers in particular are of a high quality and have the potential to make significant contributions to their respective fields. This year (2023), three of the students submitted their action research proposal posters to the University Research Day and two of them got first place as summarized in the Table 1 below.

Status	Quant	Journals
Published	3	*Canadian Journal of Action Research* Social Studies Research and Practice The Journal of Teacher Action Research
Accepted, pending for publication	1	
Accepted with required revisions	3	
Submitted under reviewed	4	
Total	**10**	
Submitted to UNK Research Day 2023	**3**	Three accepted and two got first place.

Table 1. Students' action research projects submitted to peer reviewed academic journals

Finally, upon reflecting on conducting their action research project in their own classroom, the students who were also classroom teachers, have identified a dominant theme: the project has been a profound experience for them, opening their eyes to the significance of interventions at the school level. The instructional method provided by the course has enabled them to benefit all their students, and they have witnessed remarkable growth in their learners due to targeted interventions. The students/teachers are now self-assured about the interventions they have implemented in their classes and are committed to enhancing them even further. To summarize the impacts of the course, here are some reflection students shared:

Student 1: This process has been eye opening and it has taught me the importance of interventions even at the preschool level. In my five years of teaching preschool I have not been as consistent in doing small group work as I should be. Now after I see the data and improvement from these 6 weeks I will continue to improve my small group interventions and be more consistent in making time throughout my week to work in small groups.

Student 2: Overall, I feel confident in the interventions that I incorporated into my class. I am planning to continue this model each year from the start to help students in all areas. Not only did this study benefit my specific target

group, but it provided me with an instructional method that can benefit all learners that come through my classroom.

Student 3: It was very valuable for me to have an opportunity to work with students who are on grade level and see such a high level of growth. Being able to challenge the students in my class who are in the majority of being on grade level provided me with an experience I have not had and allowed me to plan more purposefully for the future. Reaching students who are on grade level or above grade level is something that tends to be secondary for most teachers, and these students often get forgotten about. Now that this has become the majority of the population of students I teach, it will require more work in the future for me to find other ways to reach these students with interventions in reading and across all subjects.

Discussions and Conclusion

Based on those preliminary results, it can be concluded that the graduate master program has successfully transformed the traditional comprehensive exam into a real-world practical action research project. The adoption of action research as a tool for professional growth and development has the potential to improve teaching practices and enhance student outcomes in classrooms across grade levels and fields. In addition, the integration of action research into the evaluation process provides teachers with an opportunity to share their findings and collaborate with their peers, leading to a more collaborative and supportive school culture. Moreover, the course has enabled students/teachers to benefit all their students, and they have witnessed remarkable growth in their learners due to targeted interventions. The students/teachers are now self-assured about the interventions they have implemented in their classes and are committed to enhancing them even further. Therefore, this course has not only enhanced their professional growth but also positively impacted the students in their classrooms. Finally, the course has provided a more practical alternative to the traditional comprehensive exam, offering a unique opportunity for graduate students who were in-service classroom teachers to identify and solve a specific real-life issue in their class instead of coming up with a fictional issue and/or solution. This approach allows teachers to apply what they have learned in the classroom and make a real difference in the lives of their students.

Overall, the graduate master program has successfully bridged the gap between theory and practice, fostering critical thinking and results-based decision-making. The approach has empowered teachers to become active agents in their professional development, encouraging them to engage in reflective practice and continuous learning. Through action research, students/teachers can investigate and address issues that impact their students' learning outcomes, resulting in tangible improvements in their teaching practices.

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Teacher Education Student Attitudes Toward School-Based Field Placements and Traditional University-Delivered Courses

DAN SHEPHERD
Professor, Missouri Western State University
Sanghee Yeon
Associate Professor, Defense Language Institute

Keywords: student teaching, student learning preferences, education field experience

Abstract

This survey-centered study explores student preferences related to school-based field placements, prime examples of applied learning in that field, and the impact of those practical experiences on student motivation to succeed in classroom-delivered courses, student perception about whether these applied learning placements made traditional coursework more valuable to them, and perception about whether student teaching and similar field placements inspired them more to become effective classroom teachers. The survey was completed by 47 education students nearing the end of their teacher training program at a midsized Midwestern, open-enrollment state university. While it was expected that survey findings would be positive, the extent to which students embraced these applied learning experiences and perceived them to be valuable for learning outside the field placement was more positive than expected. In summary, students strongly sense that field experiences motivate them to do better in traditional courses, help them understand more the need for the content of those courses, and inspire them to work even harder to become effective teachers. While the numeric data from the survey is instructional, actual student comments more powerfully convey their very positive attitudes toward applied learning experiences in the field of teacher education.

Introduction

Teacher education students traditionally complete a series of content-focused and pedagogically themed university-delivered courses before participating in a series of school-based field placement that often culminate in what is commonly referred to as "student teaching," a semester or year long placement in a classroom working closely alongside an experienced teacher while receiving supervision and support from a college professor or adjunct. This survey-based study explores student perceptions of the impact of those field placements on the value students place on their traditional university-delivered courses, on their motivation to master the content included in those courses, and on their inspiration to become effective classroom teachers. The survey was completed by 47 students nearing the end of their teacher training program of study at a midsized Midwestern university. While the survey's numeric data was collected and analyzed, student comments on more open-ended questions were also very valuable for the purposes of this study and are summarized later in this report.

Research Questions

The foundational research question we explored was, "How do teacher education students feel about their applied learning experiences in schools, working with real students and teachers while learning to become more effective classroom instructors and managers?" Related research questions, which were then used as the foundation of the survey's questions, included the following:

- How do school-based field experiences motivate teacher education students to strive diligently in their university classroom coursework?
- How do school-based field experiences make university-delivered classroom coursework more valuable to teacher education students?
- How do school-based field experiences inspire teacher education students to become better teachers?

Literature Review

As might be expected, all research related to student preferences about field placements and applied learning are very positive. In general, students greatly prefer learning that occurs while embedded in a practical setting, or school in the case of teacher education students.

Student-Reported Benefits of Field Experiences in Teacher Education

Numerous benefits of field experiences in teacher education have previously been explored. These include student professional and personal growth and more positive feelings about teaching as a profession (Baeten, Simons, Schelfhout, & Pinxten, 2018). A survey of 95 elementary education students found that field experiences, while sometimes causing some students to

have a slightly decreased desire to become classroom teachers, resulted in strongly positive attitudes toward the career of teaching and toward the school environment (Anderson, 1987). Pre-service middle school teachers reported an increase in their ability to provide and confidence in providing meaningful feedback to students as a result of their participation in an online applied learning experience (Thomas & Sondergeld, 2015).

The issue of efficacy, or the individual teacher's belief that s/he makes a positive difference in students' lives and learning, has been frequently considered. In one 2015 study, 30 pre-service teachers in a field-based science methods course reported a significant increase in their overall and science teaching efficacy (Flores, 2015). A similar study had similar results with teacher candidates reporting a significant increase in efficacy as a result of placement in an elementary science applied learning program (Flores I. M., 2015). Physical education teacher candidates report an increasing sense of confidence as teachers and enthusiasm for teaching as a result of working one-on-one among actual students with severe and profound disabilities (Estel Layne & Blasingame, 2018).

Student Perceptions about Clinical Practice in Teacher Preparation

In a study very similar to this one, 28 elementary education students were surveyed about their perceptions about the impact of field experiences on their development as future classroom teachers. A significant majority of these students reported that their clinical practice assignments helped them see the realities of the school environment, enabled them the opportunity to reflect about their own professional development, provided them with observable models of exemplary practice, and, among other benefits, taught them how to develop rapport with children (Singh, 2017). Pre-service teachers recognize the need for a close connection between their university courses and their field experiences, especially in the area of lesson planning (Santoyo & Zhang, Spring 2016). An extensive study of 124 future English-language learner teachers found that field experiences change the perceived concerns pre-service teachers have about teaching: in general, field experiences tend to increase the confidence level of pre-service teachers, making them more effective instructors in the classroom setting (Arslan & Ilin, 2018). In a study of six pre-service elementary mathematics teachers, researchers found that these students' beliefs about technological pedagogical content knowledge (TPACK) improved as a result their participation in field experiences; in fact, field experiences, more so than methods courses, had the most effect on their beliefs about this (Kartal & Cinar, 2018). A small study of four pre-service mathematics teachers similarly found, as a result of their placement in a real-world classroom, that these students perceived greater confidence for progressive teaching, for improved self-assessment of their teaching, and for the identification of supplemental teaching resources (Stickles, 2015).

Connections Between Teaching Effectiveness and Field Experiences

Student nurses reported a belief that the most important aspect of a field experience is its length, preferring field placements that last at least a week. They also prefer an actively engaged in-placement instructor and field experiences that required full participation (Macindo, Dangaman, Soriano, Kho, & Bongar, 2019). Social work students reported increased levels of self-efficacy when their program of study included significant content in the field of emphasis that is partnered with focused practicum opportunities in the subject being studied (Olson, 2011). As a result of a focused field experience program that involved the video-recorded analysis of their teaching at the elementary level, physical education pre-service teachers experienced significant improvement in their ability to deliver meaningful feedback (Ramos, Esslinger, & Pyle, 2015). One fascinating study questioned the usual, almost exclusive emphasis in field experiences. These researchers were much more nuanced in their approach and in their findings, determining that field experiences must be paired with meaningful self-reflection to be fully effective in training successful classroom teachers (Barnes & Smagorinsky, 2016). The impact of field experiences on pre-service secondary mathematics teachers was found to have some unexpected and possibly negative results: as a result of their applied learning placements, some of these future teachers determined that progressive and student-centered pedagogical approaches were only for advanced students and that only advanced students were academically motivated (Jones Frank & Apollon Williams, 2016). Even early program field experiences seem to possess this beneficial effect. A 2017 study found that pre-service teachers develop improved instructional skills, classroom management approaches, and lesson design abilities in applied learning experiences early in their teacher training programs (Welsh & Schaffer, 2017). Kazemi and Waege (2015) found that, when field experiences are partnered intentionally with university-delivered methods courses, pre-service teachers grew in their ability to direct goal-focused lessons and in their ability to foster deeper student thinking, and these field experiences, to have a positive impact, do not have to be long. A 2016 study found that participation in a four-week summer STEM camp had a positive impact on pre-service teachers' efficacy in science instruction (McGlamery, Franks, & Shillingstad).

In conclusion, a massive meta-synthesis of well over 100 studies determined that, by far, the most important pre-service teacher development practices included extended student teaching experiences (Dunst, Hamby, B., Wilkie, & Annas, 2019).

Method

This project surveyed 47 education students nearing the end of their teacher training program regarding their perceptions of the impact of school-based field experiences on their own development as future teachers and on their learning in traditional university-based courses.

Survey Development

To increase the overall content validity of the survey, it was pre-tested with a small sample population of approximately 10 students. Their feedback was instrumental in making beneficial improvements to the survey's wording and presentation. Results from the pilot survey indicated a need to simplify the survey questions but to expand the options for responding from a 4-point Likert to a 10-point preference scale. The basic research question of this study was, "How do teacher education students feel about their applied learning experiences in schools, working with real students and teachers while learning to become more effective classroom instructors and managers?"

Survey Questions

Based on the formal survey development practices summarized above, the following set of questions were created.

1. Field Experiences & Motivation in Teacher Preparation Coursework • Rate the following statement on a scale of 1 to 10 with 10 being total agreement and 1 being absolutely no agreement with the statement: My field experiences motivated me to work even harder in my coursework because I experienced the need for improved preparation.
2. Field Experiences & Value of Teacher Education Coursework • Rate the following statement on a scale of 1 to 10 with 10 being total agreement and 1 being absolutely no agreement with the statement: My field experiences made my coursework much more valuable to me since I could see how the content applied to the real-world classroom setting.
3. Field Experiences & Inspiration to Become an Excellent Teacher • Rate the following statement on a scale of 1 to 10 with 10 being total agreement and 1 being absolutely no agreement with the statement: My field experiences have inspired me even more to become a better teacher since I have seen the impact I can have and the work that will require.

Sample

Missouri Western State University (MWSU) is an open-enrollment regional public university of about 5,000 undergraduate students near St. Joseph, Missouri, a relatively economically disadvantaged community. The MWSU Department of Education serves over 400 majors, primarily in the area of elementary education. About 150 of these students who were closer to the end of their programs of study were invited to participate in this survey; of these, 47 responded, for a response rate of 32%. The programs represented by these students include three major field experiences: an initial observation included with the first introductory course, a "junior experience" where students complete the instruction of a unit, and student teaching, a semester-long experience where

students eventually assume almost all teaching responsibilities for a cooperating teacher. In addition to these formal placements, elementary and early childhood education students also complete field experiences as part of their literacy and mathematics methods courses. Survey respondents included mostly those students who had already participated in their "junior experience," leaving only the culminating student teaching experience before the conclusion of their programs and graduation.

Within the education department where the survey was administered, students were mostly white (92%), female (85%), and aged 25 years old or less (74%). Additionally, 62% of program participants possessed cumulative grade point averages of 3.0 or higher. Finally, 37% of teacher trainees in this university had household incomes of $50,000 or less.

Quantitative Analysis

While a review of numeric data is helpful, because of the incredibly positive ratings students gave the impact of field experiences on their learning, student comments, summarized below, do a better job of capturing the passion students have for learning to teach while actually teaching. Nevertheless, averages on a ten–point scale for each survey question are provided below in Table 1. It is clear from these numeric findings that students strongly perceive that school-based field experiences motivate them to learn as much as possible in their non-field experience, content-stressed courses; 29 of the 47 respondents rated this topic a 9 or 10 with 10 being the highest possible rating. For professors and other education instructors interested in highlighting the importance of their traditionally delivered courses and motivating students to learn it well, a powerful means of accomplishing that is placement in field experiences. Students were also very positive about the impact of field experiences on their perception of a traditional course's value to them as future teachers; 32 of 47 responded to this survey question with the two highest possible ratings of 9 or 10.

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the best possible classroom teachers, and these future teachers themselves perceive that field experiences are the most motivational way to accomplish this fundamental programmatic mission.

How do school-based field experiences motivate teacher education students to strive diligently in their university classroom coursework?	8.51 *average response*
How do school-based field experiences make university-delivered classroom coursework more valuable to teacher education students?	8.42 *average response*
How do school-based field experiences inspire teacher education students to become better teachers?	9.34 *average response*

Table 1. Student Response Averages for Each Survey Question (1-10 Scale)

Qualitative Analysis

As previously mentioned, while the numeric data are informative, the student open-ended comments are similarly beneficial for teacher preparers. In the student comments provided below, no changes have been made to the student's actual phrasing.

Students repeatedly expressed a belief that their applied learning experiences in public school settings increased their motivation for learning in university-based courses. Some pre-service teachers commented that, when working within a classroom of P-12 students, they felt a sense of greater need to know and to practice concepts and approaches that were presented in their traditional teacher training coursework. Others had similar feelings as they worked with actual students, thinking that they had a tremendous responsibility to be as prepared as possible on behalf of their own students. Finally, some students grew in motivation for college courses because their field experiences showed them precisely where their learning deficiencies and teacher development gaps were. In the area of improved motivation for classroom learning, students made the following comments:

- "I noticed in my field experiences that the teachers were saying things like, 'I wish I had paid more attention in my methods classes' so that has really motivated me to try to understand as much as possible in my

classes to be as prepared as possible when I enter the classroom setting."

- "In my sophomore experience, I observed so much that it really made me open my eyes. I knew the minute I saw those children learning that this is exactly what I want to do for the rest of my life. I was motivated to keep learning more and more in my classrooms to know how to better help the children in my future classroom."
- "I find that because of these experiences I have been able to see where I am as a teacher and what I need to improve on. I am able to ask my professors what to do in situations I would not normally know to ask about."

Similarly, field experiences had a very positive impact on students in seeing the value of the content in their university-based courses. Many commented that the information they were taught did not become real to them until they practiced it with actual P-12 students. Others felt like their preparation before working with students would have been insufficient. It was only after teaching actual students of their own did they realize what was necessary for success. In the area of recognizing increased benefit to course content, students made the following comments:

- "Especially in the EDU 351 [Elementary Math Methods] class, seeing and doing the content really helped put into perspective what we will be doing and helped me see things that I want to do in my classroom versus what I can't."
- "When I noticed the children learning from their teachers, I wanted to do the same. I have put more effort into really understanding my course assignments and readings because if I do not, I will not be the teacher I have always dreamed of becoming."
- "When planning my weekly Group Intervention lessons, I felt as though I was already preparing like I will when I officially become a teacher. This gave my assignments more purpose because, if I didn't have a plan, then I would have 5 little eyes staring up at me waiting for me to tell them what we were going to do today during our time together. I could never let them down, which meant I worked hard at designing and creating lessons to make our time worthwhile."

Most importantly, pre-service teachers expressed opinions about how the applied learning of field experiences energized and inspired them to strive even more passionately to become a strong classroom instructor. They stated that they needed to see learning occurring by looking into the eyes of their own P-12 students before the importance of the task impacted them fully. By seeing what students need and the challenges that students face, preservice teachers were moved individually to improve their teaching abilities. In the area of personal

inspiration to become an effective teacher, students made the following comments:

- "I strongly think that I wouldn't be so excited to be a teacher if it weren't for these classes. I am so, so, so, so, so, SO dang excited/anxious to become a teacher. It is my passion, and I thank Missouri Western State University's education program for allowing me to express it."
- "The instant I saw the young children learning, I was inspired to do so much more. I knew when I was really young that I wanted to be a teacher but the minute I stepped into a real classroom, I knew teaching is exactly what I want to do for the rest of my life. I love to see children learning and being the reason behind why they are learning. It makes me feel special and needed."
- "I did a lot of my experiences at a lower income/Title school, and I can honestly say it inspired me the most to become the best teacher that I can possibly be. I want to change the lives of young kids and teach them as much as I can. I do not think I would feel this way without the teaching experiences I was given."

Final Student Comment

- "You can talk about teaching all you want, but you never really know what you would say/do until you are out there actually doing it. Being able to actually practice teaching and connecting with kids, is the best possible way to work on being a real teacher."

Student Caveats

While students are, as demonstrated by both the summary data and student comments provided above, very positive about the impact and benefit of school-based field experiences on their classroom learning and development as teachers, they did provide some important caveats to the field experience process. These were issues to avoid or to clarify within the field experience process.

First, student teachers were often confused or bothered by some working classroom teachers who did not model what the students themselves had been taught at the university. For example, many students commented that, while they themselves valued the approach presented in their *Teaching with Love and Logic* (Fay & Funk, 1995) classroom management textbook, they often observed actual teachers disregarding those principles.

Second, students were very clear that field experiences must have ample processing or debriefing with peers and professors to make them fully effective. Often, students valued the experience but found it perplexing or stressful if the opportunity to discuss the experience was not provided. Seminar courses that were provided in association with major field experiences were rated as very

beneficial by student teachers. These courses were very helpful in providing some context for the experiences and gave students a much-needed chance to process what they were learning.

Third, students reported that some field experiences do not go as well as possible because of the "fit" with the assigned classroom teacher or because of what this teacher permitted or required the student to do in the classroom. As with everything in education, relationships matter. If the relationship between the student and his or her assigned classroom teacher is hampered, for whatever reason, then the field experience is never as beneficial as it otherwise might have been. Struggling relationships result in reduced communication, in uncomfortable interaction, and in the necessary ability to grow together. When this happens between a cooperating teacher and a student teacher, the applied learning cannot flourish.

Finally, students emphasized that field experiences do not really "tell the whole story." One student commented that s/he did not "see how [teachers] plan, the curriculum meetings and reasons behind those decisions." While the student teaching experience – a semester-long foray into actual classroom teacher – seems to be able to include most of what teaching is and requires, even it lacks some elements that actual teachers must manage. Student teacher have limited interaction with parents, are not as responsible to the building principal as the classroom teacher is, and are not responsible for setting final grades. In these and other ways, field experiences, while incredibly beneficial, only provide a sample of the full responsibilities of a contracted teacher.

Limitations

Several limitations are evident from this study. First, the total number of survey respondents is limited. Because the target audience for the survey was only students nearing completion of a midsized teacher education program, the number of participants in the study is necessarily small. As a result, the applicability of the study to other areas is reduced. A larger scale study, though, including a similar student population would enhance and reinforce the findings included herein.

Second, the student population surveyed was very homogeneous in demographics. Almost all students were; as previously specified; female, white, and lower middle class. Other voices were simply not included in the sample. It was be interesting to know if minority or other diverse students perceive field experiences similarly, but this study was clearly limited by its tightly focused group of students.

Third, as with all survey studies, there are questions about the benefit of self-perceptions. Related to this caveat is the concern that pre-service teachers who have very limited school experience truly know what is in the best interests of their professional development as teachers. Even though the survey was entirely anonymous, some students may have intended to provide answers that they thought their professor wanted to hear. Others may have simply worked rapidly through the survey because of other priorities, not really carefully

providing accurate replies to the survey's questions.

Finally, this survey simply caught a single moment in time. While it is reasonable to assume that these results would be repeated: students generally always state a preference for real world learning over classroom-based learning. That assumption may not necessarily be true. The partiality toward field experiences may be cyclical, or it may just be generational with current Generation Z. If the same survey were given now, it is very unlikely that identical numeric results or comments would be garnered.

Implications for Practice and Future Research

For Practice

The most obvious implication for teacher preparation institutions is the strong emphasis on field experiences. Not only do students strongly recommend them as the very best preparation for a career in teaching, but also students perceive that field placements enhance their motivation for traditional in-class learning and the value they place on those in-class learning experiences. Most teacher training programs provide an initial observational experience and a final culminating field experience, often referred to as student teaching, but additional field courses should be considered. Methods courses can be moved to school settings, and other lengthy field placements can be added in lieu of traditional content-driven or philosophy-based courses.

Related to this would be a greater emphasis on connecting traditional, content-based courses more closely with field experiences. Since students really see the benefit of field experiences and since they perceive that their field experiences enhance their motivation for and appreciation of in-class courses, professors would do well to seek to identify and to emphasize how course content is applied meaningfully in field experiences. In classroom management courses, for example, instructors could stress how students should respond when their own P-12 pupils express a lack of motivation for learning or a lack of decorum in behavior. In educational psychology or child development courses, professors could similarly stress ways in which their course content will be observed and experienced in real classroom settings among real elementary or secondary students.

For Future Research

Several possible lines of research appear evident from this initial study. First, this and other similar studies tend to focus tightly on a demographic group, in this case middle class white females. A broader study with more participants would make these findings much more transferrable to more teacher training settings and provide more credence to the argument that teacher training should evolve, as much as possible, to include higher and higher percentages of applied learning experiences in actual school setting with real P-12 students.

Second, this study was entirely survey-based and, while it did include some numeric data for consideration, it was much more qualitative than quantitative.

This approach, therefore, did not measure actual effectiveness, only perceived effectiveness. A follow-up study to measure actual instructional effectiveness compared between preservice teachers taught more in university classrooms versus those with higher amounts of applied learning would be beneficial. While it is assumed that field-trained teachers are better teachers, if actual P-12 student standardized assessments indicate otherwise, teacher training institutions should know this before significant programmatic changes are implemented. It certainly seems unlikely, but it may actually be that training preservice teachers in university classrooms is better than training them in public school settings.

Finally, this study asked how field experiences augment university-based courses as though the two were disconnected. Research into how those two seemingly disparate categories of instruction can better be unified would be very beneficial. Most teacher preparers understand that a strong connection between what is learned in the university classroom and then applied in the school setting can be very helpful. The two course-types working together in tandem, mutually supporting and guiding each other, is likely the best method of teacher training possible, but research is needed to support that assertion.

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Twelve Good Teachers: The Montessori Practicum Experience

KATHIE SWEET, MARGARET FLORELL, JESSICA GORR, AND KRISTIN KNOTT
University of Nebraska- Kearney

Keywords: Montessori Practicum, American Montessori Society, experiential learning, early childhood, elementary, Montessori, teacher education, student teaching

Abstract
The University of Nebraska -Kearney Montessori Teacher Education program, an affiliate of the American Montessori Society, provides a unique practicum experience for its teaching candidates. Adult learners participate in a year-long experience in their own classroom, accompanied by an online seminar. With the help of graduate students, program director Kathie Sweet describes the endeavors of a cohort of twelve teachers who completed the Montessori Practicum during the 2022-2023 school year. This comprehensive experiential learning journey fully prepares these educators for a successful teaching career.

Introduction

Twelve teachers embarked on a journey two years ago that began online, where they studied the work of an Italian doctor who developed a progressive method of education over a hundred years ago. A year of online coursework was followed by a three-week in-residence session in the summer, and their experience culminated with a year-long practicum where theory was put into practice. These twelve teachers are a cohort of graduate students earning their American Montessori credential through the University of Nebraska-Kearney.

Maria Montessori broke barriers by becoming the first female doctor in Italy, and later using scientific observation of children to uncover the "secret of childhood". Our twelve teachers learned about this secret, the simple yet profound truth that not only does each child carry within them the man they are to become, but many of us continue to carry this secret as adults who are still finding our true calling. Dr. Montessori discovered her inner secret when she left her university professorship to further her studies of children that began during her appointment to an orthophrenic clinic. Her early experiments at the clinic resulted in profound academic growth in children perceived as mentally deficient. "Perhaps you are those children of whom it was said that they would come to save humanity. If so, I shall follow you. Since then, I am she who tries to grasp their message and to follow them" (Montessori, 1942, p. 7). She would later spread this message across the globe.

Montessori evolved from a teacher of children to a teacher of teachers as she began to train other adults in the pedagogy that continued to develop into a phenomenon that met each child's developmental needs with didactic materials that replaced the textbook, in a school she called a house for children. Teachers under her tutelage underwent a shift she referred to as a spiritual transformation as they grasped the beauty of the method and became not teachers, but directresses, or guides of an environment they prepared in a quest to follow the child.

> The real preparation for education is a study of one's self. The training of the teacher who is to help life is something far more than the learning of ideas. It includes the training of character, it is a preparation of the spirit (Montessori, 1949, p. 190).

It is in this tradition of Dr. Montessori that the American Montessori Society maintains over eighty affiliate training programs that undergo a rigorous accreditation process with the Montessori Council for Teacher Accreditation, to ensure adherence with the principles of the philosophy and pedagogy. Shortly after UNK joined these ranks in 2021, our fourth cohort enrolled with twelve teachers. Two years later they have completed their practicum year, and the secret they carried inside them since childhood has transformed them into those

adults who try to grasp the children's message and to follow them.

The Montessori practicum, which is the equivalent of student-teaching for an American Montessori Society (AMS) certification program, is unique in its placement of students. Most teachers beginning in UNK's Montessori program are already employed in a Montessori school and are able to complete the practicum in their own classroom. Those employed as an assistant typically participate in a supervised practicum, where they are working under a Montessori credentialed teacher. These students may not have a state teaching license, nor a bachelor's degree. The more common placement is self-directed, where the adult is employed as the teacher of record for a classroom. These teachers usually have a bachelor's degree and a state teaching license and are enrolled in the UNK Montessori program at the graduate level. Very few students participate in an unpaid practicum. Successful completion of the practicum can result in the AMS associate credential for the early childhood (ages 3-6) level for students without a bachelor's degree, or the full credential for those with a bachelor's degree. Because AMS only issues a full credential for elementary levels, students pursuing elementary certification at this level must have an earned bachelor's degree upon completion of the Montessori coursework.

The other unique aspect of the Montessori practicum is that it is a year-long experience. During this year the teachers are enrolled in an online seminar where assignments are submitted and students stay connected with one another. Assignments that are tailored to fulfill AMS requirements while helping the students to grow in their role as a Montessori teacher include: Whole Class and Individual Child Observations, Case Study of an Individual Child, Parent Engagement, Weekly Blogging, Action Research, Assessment and Professional Growth, and Reading and Discussion.

Observation

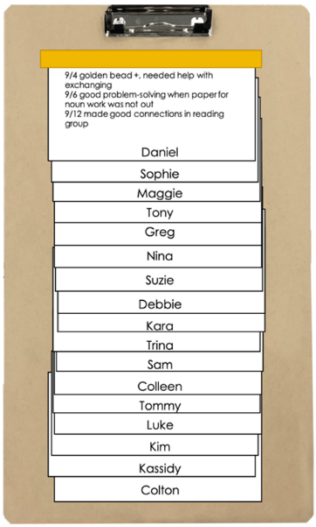
> The first step in becoming a Montessori teacher is to shed omnipotence and to become a joyous observer (Montessori, 1947/1956, p. 121).

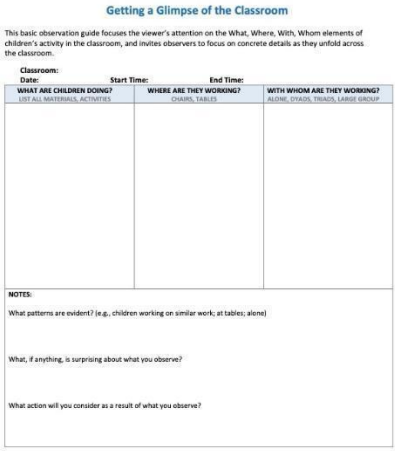
Maria Montessori believed in observation as the basis for teaching and evaluation. It was her observations of children that led to every aspect of her theory. For example, early on in her work she observed a three-year-old girl who repeated an exercise with a material called the knobbed cylinders forty-four times in one sitting, with such concentrated attention that she was unmoved by surrounding distractions. This observation led Montessori to define her concept of normalization, the phenomenon characterized by intense concentration and love of work, a goal that continues to be at the forefront of Montessori classrooms. She also discovered that for a child to reach this level of

normalization, the teacher needs to provide long uninterrupted work periods. Systematic observation by the Montessori teacher serves as ongoing assessment that cannot possibly compare with the results of any standardized test, helping to inform instructional decisions for the community as well as each individual child. In addition to ongoing indirect observation of individual children, the Montessori practicum students are required to engage in 40 minutes of documented uninterrupted whole-class observation each week. Teachers generally break this into 10–20-minute segments on different days. What may sound like a simple assignment to the outsider, an uninterrupted period of observation is a task that takes the Montessori teacher time and practice to achieve. The picture of the Montessori work time is generally 24 children each working on a different activity independently. Movement constantly occurs as they choose work, retrieve supplies, collaborate with peers, and return materials and supplies. Part of the normalization process mentioned earlier involves establishing order in this busy environment through the individual concentration of each child in the community. This requires teacher attention and direction that diminishes as deeper levels of normalization are achieved, and the goal of every Montessori teacher is the environment where "the children are now working as if I did not exist" (Montessori, 1949, p. 404). Practicum students are provided with observation forms from the National Center for Montessori in the Public Sector (NCMPS) and are encouraged to experiment with other forms of documentation, with the goal of discovering the best method for recording observations of their class. Forms are submitted monthly, with a written reflection regarding the experience and usefulness of the observations.

With the multiple tasks undertaken by a Montessori guide during the children's work time, including teaching lessons, assisting children, and monitoring the busy classroom, the establishment of specific observation times and the creation of a documentation process was undoubtedly the most challenging, albeit the most beneficial part of my practicum year. Through plenty of trial and error and guidance from my professor, I found a system that works for me. For daily indirect observations I used layered, 5x7 notecards on a clipboard with each child's name on the bottom, to monitor individual children. My direct, whole-class uninterrupted observations were conducted Monday through Thursday for 10 minutes a day at the beginning of the morning work cycle using one of the NCMPS forms provided by my professor.

Observation is looking with knowledge and awareness, followed by the integral component of reflection. At the beginning of the school year my observation insights were limited to noting the dependence of my students during the work cycle. After practice in the reflection process, I was able to use my knowledge of the pedagogy, the child, and the environment to better interpret and make decisions based on my observations.





Getting a Glimpse of the Classroom

This basic observation guide focuses the viewer's attention on the What, Where, With, Whom elements of children's activity in the classroom, and invites observers to focus on concrete details as they unfold across the classroom.

Classroom:
Date: **Start Time:** **End Time:**

WHAT ARE CHILDREN DOING? LIST ALL MATERIALS, ACTIVITIES	WHERE ARE THEY WORKING? CHAIRS, TABLES	WITH WHOM ARE THEY WORKING? ALONE, DYADS, TRIADS, LARGE GROUP

NOTES:

What patterns are evident? (e.g., children working on similar work; at tables; alone)

What, if anything, is surprising about what you observe?

What action will you consider as a result of what you observe?

A genuine revelation occurred for me at the end of November when I chose to designate a day to observe.. As I viewed the independence and motivation occurring in the environment that day, I truly learned to let go and trust the children and the process. Practice in this important process has helped me use my observations to assess children and situations and develop intervention strategies, and to drive lesson planning and classroom management.

~2021-2023 Graduate Student, Montessori Early Childhood

Case Study of an Individual Child

> To her falls the task of guiding the development of the child's spirit, and therefore her observations of the child are not limited solely to understanding him. All her observations must emerge at the end – and this is their only justification – in her ability to help the child (Montessori, 1923/2020, p. 64).

The case study assignment gives the teacher practice in literally following a child. While the Observation assignment focuses on whole-class observation and indirect observation of all children, the case study concentrates on one child. In addition to periodic behavior inventories and normalization checks, the teacher completes two focused observations per month that zero in on levels of concentration and specifically look at the child's engagement patterns over the course of a work period. The teacher also collects work samples and photographs and writes a narrative at the end of each month regarding the child's progress. These observations and artifacts are submitted monthly and then compiled into a portfolio at the end of the practicum. Practical applications of the case study include practice in documenting information about children.

Whether a teacher has a need to refer a child to the building intervention team, advocate for testing, search for strategies to help him, or communicate with parents, documentation is a necessary step. The case study assignment provides a concentrated practice in this process with the study of one child.

As a Montessori teacher, one of the most important things I need to do on a daily basis is observation. At the beginning of the school year, I chose a student to observe throughout the course of the school year. I selected a student who is very academically gifted but struggles socially, because I wanted to understand his behavior and help him learn more social cues. The variety of observations I completed on a biweekly basis, as well as documentation of progress through photographs and records of completed work, gave me a good understanding of how this student works and thinks. I was able to implement strategies such as more one-on-one time, in addition to supported peer interactions where he could learn the skills that I modeled for the class. I have seen much growth emotionally, academically, and socially.

This assignment helped me learn more about the process of observing an individual child, which will help me in my teaching career where I will undoubtedly have students with concerns requiring documentation. Without this practice, I would not have directly gone to this level of observation which is key when discussing student concerns at any level.

~2021-2023 Graduate Student, Montessori Lower Elementary

Parent Engagement

> I have said enough if I have persuaded you to undertake for yourself the interesting experiment of a visit to one of our schools to watch the happy little ones at work (Montessori, 2017, p. 23).

AMS course components for the early childhood program include Parent Involvement/Education. UNK Montessori Teacher Education has renamed this component of the program “Parent Engagement”. Harman (2018) explains the difference.

Engagement, however, goes deeper; it is a mutually enhancing relationship, with all parties invested in the outcome. To enlist parents as partners is an example of engagement. Engagement supports the child’s learning, confirms the teachers’ efforts, and empowers parents through a relationship that demonstrates sincere care for their child’s academic and social/emotional growth. Parents, teachers, and children benefit from open dialogue and mutual support, both when celebrating success and when facing challenges.

Effective parent engagement goes beyond the weekly newsletter. In addition to stressing the importance of professionalism in written communication, this portion of the summer in-residence course focuses on a variety of activities teachers can utilize to engage parents in their child’s learning. When our

students embark on the practicum phase, they are asked to implement and document a different type of activity each month. Above all, we must not keep parents out of the classroom, but invite them in to witness the normalization we've all worked hard to achieve. Inversely, it is important to recognize the need for engagement on the part of working parents who are not able to visit and volunteer in the classroom. Our early childhood teachers have remarked that the parent engagement assignment helps them create important relationships through activities that become habitude in their classrooms.

Parent engagement is crucial to the success of any early childhood program. When parents or caregivers are invited and able to participate in their child's classroom and school, it encourages positive relationships between teachers and families. Offering different ways for families to be involved can help them realize that we are partners in their child's development and learning. We as educators have the ability to make our families feel welcome and included, and I truly believe it is crucial that we do so.

Our program and professors recognize this engagement as an essential part of a successful classroom. Therefore, over the course of our Montessori practicum, we were required to design different kinds of ways to involve our families in our classroom community. Each month we created a different activity that we would then use in our classroom that invited family participation in some way. These included different opportunities to volunteer both in and out of the classroom, ways to support their child's learning at home, classroom newsletters and websites, reading logs, and our observations of their child that we could share during parent teacher/conferences. We also created presentations for curriculum night and provided opportunities for projects to be completed at home, such as birthday timelines for our celebrations and a peace project that encouraged families to spend time together in conversation about Dr. Montessori and her vision for peace and unity in the world.

Having these pieces ready to use not just during this school year, but now also in our teaching years to come, has most certainly inspired a feeling of transparency, collaboration, and partnership with families.

~2021-2023 Graduate Student, Montessori Early Childhood

March Parent Engagement - Parent Education

Ground Rules in Our Montessori Classroom

A Montessori classroom is based on freedom within limits, respect and care of oneself, for others, and for the environment; and a desire to be working towards confident independence.

The Rights of the Child	The Responsibilities of the Child
The child may ask teachers or other students questions or for assistance.	Aside from an emergency, the child may not interrupt others and will get attention appropriately. (2 finger tap and wait)
The child has the right to work undistracted by others. They may complete or repeat work alone or with help as needed.	The child may not interfere with another child's learning.
The child is free to use any material displayed in the environment that they have received a lesson on.	The child must use the materials respectfully, in a way that does not disturb others. No child may touch the material of another without permission or an invitation.
The child is free to move around the room during work time.	The child must move around the room by walking in a calm and quiet manner, so as not to hurt themselves or others.
The child may work at a table or on a rug, whichever is suitable for the work that they have chosen.	The child may not use the material while standing at a shelf. This does not allow for others to retrieve needed work.
The child is free to use the room and materials as their needs dictate.	The child must restore the environment after their work is completed, by returning the work to the appropriate location on the shelf.
The child has the right to participate in group activities.	If they have chosen not to participate, they are not allowed to disrupt others' enjoyment of the activity.

"Any child who is self-sufficient, who can tie his shoes, dress or undress himself, reflects in his joy and sense of achievement the image of human dignity, which is derived from a sense of independence."
-Maria Montessori, The Child in the Family

March Parent Engagement - Parent Education (Families have needed a refresher on this)

The relationship between a parent/caregiver and their child's teacher is one of the most important factors in a child's attitude about school and their love of learning. The expectations you have of your child's teacher should match your commitment as a parent. We must work together in order for your child to have the best possible experience in school. *You and I both have rights and responsibilities as a part of the partnership.*

The Rights of you, the Parent/Caregiver:

- To ask at any time what progress your child is making.
- To be informed and ask questions about what is being taught in our classroom.
- To be engaged in our classroom community through observation and/or volunteering.

The Responsibilities of you, the Parent/Caregiver:

- To communicate with the teacher in a respectful way, including reading communication that is sent to you via paper or email and responding in a timely manner.
- To keep the teacher informed of any changes related to your child and/or family that may be impacting them at school.
- To be a positive role model and be responsive to your child's needs.

The Rights of me, the Teacher:

- To use my knowledge as a certified, licensed, educational professional to guide my classroom instruction.
- To teach in such a way as to honor the pedagogy of Dr Maria Montessori.
- To teach your child based on their individual level, Millard's Montessori curriculum, and my observations.

The Responsibilities of me, the Teacher:

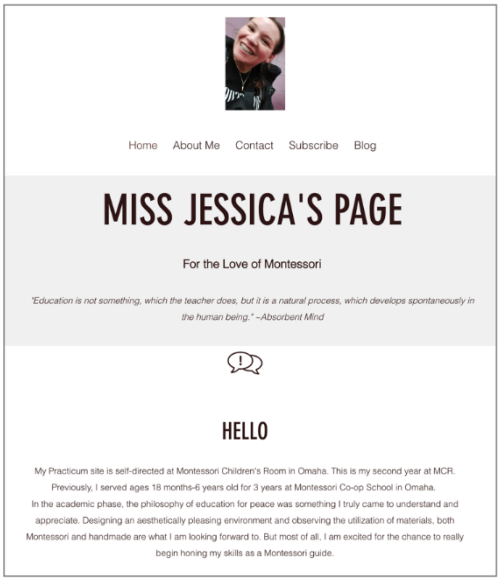
- To care for and keep your child safe and to respect your child and family.
- To keep you informed about your child's academics, behaviors and any concerns that I have, and to communicate those to you in a professional, timely manner.
- To seek your input about your child and listen to what you are saying.

Weekly Blogging

> We do not learn from experience…we learn from reflecting on experience (John Dewey).

Reflection, the act of articulating one's thoughts in writing, has proven to be very beneficial for both personal and professional growth. Blogging provides an avenue for practicum students to participate in reflective journaling, while also serving as a means of communication among the cohort and the instructor. Students are encouraged to be honest and trusting in their weekly blog posts that may focus on anything from a lesson that went well to a frustration they're facing in the classroom. We only ask that the post relates to specific instances related to their growth as a Montessori teacher. Rather than using our regular Canvas discussion platform, each student is set up with their own blog on Wix.com. We have found this provision of a unique space in which to partake in a personal dialogue about their experience to be a highly enriching and engaging experience. Students have access to each other's blogs and are required to read and comment on at least two posts each week. When a cohort has worked together closely, as these twelve teachers did both during the online and in-residence portion of the program, they enjoy staying connected through the blogs. The interaction provides an avenue to continue sharing ideas as well as providing support to one another.

Our classrooms consist of multi-age groupings based on the sensitive periods of the children, so ideally children stay with the same teacher for three years instead of one. Given this dynamic, the first three years prove to be a learning curve for the Montessori teacher. I have been with this cohort of teachers for 2 years now and blogging during the practicum experience has been an invaluable component of my continuing practice. At the heart of this process is the ability to be vulnerable, honest, and genuine.



In October I posted on my blog: *When I first began teaching, I dreaded transitions. Throughout the years it has been my personal goal to master any given transition and down time, because I believe it is absolutely a key element to effective classroom management. What has worked for me in the Montessori environment is taking a ground rule or procedure and incorporating it into a transition. For example, we have a large circular rug for our line time, and the children have spent plenty of time practicing walking around the rug heel-to-toe, tiptoeing, using a bell, etc. So, when we come in from recess they stay in line and quietly walk around the rug and then have a seat. We've also practiced things on the line such as how to switch from outside to inside shoes and how to hang a coat or jacket, so then the children continue to do these things while they're transitioning. Children who are ready still patiently wait because they love to observe the others and most are eager to assist, if necessary.*

Another Early Childhood teacher in the cohort, replied: *I really like your idea about using the line in different ways to allow children who are ready to be busy, yet knowing that this is a ground rule and that there are expectations they need to adhere to makes so much sense. You definitely have made my wheels start turning and that is so exciting to me. I appreciate you so much and how willing you always are to share your ideas, your success, your frustrations, and everything in between. I think the more vulnerable we are with one another, the more open to learning we are also.*

When I was feeling disappointed and discouraged, comments made by other teachers going through the same process offered me support, encouragement, and inspiration. I posted the following in November*: I'm finding that a couple of kindergarten children seem to lack an intrinsic motivation for learning. They*

will seek out what they call "easy works" for the independent work cycle. One child in particular will start to moan, groan, and whine when he has to do a "challenging work." Unfortunately, this is what some teachers call it and I haven't the heart to correct them, and I honestly wouldn't know what to say to supplement the verbiage. I just say they've mastered certain things they're working on and to keep their brain growing we need to move on to the next step.

An elementary teacher in the cohort replied: *We also have our fair share of unmotivated workers. It is frustrating when students choose "easy" work just to say they did what they are supposed to do. Being in the elementary classroom, I know work time is a little different, but depending on the "easy" work they are choosing, we will add on to what they are completing or tell them, "Great news, you have mastered that work and are now ready for something else." They know that after they have mastered a work then they have to choose a different work, but are more than welcome to go back to that work after all their other work is completed. This allows them to challenge themselves and still be able to do the other work if they choose.*

This blogging assignment, ranging from Montessori pedagogy to daily classroom experiences has allowed us to learn from one another, to share ideas and gain new perspectives and receive practical knowledge that we can apply directly to the classroom.

~2021-2023 Graduate Student, Montessori Early Childhood

Action Research

> I followed these children, studying them, studied them closely, and they taught me how to teach them (Maria Montessori).

When Maria Montessori left her lofty position to follow the child, she became a researcher. While we benefit from her research with the method she developed, we all continue to be researchers in our classrooms. Each time a child is struggling, and we brainstorm strategies with our colleagues, look up what other people have done, develop and test something new and reflect upon it; we are doing research. This is what we tell our students who are overwhelmed at the prospect of a year-long action research project. We are asking them to do what they normally do, but in a more formal way. Students spend the first semester of their practicum identifying their research question, conducting a literature review, and devising a plan of action for their research. Their action research occurs in their classroom during the spring semester. Some of our teachers chose topics related to academic achievement, including interventions for reading fluency, outcomes of music on literacy skills, and curriculum for enhancing creative writing skills. Others went in different directions with subjects involving the effects of art integration on creativity, innovation, and motivation; effects of social-emotional learning lessons on classroom behavior;

and products of parent engagement on student normalization. One student was in a unique circumstance, in that she was completing her Montessori practicum in a traditional second grade classroom. She lives in a "Montessori desert" where we hope to soon introduce Montessori as an alternative educational model. In the meantime, she is completing her Masters in Curriculum & Instruction with an emphasis in Montessori. She chose to conduct her research on the benefits of supplementing her math curriculum with Montessori materials.

The research project was extremely beneficial to me in my understanding of Montessori education. I was able to use the skills I gained in the Education Research course that was required for the master's program. Creating a study that I could realistically implement in my classroom required knowledge of the methods of Montessori and their implementation.

Learning how to plan and execute a research project was a wonderful process. I learned how to look at my behavior, my students' behavior, and the resulting data from an unbiased perspective. It was very difficult to separate my emotions from the study, especially when I am one of the variables. Another one of the challenges was to view the project as a whole from the beginning. The question I chose morphed as I moved through the process, and I wanted to take advantage of the teaching situation I am in to compare the Montessori method with a traditional classroom.

It was not difficult for me to find a question to research because I feel passionate about the effectiveness of the Montessori math manipulatives concerning multi-digit addition and subtraction. I truly wanted to know if implementing it would be effective. I was able to compare my traditional classroom which was receiving Montessori math manipulative instruction as an intervention with another traditional classroom that was using only traditional intervention methods.

Now that I have completed a research project, I am much more likely to create a study of my own in the future. There are many things that I would adjust if I were to recreate the study and I would love to see what minor changes could impact the results. I greatly enjoyed this project and my Montessori education would not be complete without it.

~2021-2023 Graduate Student, Montessori Lower Elementary

Assessment and Professional Growth

> To stimulate life,—leaving it then free to develop, to unfold,—herein lies the first task of the educator. (Montessori, 1912/2004, p. 126).

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Like any student-teaching experience, our Montessori teacher candidates are assigned a university supervisor who conducts observation visits and completes evaluations. AMS requires a minimum of three visits, with additional support given the self-directed practicum student. UNK chooses to conduct a

fourth visit for this additional support. The supervision process is supported by professional growth plans. Each student completes a teacher reflective practice inventory at the beginning of the practicum. This is a checklist provided by the National Center for Montessori in the Public Sector (NCMPS) that covers basic skills desired of a Montessori teacher. Based on this inventory the teacher writes three professional growth goals, including a plan of action for achieving each goal. Teacher appraisal forms, also obtained from NCMPS, even more comprehensively cover the major qualities aspired in a Montessori teacher. After the first observation the supervisor will discuss not only the completed appraisal, but also the student's progress on the baseline professional growth plan. Following the supervision visit, the student revises her goals. This process continues for subsequent visits and culminates with each student revisiting the teacher reflective practice inventory and writing a final reflection regarding their growth over the practicum year.

In any career, it is important to recognize that there are always areas where we can grow as professionals. As educators I think that we are even more aware of how necessary it is to continue learning more about the art and craft of teaching. The baseline inventory helped me identify areas within my teaching and classroom management in which it would be more beneficial to focus my efforts. These weren't necessarily weaknesses, but skills I felt I could refine while moving towards a confident practice. The professional growth plan allowed me to create actionable steps for goals that could be replaced once accomplished.

Along with my professional growth plan, I was supervised by my professor throughout the school year. Once a quarter, she would come and skillfully observe my teaching and my classroom environment for a complete work cycle. At the conclusion of that time, we were able to meet and discuss the specific feedback she had for me. Her constructive, kind criticism, as well as the commendation for what was going well has been imperative to my success not only in this graduate program, but also in my growth as an early childhood Montessori teacher. The care and compassion with which suggestions were delivered have served me very well. It has also left me very open-minded in seeking out ways to grow and improve in the future.

~2021-2023 Graduate Student, Montessori Early Childhood

Reading and Discussion

> Learning is a process where knowledge is presented to us, then shaped through understanding, discussion and reflection (Paulo Freire).

The transformation of the adult learner requires a deep dive into the writings of Maria Montessori. Over twenty publications and numerous published lectures reveal the doctor's early work with children, her developing theories, and the

evolution of her didactic materials. In addition to learning how to teach with the method, students study the theory behind the work in depth during the academic phase of the program. Works by other authors are studied as well, including E.M. Standing, a close friend and assistant to the doctor, and current articles on implementation of the method in the 21st century. Extensive discussions of the reading take place during the online academic phase, to assimilate the vast amount of knowledge to be had from Montessori's extensive work. Intentional endeavors are made by instructors during this phase to cover the essential aspects of the philosophy and pedagogy and, despite the ample amount of reading and discussion, stones are left unturned. Enter the practicum phase and we want to uncover those stones, but we allow the students to discern those we now unearth. Last year the twelve teachers chose to engage in a book study on *Positive Discipline in the Montessori Classroom* (Nelson & DeLorenzo, 2021), with two months to read the book, followed by a discussion. They chose a Zoom discussion over an online discussion board, as they had formed relationships during the summer in-residence courses and desired this continued face-to-face connection. Students and instructor met via Zoom a total of four times during the practicum year, with some discussions focused on chosen reading and others focused on communication and support regarding the practicum experience.

Conclusion

Two years ago, these educators embarked on their journey into the UNK program with a desire to earn a Montessori teaching credential. Little did they realize that they held a hidden treasure within themselves – the potential to transform into the Montessori guides they were destined to be. Like Maria Montessori, who said that "the real preparation for education is the study of oneself" (1949, p. 190), these teachers studied "those children of whom it was said that they would come to save humanity" (1942, p. 7). By doing so and by assisting these children in unveiling their own inner secrets, these teachers have undergone a profound evolution.

Our twelve teachers will be recommended for their AMS credential upon successful completion of the practicum. Not to be taken lightly, this endorsement indicates a program with high standards resulting in comprehensive preparation to serve the Montessori community with excellence. This credential will signify a transformation, a realization of the panache required of a Montessori guide, an excellence only reached when one has revealed the secret within. These twelve good teachers will be ready to follow the child in the tradition established by Dr. Montessori.

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Transforming Teaching of Foundational Nursing Skills to Enhance Clinical Reasoning Development: A Proposed Simulation Based Learning Activity

ALLISON K. ANDERSON
Missouri Western State University
ALYSON N. HILL
Missouri Western State University

Keywords: clinical reasoning, clinical judgment, nursing skills, nursing assessment, applied learning, problem-based learning, baccalaureate nursing students

Author Note:

Correspondence to request article exemplars described in this research should be addressed to Allison Anderson, email: aanderson26@missouriwestern.edu and Alyson Hill, email: ahill6@missouriwestern.edu.

Abstract

Over the past decade nurse educators have been called to transform nursing academia in order to better prepare our future nurses for the tremendous changes in the healthcare environment. The advancing medical technology, aging population, nursing shortages and recent COVID pandemic have provided unique challenges that require complex decision-making abilities. The National Council of State Boards of Nursing (NCSBN) has made significant changes in their licensure examination to accommodate the need to assess vital clinical judgment and decision-making skills in entry level graduate nurses. A model to measure clinical judgment was developed by NCSBN in 2019 to assist faculty in evaluating students beyond textbook nursing knowledge to actively perform and evaluate safe, effective clinical decisions. In order for students to fully grasp the clinical judgment process, faculty need to create active learning opportunities that provide patient context so students can cultivate clinical decision-making skills parallel to clinical knowledge. In nursing curricula, students learn fundamental skills in the first year of their education that provide them with a strong foundation to assess and care for thousands of patients. Transforming how these vital nursing skills are taught from solely performing the psychomotor learning domain to incorporating patient specific scenarios can foster development of clinical reasoning and sound clinical judgment in practice. This article outlines the transformation and redesign of teaching clinical skills to first semester nursing students to enhance clinical reasoning development and a proposed future study of assessing student outcomes using a simulation-based approach.

Introduction

Teaching the nursing process has been an integral part of foundational nursing education to establish patient-centered care. The nursing process provides a method for nurses to gather information, analyze the data collected and form a valid conclusion. The underlying key to carry out this critical process is analyzing and solving complex patient specific problems (Hong et al., 2021). This metacognitive practice, essential to high quality patient outcomes is termed clinical reasoning (Mohammadi et al., 2021). A concept analysis of clinical reasoning (CR) by Mohammadi et al. (2021), stated that CR is the core of nursing practice that allows nurses the opportunity to positively impact the quality and safety environment through making valid judgments and evidence-based patient decisions. Tanner (2006) identified that the nursing process does not adequately represent CR and the intricate components that influence it, a vital part of thinking like a nurse. The National Council of State Boards of Nursing Clinical Judgment Measurement Model developed in 2019, highlights the importance of building CR skills in nursing academia for nurses to practice safely and effectively (National Council of State Boards Nursing, 2019). The Clinical Judgment Measurement Model (CJMM) expands on the traditional nursing process by providing additional cognitive actions to generate

the best possible clinical decisions which drive students to think like a nurse. Clinical judgment (CJ) skills should be supported early in undergraduate nursing education to attain the integral professional competence level prior to entering nursing practice (Uppor, 2022). In order for nursing students to understand the depth and breadth of this process, it is imperative that nursing faculty provide meaningful opportunities in the academic environment to understand and apply these CR skills. CR is vital for nurses to not only identify a patient problem, understand the how or the why behind the problem, but to also implement safe and effective outcomes (Bae et al., 2019). Registered nurses use a variety of CR skills in practice, most frequently used skills include assessing accuracy and reliability of patient data (Lee et al., 2016). Assessment is by far the most consequential and fundamental skill in nursing practice and provides the basis for the clinical decision process (Morgan, 2022). Integrating the application of clinical decision making into early nursing education when teaching fundamental nursing skills can provide a solid foundation for enhancing CR development. Tan et al. (2021) suggested that CR should be incorporated into the skills and knowledge of physical assessments to guide in constructing quality nursing problems and actions.

Background

Historically students in undergraduate nursing programs have learned fundamental nursing skills by reading and performing the psychomotor components from a step-by-step checklist. While this is arguably the most effective way to introduce students to each skill, they are missing some of the most important pieces of what nurses do when performing those crucial tasks. In the academic environment it is imperative that students are provided with applied learning experiences that allow them to use their critical thinking and practice like a medical professional. The ability to understand and apply nursing knowledge in each concept and skill mastered is vital to developing competent, high quality baccalaureate prepared nurses.

CR, which coincides with the process of CJ, is not a new concept in nursing education. Tanner introduced the research-based model of CJ over a decade ago. This research found that situated patient-centered learning experiences can assist students to think like a nurse and laid the groundwork for improving CR development. Tanner (2006), also highlighted in her research that advancing clinical knowledge through expert coaching and guidance along with engaging in reflection enhances the student's learning experience. Providing the opportunity for students to evaluate and interpret their findings after performing a psychomotor skill translates to the initial steps in the CJMM which are aligned with Tanner's constructs of CJ.

The Next Generation NCLEX (NGN) pre-licensure exam developed by National Council of State Boards of Nursing (NCSBN) provides context for test questions that allow for improved evaluation of CJ in graduate nurses. Introduction of context application when teaching nursing skills early in baccalaureate education can be beneficial to facilitate measuring CR competence

on pre-licensure exams and improve individual NCLEX outcomes. A scaffolded approach to build on higher levels of learning should be considered when creating this type of active learning strategy for first semester students that align with the respective nursing program, level, and course objectives.

The Essentials: Core Competencies for Professional Nursing Education (2021) outlined by American Association of Colleges of Nursing implores the transformation in nursing education to competency-based education in order to facilitate student accountability for their learning. With the advancement of active learning approaches, technology and understanding of student learning styles, changes in education practices are necessary to achieve exceptional academic learning outcomes. The New Essentials states that this approach to learning outlines student performance expectations based on observed behavior and use of various diverse methodologies and formats. Students who are able to demonstrate what they have learned can better grasp learning connections from theory to practice as well as build on their professional identity. This approach allows students to transform nursing theory into realism by making connections to patient context provided in the classroom, laboratory, and in the physical practice setting (AACN, 2021). In response to the charge to create transformative learning opportunities in professional nursing education, a review of literature was conducted to support the redesign of how foundational nursing skills are mastered in an applied learning environment.

Literature Review

The review of literature consisted of clinical reasoning development, the clinical judgment measurement model, teaching nursing skills, nursing assessment and the application to baccalaureate nursing education. The search was intended to explore literature to support CR development specific to teaching foundational nursing skills and physical assessment that reinforce CJ and decision making. Sources used for scholarly articles include: CINAHL (Ebsco), PubMed, Google Scholar, and Missouri Western State University Library. Search terms included: clinical reasoning, clinical judgment, nursing skills, nursing assessment, applied learning, problem-based learning, baccalaureate nursing students.

Theoretical Framework

The rapidly changing healthcare environment presents unique obstacles for new nurses to care for complex patients in often short-staffed facilities nationwide. With this in mind, it is imperative that nurse educators rise to the challenge to adequately prepare our future nurses to make safe, competent clinical decisions. Focusing on providing students with evidence-based practice examples in education is not sufficient enough to equip them with the tools they need to care for patients in this evolving healthcare paradigm. Rather than passively delivering clinical knowledge to learners, educators should shift their focus on building a constructivist approach to clinical decision making within

the nursing context. Benner (2022) identified that novice nurses lack the experience and background needed to respond to clinical situations. In order to build clinical reasoning skills, educators need to provide situated meaningful learning experiences that allow thinking in action opportunities. Hosseinzadeh et al. (2022) recommended prioritization of utilizing innovative educational CR strategies in nursing curriculum so that nurses are better prepared for practice. Qualitative data found in that study suggested creating active learning environments for nursing students that allow for managing complex and critical situations that in turn build clinical decision-making skills. Educators should incorporate an appropriate learning framework for inexperienced students who are learning how to think like a nurse. Tanner's research-based model of clinical judgment in nursing is a salient foundation for CR development in novice student nurses in conjunction with the Clinical Judgment Measurement Model (CJMM) framework.

Clinical Judgment Model

A variety of educational frameworks have been utilized by educators to enhance entry level nursing students' development of clinical reasoning skills. Tanner's research-based model of clinical judgment is one of the most widely used in academia, as well as the Dual Process Reasoning Theory which focuses on analytical and intuitive thinking to form clinical decisions. These integral frameworks were the basis of the CJMM created by NCSBN. According to the NCSBN, the CJMM was not intended to replace but rather incorporate core educational frameworks to serve as a model for evaluation of students' CJ on the NGN and to guide educators in their own assessments of students' CJ. NCSBN recommendations for integrating their model is concentrated on decision making situated within context-specific conditions with the understanding that nurses utilize prior knowledge and skills when organizing data. Dickinson et al. (2019) stated "development of foundational knowledge, skills, and abilities needed by nurses to independently evaluate complex information and situations to make appropriate clinical decisions requires pre-license programs to incorporate a decision-making framework into their curricula" (p.73). Using the CJMM as a framework for evaluating the teaching of foundational nursing skills will better prepare students for clinical practice and enhance clinical decision making. The various layers of the CJMM represent clinical decision making in action as a nurse forms a CJ based on the client's needs. Novice nurses' development of learning to think in practice is represented by going through the various layers to process data and reprocess information as needed, specifically in the cognitive operations in layer 3 of the CJMM shown in Figure 1 (NCSBN, 2019). This produces accurate collection and interpretation of data to form valid clinical decisions.

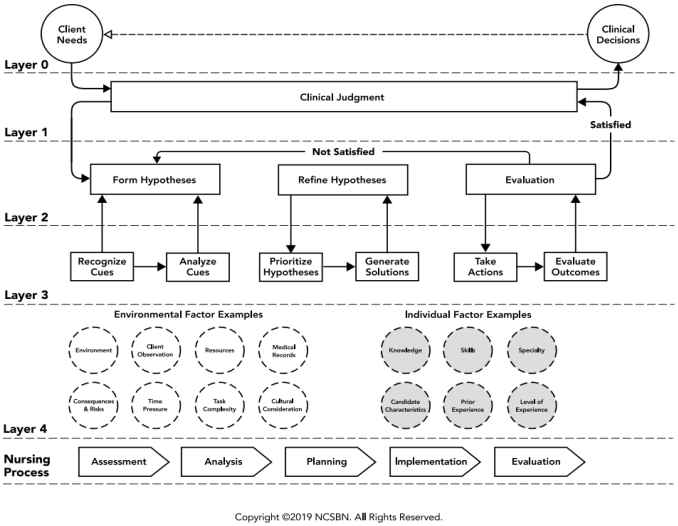

Figure 1. *The NCSBN Clinical Judgment Measurement Model*
Note: Adapted from National Council of State Boards of Nursing, Inc. (2023, May 10). *Clinical judgment measurement model*. Next Generation NCLEX. https://www.nclex.com/clinical-judgment-measurement-model.page. Reprinted with permission from NCSBN.

Clinical Reasoning Skills Redesign Application

It is essential for educators to provide multiple opportunities to practice cognitive, affective and psychomotor skill sets in order to develop CR in clinical education (Jessee, 2018). The commitment to effectively develop CR in clinical coursework that encompasses all learning domains motivated the transformative redesign of the how skills are practiced in a BSN first semester clinical nursing course. The program's simulation laboratory director and holistic assessment course professor identified areas to improve CR development during first semester laboratory experiences. Student feedback received during semesterly forums and course evaluations indicated that learning assessments in a classroom environment was not always conducive to the application of unexpected patient findings in their clinical practice and on nursing exams. Wong and Kowitlawakul (2020), found simulations, case studies, clinical experiences, and guidance from clinical instructors were key educational elements that stimulated critical thinking and CR in nursing students. After researching methods to enhance CR, the disconnect between theory and practice in the fundamentals clinical course was bridged by incorporating situated patient scenarios to the skill evaluation processes in the laboratory. This would allow for the student to practice skills they have learned and make connections to real practice with a specific patient scenario much like a simulation environment. A systematic review by Macauley et al (2017), found strong evidence that simulation has a profound impact on clinical decision making, CR, and critical

thinking in students in health professions. Furthermore, it was evident that the more repetitions in a simulation environment created more considerable outcomes. Therefore, the more opportunities students can apply CR skills in a controlled environment the more advantageous the growth. Results from Byermoen et al. (2022) found that scaffolded learning activities in clinical and didactic courses that focus on enhancing students' learning of physical assessment skills can lead to more confident registered nurses and improve safety in a variety of health care contexts. This type of simulation-based learning may be categorized as a low to mid fidelity in nature, however newer research has pointed out that having higher fidelity simulators does not always equate to higher learning outcomes (Tun et al., 2015). Instructional methods utilizing a patient vignette along with clinical simulation have been found to be an effective tool to develop CR in health care providers (Carvalho et al., 2017). A patient vignette or scenario provides contextual cues for learners to recognize and then interpret potential hypotheses. This strategy is comparable to problem-based learning, a student-centered approach that has shown to enhance problem solving skills essential to form accurate clinical judgments (Sayyah et al., 2017). Problem-based learning in nursing education has been an effective way to develop critical thinking and CR through presenting a patient problem in an active learning environment (Wosinski et al., 2018). Hong et al. (2021) stated that using realistic cases in nursing curricula could also improve nursing student's ability to problem solve. In this type of format, students are able to work through specific patient cues and come to a conclusion about what steps are necessary to take next. In order to further develop CR around the patient specific scenario, debriefing questions that allow students to reflect on their findings and make connections between theory and practice are an integral part of the applied learning experience. Students that are given the opportunity to reflect on their performance are able to gauge the progression towards meeting learning outcomes and acquisition of competencies required for practice (AACN Essentials). According to the International Nursing Association for Clinical Simulation and Learning (INACSL) an evaluation plan of the learner's simulation experience is essential for best practice standards as well as pilot testing prior to full implementation.

Materials and Methods

This section will outline the proposed plan to implement a pilot of the simulation-based activity that incorporates patient specific context when practicing foundational nursing skills in the first semester of a baccalaureate nursing program. Consideration of the most recent INACSL standards for clinical simulation were observed to implement best practice experiences and generate the highest quality outcomes. The International Nursing Association for Clinical Simulation and Learning states that a needs assessment is the "foundational evidence" for the need of any simulation-based experience (INACSL, 2021). INACSL defines 4 "required elements" to complete a quality needs assessment which includes a thorough analysis of need, an examination of

knowledge, skills, and attitudes, and utilizing the results to create objectives to enhance classroom learning and improve quality and safety (INACSL 2021). A needs assessment guided the objectives and type of simulation-based learning techniques that were incorporated into the skills activity evaluation in the clinical practicum course found in Table 1.

Students in the first semester BSN cohort have a designated two-hour block of time to practice assigned clinical skills each week of the semester in the nursing simulation laboratory. Traditionally students use a checklist or physical assessment rubric to demonstrate their assigned skill with a laboratory teaching assistant (LTA) who provides verbal formative feedback. This designated time frame for each student allows for building in a low to mid fidelity simulation-based experience to achieve their learning objectives. The LTA's and the simulation laboratory director co-facilitate meeting the objectives of the laboratory block assignments for the clinical course. Students are required to complete one guided practice and one "dress rehearsal" for every skill with an LTA to receive formative feedback prior to summative evaluation by faculty. The use of standardized formatted assignment, termed an activity, was created for each skill or assessment required for the students to complete in the clinical course. Activity assignments are congruent with clear objectives to reduce ambiguity for students and LTA's in attaining the intended simulation-based learning outcomes. Each activity includes pre brief instructions and a concept specific scenario that provides situational patient context. A standardized pre briefing statement is communicated to students to reduce anxiety and welcome questions during the simulation-based learning experience. The pre-brief document outlines the process for assessing the student objectives, as well as providing objectives for the LTA's, critical errors and prompts for the LTA to use based on the individual patient scenario to disclose to the students during the simulation-based activity. It also houses the skill rubric that is assigned for the student to complete with an example communication tool for the LTA to reference during the simulation. The exemplar assessment skill comprises the physical assessment students learn in the holistic assessment course and perform in the introduction to clinical practice practicum lab block. The assessment rubrics were adapted from *Taylor's clinical nursing skills: A nursing process approach* (Lynn, 2019) and modified by department faculty to focus on salient competencies expected of a BSN graduate nurse. Exemplar videos are assigned to students for each clinical skill prior to attending clinical and/or lecture for the prospective concept.

NUR 303 Simulation-Based Needs Assessment	
Underlying cause for concern	● First semester nursing students currently complete assessments during their scheduled lab blacks with LTA Staff. ● Students currently only work with well abled students and have a difficult time applying skills learned to the general population with disabilities and disease. ● Due to this, students are entering practice with a decreased knowledge in basic assessment skills.
Survey of stakeholders, participants and educators	● During the first semester nursing forum, students have raised concern with feedback for their assessment. Students wish to have a more standardized form of feedback for study purposes. ● The educator of this course also notes that students often miss points due to things clearly addressed in the rubric. Additionally, students currently are not able to apply the skills they are learning as they do not have a "scenario". All assessments are completed on the student's lab partner who is typically a healthy individual. Students have a difficult time taking the assessment skills learned and applying them to real life scenarios.
Examination of Knowledge Skills and Attitudes (KSA)	● This undergraduate baccalaureate program's objectives are aligned with the Quality and Safety for Education in Nursing (QSEN) Competencies. ● Implementing a SBE into this course would allow students to demonstrate the KSA's of Patient Centered Care, Evidence-Based Practice, Safety, and Informatics as defined by QSEN. This would strengthen the course's alignment to the BSN program objectives set forth by this undergraduate nursing program.
Overall Goal/ Broad Objectives	At the completion of the activity, students will be able to: ● Demonstrate safe holistic assessment of the head and neck system according to the rubric below. ● Utilize clinical reasoning and decision making specific to the provided patient scenario. ● Perform effective interpersonal, therapeutic and professional communication throughout and at the completion of assessment using ISBARR form.
Interactive and Innovative Simulation-Based Experience	● Scenario was designed, and standardized, to allow students to apply assessment skills to real life diagnosis for clinical practice. ● Having a standardized scenario allows students to practice safety checks.

Table 1. *Simulation-Based Needs Assessment*

Scenarios were created based on the simulation needs assessment and were aligned with program objectives, semester level objectives, and clinical course objectives. During the student's scheduled lab block they will scan a QR code given to them by the LTA. This QR code links to the activity document that entails pre-brief instructions, patient scenario, vital background information and provider orders for completing the assigned skill. The student activity also contains the ISBARR hand-off communication tool used throughout the nursing program. The ISBARR patient hand-off tool is used for students to report their assessment findings to the LTA along with recommendations for the patient to promote analysis of the information and attain the objective of communication in the clinical course. The students will have a different patient scenario for each practice and dress rehearsal, as well as for each concept to prevent repetition and promote subsequent clinical decision-making opportunities. In order to foster student's self-reflection along with developing CR, debriefing questions were created by the faculty using the CJMM to be completed after each activity. Debriefing questions aligned with the CJMM layer 3 can be found in Table 2. The link to the debriefing assignment is conveniently embedded into the activity scenario following the ISBARR example for students to access from their device via Google Forms. The Google Forms format allows for assessment data to be collected efficiently, interpreted, and analyzed by faculty. The students will be required to answer each question in short essay form after every simulation-based activity. The CJMM operation section, evaluate outcomes, was not aligned with a debriefing question due to the inability for students to measure the outcomes of the simulated activity. The responses will then be graded on the depth and thoughtfulness of reflection and the student's CR connections related to the patient scenario. Similarly, to the NGN, these questions are asking for knowledge application specific to a patient case scenario. This allows the student to reflect on the problem specific scenario and work through clinical decision making relevant to their prior learning. This opportunity to form their own clinical decisions is intended to help students close the gap between theory and practice**.** Student feedback about the simulation-based lab experiences will be collected at the end of semester in a student forum to further guide any changes and evaluate satisfaction with the learning experience.

CJMM Layer 3 Alignment	Debriefing Short Answer Question
Recognize Cues	Which assessment findings or information in the patient scenario are most concerning and why?
Analyze Cues	What additional assessments or information are needed to establish the significance of your findings?
Prioritize Hypothesis & Generate Solution	Which condition(s) are most likely plausible based on the information you received during your activity?
Take Action	What priority interventions would you recommend for your patient and why?

Table 2. *Debriefing CJMM Questions*

Note. Questions were adapted from the National Council of State Boards Nursing. (2019, Winter). Clinical Judgment Measurement Model. *Next Generation NCLEX News.* Retrieved, March 29, 2023 from https://ncsbn.org/public-files/NGN_Winter19.pdf

Future Study

In order to evaluate CR development, a future study to assess students CR proficiency is planned to validate the effectiveness of the simulation-based activity. Review of recent literature found that many studies used the Lasater Clinical Judgment Rubric (LCJR), framed around Tanner's Clinical Judgment Model, to assess CJ and CR in nursing students. The categories for measuring CR include; noticing/observing, interpreting data, responding to the data, and reflecting on performance. This rubric requires a collaborative instructor-led objective methodology approach to achieve a high level of reliability, which may not be feasible for this form of lower fidelity activity. A systematic review of The LCJR supported an alternate technique to evaluate complex decision making through having students complete short- answer questions about a case scenario and reflect on their own performance (Clement & Raleigh, 2021). The students short answer CR questions designated for simulation-based activity debriefing would provide subjective data to be used to assess CR development using an evidence-based clinical reasoning rubric like the LCJR in the proposed study. The LCJR tool is very subjective in nature and could have the potential to increase variability in results with this type of activity. In order to reduce subjectivity a key will be developed for the debriefing questionnaire that students complete after each assessment scenario. Each scenario will have a specific priority finding students should identify based on patient information and the cues received during the activity. The data from each debriefing questionnaire would be compared using repeated measures analysis of variance

on SPSS at the end of the semester to evaluate an increase in student clinical decision-making outcomes.

Educators may consider analyzing standardized exam results in areas specific to CR and CJ at the beginning and then end of their programs, if accessible. Assessment Technologies Institute (ATI) provides comprehensive predictors for licensure examinations that could be used to identify an increase in CJ competence or potential gaps that need to be focused on. For example, Analyzing Cues was the lowest scoring area in the Clinical Judgment category on a recent NCLEX outcome report reviewed by the department faculty. ATI comprehensive predictor category Potential for Alterations in Body Systems results was also identified as decreased from the baseline compared to past outcomes. This category entails comparing current client data to baseline client data (e.g., symptoms of illness/disease) a foundational part of developing CR. Utilizing this data that may already be available to educators could be a feasible method to evaluate outcome specific concepts.

Conclusion

It's evident that the need to implement effective CR development opportunities in nursing education is essential to foster successful learners. Students who are beginning nursing school are most often acquiring various skills that they have little to no experience performing on patients with physical alterations of health. Simply performing the psychomotor skills on another student or on a manikin does not provide realistic context to prepare them for real clinical practice. Providing pathophysiological context that builds on their prior learning will allow them to grow their understanding of why fundamental skills and assessments are so vital to their professional development. Educators must take on a transformative approach to how essential nursing concepts are taught in order to strengthen student's CR and CJ development. The ability to apply meaningful components of CR and CJ with the most foundational nursing actions can have a remarkable impact on quality patient outcomes.

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Exploring Contexts of Care Through Nursing Simulation

MACKENZIE N. EVANS, ELISSA L. ZORN, ALYSON N. HILL, LAURA A. NOLD, AND HEATHER M. KENDALL
Department of Nursing, Missouri Western State University

Abstract

The purpose of this project was to implement simulations across the curriculum in the senior level nursing courses of a pre-licensure nursing program. The goal was to involve students in caring for patients in various contexts of care in a controlled environment. All simulations follow a format in alignment with the International Association for Clinical and Simulation Learning (INACSL) standards including a pre-brief, simulation design, facilitation, debriefing session, student evaluation, and instructor evaluation (INACSL, 2021). The contexts of care selected for the senior level student simulations were obstetrics, pediatrics, critical care and community health. Simulation experiences aligned with didactic and clinical courses in the existing curriculum.

Introduction

Simulation is a significant strategy for undergraduate nurses to experience hands-on nursing practice outside of the clinical setting. An increase in the shortage of nurses and a shortage of nurse educators has resulted in decreased clinical sites (Aebersold, 2018). Because of this, simulation now has a stronger role in nursing curricula to provide students with an opportunity to gain experience and develop clinical reasoning (Aebersold, 2018). Following best-practice guidelines for the development, implementation, and evaluation of simulation can assist educators to best use this tool for student learning regardless of discipline.

Background

Simulation is not a new pedagogical strategy. Its origins in aviation and other high-risk fields has shown its benefit to student learning (Bienstock & Heuer, 2022). As the 21st century has developed so has the use of simulation in healthcare education (Bienstock & Heuer, 2022). Specifically for nursing education, simulation refers to "An educational strategy in which a particular set of conditions are created or replicated to resemble authentic situations that are possible in real life" (International Nursing Association of Clinical and Simulation Learning [INACSL], 2021). Better understanding of the simulation process, modalities, fidelity, and standards will help educators implement this into their practice.

Modalities of Simulation

Simulation can include various forms of modalities to provide learners with the most appropriate format for learning. These can include, but are not limited to, simulated clinical immersion, simulated patients, task trainers, in situ simulation, computer assisted simulation, virtual reality, procedural simulation, case studies, role playing, or hybrid simulation (INACSL, 2021). The modality chosen should match the learning objectives and outcomes for the simulation to enhance student learning. Modalities will differ in strengths and weaknesses, so the modality chosen can alter the student's learning and perception. Standardized patients are trained actors who portray a specific patient or disease process (Carey & Rosser, 2023). Task trainers represent a part of the body to practice procedural skills. Hybrid simulation includes mixing two or more forms of modality to increase the fidelity of the simulation (Carey & Rosser, 2023). In situ simulation allows participants to conduct simulation in their professional setting (Martin et al., 2020). In addition to choosing a modality appropriate for the learner, fidelity can assist in reaching expected outcomes.

Fidelity of Simulation

Fidelity in healthcare simulation is broken into three categories: physical, conceptual, and psychological (INACSL, 2021). Physical fidelity is described as the perception of the environment and how well it resembles the students

professional setting (INACSL, 2021). They can include equipment, room setup, supplies available, simulated patients and props that increase the realism of the environment. Conceptual fidelity addresses the feasibility of the elements in the patient and case scenario. For example, if the patient is supposed to have a high blood pressure, the patient monitor would show a high blood pressure. This allows students to achieve realism in the scenario. Psychological fidelity allows the scenario to imitate the professional setting. This could include the noises, people, and distractions that the learner would be exposed to in the clinical setting (INACSL, 2021).

Simulation Associations

The International Nursing Association for Clinical Simulation and Learning (INACSL) publishes a set of best practice guidelines that guides simulation faculty in creating the best learning experience for nursing students in the simulation laboratory. INACSLs Healthcare Simulation Standards of Best Practice work as a framework for simulationists to evaluate and improve simulation for all participants (INACSL, 2021). All simulations discussed in this paper were built, or revised, to align directly with INACSL standards to improve quality and outcomes for participating students. Simulations were developed utilizing a standardized simulation design template to ensure all standards of best practice were addressed. Simulationists review designs annually to ensure alignment with INACSL standards and revisions are made as necessary.

Review of Literature

INACSL Healthcare Standards of Best Practice

Pre-brief INACSL's (2021) pre-briefing standard states that a pre-brief should occur before any simulation-based experience (SBE). This is broken up into two parts: preparation and briefing. Providing students with ample preparation allows students to review and revisit topics that assist the student in meeting the simulation outcomes and objectives. The more prepared a student is, the more likely they are to be successful, and the less stress a student will endure during an SBE. Additionally, the briefing takes place immediately before the SBE, allows students to become oriented to the equipment and technology they will be asked to utilize during the SBE, and introduces them to the objectives and outcomes they will be expected to meet. If students are being evaluated with any type of rubric, this is also the time for facilitators to explain the expectations, so students have a clear understanding of expectations. Pre-briefing allows facilitators to create a psychologically safe environment for the participants which in turn assists in decreased stress and more positive outcomes for the learner (INACSL, 2021).

Simulation Design INACSL's (2021) simulation design standard states that simulation should be designed in a way that students are able to meet all objectives and outcomes. The standard indicates that a well outlined simulation design will help students to achieve program goals and align with the institution's mission. The strengths of INACSL simulation standard include the

detailed, step by step criteria that helps participants to understand and implement the standard. Another strength is that the standard has the ability to be applied to any discipline. Any specialty could use this standard to design a simulation appropriate for a course. Bambini (2016) defines the process of creating a simulation. This article states that all simulations must include outcomes and objectives, debriefing, and evaluation. It also includes a step-by-step guide on how to make the scenario "flow". It defines the beginning phase, in which students are introduced to the situation, the "trigger" where the student is prompted to the issue that will arise in the scenario, the middle phase where the student collects assessment findings and perform interventions, and the ending phase, where the student has met and addressed all outcomes of the simulation. Bambini also included a time outline for how long each phase of the simulation should last. Lastly, the article describes how to complete an algorithm to assist in determining if students have reached all outcomes of the simulation.

Facilitation INACSLs (2021) standard for facilitation states that facilitators are responsible for managing the simulation and that facilitation will change based on the learning needs, objectives, and outcomes. This standard points out that continued education of the facilitator is key for a successful simulation. The facilitator's role is to assist students in applying critical thinking, reasoning, and judgment skills combined with classroom knowledge to real world scenarios. This standard provides the criteria listed with required elements to help the reader better understand what is necessary for a successful simulation. This standard, however, applies solely to in-person simulation. With the rise in virtual simulation due to the recent COVID pandemic, there is a need to have facilitation guidelines aimed towards virtual simulation.

Debriefing INACSLs (2021) debriefing standard states that all simulation must include a debriefing to help improve students' future performance. The standard goes on to state that the debriefing phase of simulation creates an opportunity for education. During this time students can reflect and enhance their knowledge while increasing self-awareness and efficacy. This standard includes criteria to help educators reach the debriefing standard, along with required elements to meet each standard of healthcare best practices. It also addresses the type of environment in which debriefing should be held. It allows the reader to know which type of environment is best for learners in the debriefing phase. It also states that the debrief should align with the outcomes and objectives associated with the simulation. Hall and Tori (2016) state that the debriefing process should include critical thinking, reasoning, and theory to help students maximize their learning. They found that debriefing with video and debriefing alone had no difference in student outcomes, debriefing after simulation was more effective than during simulation, a safe and confidential area should be utilized for debriefing, debriefing should be done by the observer of the simulation, and facilitators should have ongoing educational activities, peer assessment and self-education along with an understanding of the debriefing process. Hall and Tori were unable to determine a best practice model

for debriefing. However, they did identify many different debriefing models that are commonly used, along with the advantages and disadvantages of each.

Evaluation INACSLs (2021) participant evaluation standard states that participant evaluation is required after simulated learning. The standard provides examples of different ways to evaluate the participants' learning in simulation-formative, summative, or high stakes evaluation. The standard lists what criteria must be met in order to achieve this standard along with required elements to meet the criteria. This standard explains exactly how to conduct the evaluation depending on which type of evaluation method is chosen.

Implementation

Maternal Newborn Nursing

Students enrolled in the maternal-newborn nursing course participated in two simulations throughout the semester. Both simulations utilized a high-fidelity mannequin, simulation laboratory equipment, a simulated medication dispenser, and a simulated electronic health system. This system provides students with a simulated medical chart containing background and history information on their simulated patient as well as a current order set with nursing tasks to be performed. By increasing the fidelity of the simulation, the realism of the scenario, and ultimately student learning outcomes, increase (Choi et al., 2017). The goal for both of the simulations in the maternal-newborn course was to engage the students in high-risk, low frequency scenarios; that is, scenarios that carry a high level of risk for the patient but are not likely to be experienced in the clinical setting by students.

Students complete pre-work assignments to help prepare them for the scenario, including readings, videos, a virtual simulation, and a quiz. A pre-brief occurs prior to the simulation to introduce students to the topic covered in the simulation as well as answer any questions or concerns the students may have. During the simulated scenario, the simulation facilitator was in the control room manipulating clinical presentations on the manikin and acting as the patient in the scenario. The students performed the simulation in small groups of two to three students while the other group of students utilized case studies and an online fetal heart rate module to enhance their learning. Standardized debriefing occurred after each scenario including guided reflection and scenario specific discussion.

Scenario 1: The first scenario is a 23-year-old patient who presents to the postpartum unit after a vaginal delivery of twins. Students navigate through a postpartum assessment which leads them to discover a postpartum hemorrhage. The students must prioritize interventions discussed in the pre-brief to best care for their patient. Interventions include physical assessments, medication administration, and patient education. The students must also collaborate with the patient's care team to adequately care for the patient. One student must call the physician and communicate changes in the patient's status as well as anticipate new orders for the patient using the ISBARR (introduction, situation, background, assessment, recommendation, and repeat back) framework.

Scenario 2: The second scenario is a 39-year-old patient who was transferred to the labor and delivery unit after presenting to her obstetrician's office with signs of preeclampsia. Students navigate through an assessment and start the patient on magnesium sulfate therapy. The students must then recognize signs of magnesium toxicity and intervene using various assessments and medications. The students review fetal heart rate monitoring in their pre-brief as well as through an online fetal heart rate module. They are then required to intervene as appropriate with changes in the fetal heart rate during the simulation. Students again practice their ISBARR communication techniques to communicate changes in the patient's status to her provider. After implementing orders from the patient's provider, the patient experiences seizure activity and the students must prioritize their care and rapidly intervene to assist the patient.

Pediatric Nursing

Students enrolled in the pediatric nursing course participate in three simulation experiences. The participants interact with a high-fidelity pediatric manikin for all scenarios, and an actor portraying the parent. This allows students to not only address the patient, but also consider the impact of family-centered care. Students complete a pre-brief assignment prior to coming to the simulation lab for their pediatric simulation experience. The actor portraying the parent utilizes a standardized script with various prompts. During the simulated scenario, the simulation facilitator is in the control room manipulating clinical presentations on the manikin. Standardized debriefing occurs after each scenario including guided reflection and scenario specific discussion.

Scenario 1: The first scenario is a four-year-old female patient who presents with an asthma exacerbation. The mother or father is at the bedside and does not primarily speak English. The students must recognize the need to obtain a medical interpreter to effectively communicate with the parent. Students have orders to administer albuterol inhaler, epinephrine, and titrate oxygen as needed. As the scenario progresses, the parent reveals that the child has not been using any of her prescribed medications due to cost. The students collaborate with a provider, played by simulation facilitator, to discuss payment options, manufacturer coupons, and other care coordination considerations. The students provide education on the prescribed medications and necessary equipment to the parent, and to the child in an age-appropriate manner.

Scenario 2: The second scenario is a two-month-old male patient who presents to the clinic for a well-child visit. Upon assessment, the students must recognize significant weight loss, malnourishment, abnormal bruising, and clinical signs of dehydration. The parent's script prompts the parent to be unattached, state they only feed the baby two ounces of formula three times per day because "I don't like fat babies". Other signs that indicate abuse and neglect are written into the script. The students collaborate with the provider to obtain

medical custody of the child for transfer to a local children's hospital for treatment. They then participate in a simulated mandated report through a call to the Department of Social Services abuse and neglect hotline. The script for that call was developed through a collaborative effort with the social work department at the university to ensure accuracy and efficacy.

Scenario 3: The third pediatric scenario is a twelve-month-old male patient who presents with a parent to the clinic for a well-child visit. Upon assessment, the baby's length, weight, and head circumference are all on track and appropriate for age. Developmental assessment is appropriate for age. Students have orders to administer twelve-month vaccinations. When obtaining consent from the parent, the parent's script prompts them to state "oh no, we don't want any vaccines for our baby. We think they are toxic, and big pharma is a hoax." The student nurses navigate assessing reasoning behind these feelings and providing education to vaccine hesitant parents. When the students attempt to collaborate with the provider, played by the simulation facilitator, the provider's script prompt states "I'm busy with a very sick patient. Please tell them that our clinic policy is we don't take patients whose parents refuse to vaccinate. I will be there in a little while to discuss with them." When the nurses discuss the clinic policy with the parent, the parent gets upset and accuses them of forcing them to do something they don't want to do. Student navigate communicating with an upset parent until the provider enters the room.

Critical Care

Students enrolled in the adult health II course participate in three simulations over the course of the semester. Simulations for this course are focused on high- risk scenarios seen in critical care and emergency nursing. Students may be exposed to similar situations during clinical experiences but would not have the opportunity to fully participate or manage the patient's care due to the acuity level or student nurse practice restrictions. Experiencing these scenarios within the safety of the simulation laboratory provides nursing students with an experience upon which they can draw from when the situations arise in clinical practice.

Students complete pre-simulation assignments that include readings, video demonstrations, worksheets, virtual avatar-based simulations, and quizzes. Prior to the simulation, the facilitator conducts a pre-briefing session. This session includes a review of the content in the pre-simulation assignments as well as demonstration and practice of any new psychomotor skills. Standardized debriefing occurs at the conclusion of each simulation.

Scenario 1: The first simulation involves a patient who was recently transferred to the intensive care unit (ICU) from the medical-surgical unit. The patient is now intubated and mechanically ventilated with bilateral pleural chest tubes. A new order is entered for a transfusion of packed red blood cells due to low hemoglobin level on the laboratory results. The students are expected to

perform a full physical assessment, perform appropriate care, perform psychomotor skills safely (including administration of blood transfusion), demonstrate effective communication, and document care provided. The students are provided with a link to the patient's chart, which is housed in an educational electronic health record system. Students must collaborate to provide care consistent with identified priorities. A group of no more than 3 students performs the simulation while a second group of students observes. Following a short debrief, the groups switch roles. A transfusion reaction is introduced during the second scenario. This requires the students to respond appropriately to care for the patient and notify the provider.

Scenario 2: The second simulation involves the care of a patient who experiences in-hospital cardiac arrest. The students must respond appropriately and provide care consistent with the American Heart Association adult cardiac arrest guidelines (2020). The goal of the simulation is for the group of students to manage an in-hospital cardiac arrest independently for the first five minutes. This simulation is performed with groups of approximately 6 students, with the facilitator assigning roles to each student. The scenario is repeated until all students have had the opportunity to serve in each role (airway management, chest compressions, defibrillation, epinephrine administration, scribe, and team leader). The facilitator provides less guidance each time the scenario is repeated and gives no guidance or prompts during the final scenario.

Scenario 3: The third simulation involves advanced neurologic assessment, including assessment of cranial nerves and the National Institute of Health stroke scale (NIHSS) assessment (2003). Students are provided with access to videos demonstrating the assessments prior to the simulation. They must watch the demonstration videos and then are required to perform a scoring of a virtual patient through a quiz on the learning management system. Following this, students perform and record the assessment on a classmate who functions as a standardized patient with a specific neurologic condition. Students are required to demonstrate appropriate assessment techniques based on the patient's condition.

Community and Population Health

Students enrolled in the community health clinical participate in a simulation day involving a breakout room experience centered around the context of school nursing. The breakout room experience involves a rotation through three stations involving assessments, skills, and competencies expected of a school nurse. At each station, the students engage in a simulation experience in order to obtain a "lock combination" for each station. Once students complete all three stations, they receive a final clue to break out of the simulation room.

Scenario 1: The first station involves a patient who presented with a

traumatic brain injury (TBI). A high-fidelity manikin is utilized for the patient. Students navigate the Centers for Disease Control and Prevention (2021) Concussion Signs and Symptoms Checklist to gather data regarding a potential concussion. Students must recognize the need to transfer the child to a higher level of care. The correct time to call Emergency Medical Services for a transfer serves as the lock combination for this station.

Scenario 2: The second station involves caring for two patients with diabetes. Low fidelity manikins are utilized as these patients. The patients have diabetes order sets for the students to follow while navigating scenarios of meal intake. Students utilize this information to calculate carb-to-insulin ratios, and correct insulin dosage. The appropriate insulin doses create the lock combination for this station.

Scenario 3: The final station involves caring for a child receiving oral and gastric tube feedings. A low fidelity manikin is utilized for this station along with a feeding pump. Students utilize the information on a nutrition label and order set to calculate a tube feeding dose and rate. The students then program the feeding pump to begin tube feeding administration. The feeding rate provides the lock combination for this station.

Discussion

Each of these scenarios provides examples of real-world experiences that students can use to apply concepts and knowledge from didactic courses into practice. Any discipline can use simulation to supplement student learning through an applied experience. Educators should conduct needs-assessments for their discipline to begin the simulation planning process. The needs assessment will determine simulation scenarios appropriate for the discipline. To accomplish this, the educator should assess the course objectives, stakeholder surveys, student feedback, organizational analysis, professional standards, and identify high-risk, low-incidence scenarios. Any level of fidelity can be used to provide learning opportunities to achieve physical, psychological, and conceptual realism (INACSL, 2021). Educators can derive measurable objectives from the needs assessment to guide the scenario development. These objectives should be congruent with individual course objectives to ensure the relevance of the simulation.

Simulation templates can be utilized to facilitate the planning process. Templates allow for standardization of the simulation design process among faculty and ensure that INACSL standards are met. A simulation template may include skills needed for student success, learning objectives, levels of fidelity, modality of the simulation, and a progression outline. A progression outline outlines the flow of a simulation from beginning to end (Harrington & Simon, 2022). A progression outline can include specific timing intervals for the scenario, manikin, or standardized patient actions, expected learner interventions, and facilitator cues. Facilitator cues allow for planned responses

to expected student actions throughout the simulation (Harrington & Simon, 2022). Implementation can be achieved in the classroom setting or field experiences.

An imperative component of the simulation experience is constructive evaluation of student performance. During simulation design, the designer and facilitator should determine if student evaluation will be formative or summative in nature. The decision for a formative or summative evaluation tool will depend on various factors including the discipline, setting, scenario, and desired outcomes of the experience. The described simulation experiences were formatively evaluated to increase psychological safety which allows for mistakes in a safe setting. The debriefing process is utilized to discuss any mistakes made by the student and provide opportunity for learning and discussion. As this was a formative evaluation, student scores were based on completion of pre-simulation and post-simulation activities, and behavior and attitude during the simulation. An example rubric for formative evaluation is found below:

Nursing Simulation Grading Rubric		
Item	Points	Comments
Arrives to simulation on time and prepared Deduct points for tardiness, missed appointment, or inadequate preparation	/0	
Actively participates in simulation activity including prebrief and debrief	/5	
Maintains professional behavior throughout simulation Deduct points for unprofessional behavior	/0	
Completes pre-simulation assignment(s) before scheduled simulation time	/5	
Completes post-simulation assignment(s)/evaluation by due date	/5	
Total	/15	

Another important facet of simulation evaluation is student evaluation of the

experience. With the described simulations above, students completed an evaluation tool after each simulation which included evaluation of various factors including pre-brief, de-brief, environment, facilitator, realism, perception of knowledge gained, psychological and physical safety. Faculty assess evaluation data each semester to determine appropriateness of experience for future students, and update simulation templates as needed.

Conclusion

In conclusion, simulation-based experiences are used widely as an alternative for clinical based learning in nursing curricula across the country (Aebersold, 2018). Simulation should be considered in other disciplines to supplement student learning in an applied manner. Through simulation, students experience real life situations and can implement interventions in a controlled setting. This allows students to learn from their mistakes rather than experiencing negative outcomes in practice. Senior students in this undergraduate nursing program can enjoy these experiences in the following contexts: pediatric, maternal newborn, critical care and community health. Nursing students share positive feedback about their time in the simulation setting during in-person student forums, course evaluations, and on exit and alumni surveys.

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Understanding the Role of Service-Learning on Civic Engagement and Scientific Literacy

JOANNA CIELOCHA, JESSICA V. ALLEN, JOAN Z. DELAHUNT, JULIA M VARGAS
Rockhurst University

Keywords: Service-learning, scientific literacy, civic engagement, undergraduate science education, occupational therapy education

Author Note

Dr. Joanna J. Cielocha is an associate professor of Biology. Dr. Jessica Allen is an assistant teaching professor of Biology. Collectively, they have developed and implemented a variety of service projects in their lower-level majors and non-major courses with community partners for in-person service and online citizen science platforms for virtual service. Dr. Joan Delahunt is an associate professor of occupational therapy. She primarily teaches in the entry-level occupational therapy doctorate program. One of her lab courses offered a service opportunity to participate in screening elementary age children's vision and height/weight for a local free health screening for children attending school in the urban core. Dr. Julia Vargas, director of the Center for Service Learning at Rockhurst University, supports faculty engaged in service-learning through professional development and individual coaching. The Center for Service Learning sponsors the McMeel Family Faculty Institute on Service Learning which has two programs: The McMeel Fellows program for faculty new to service learning and The McMeel Scholars program for service-learning practitioners to foster community-based research and scholarship of teaching and learning. Cielocha, Allen, and Delahunt were selected as McMeel Scholars in the summer of 2020, through which this research was conceived and supported. Correspondence to request article exemplars described in this research should be addressed to Allison Anderson, email: aanderson26@missouriwestern.edu and Alyson Hill, email: ahill6@missouriwestern.edu.

ABSTRACT

Implementation of service-learning within courses may increase students' overall attitudes towards themselves, their community, and their school and improve academic performance. The study aim was to understand students' perceptions of prior civic engagement experiences and level of scientific literacy to gauge if participation in course-based service-learning impacted continual community engagement and improved scientific literacy. Students completed a pre- and post-assessment tool measuring their level of community engagement and scientific literacy administered in six courses. Results showed that service-learning did not negatively affect student perception of civic engagement. Students enrolled in service-based courses demonstrated significant improvement in their scientific literacy. Participation in service learning facilitates growth in scientific inquiry and civic engagement.

INTRODUCTION

The term service learning was first coined in 1967 but gained popularity as a teaching methodology in the early 1990's (Giles & Eyler, 1994). Service learning seeks to pair an organized community-based service experience with course content (Bringle & Hatcher, 1996). Evidence supports that utilizing service learning in the classroom increases students' overall attitudes towards themselves, their community, and their school, while also improving academic performance (Allen et al., 2021; Bringle, 2017; Celio et al., 2011; Finley & McNair, 2013).

Civic engagement refers to the promotion of improved quality of life in the community through political and non-political processes. Additionally, participants in civic engagement develop skills, values, and motivation to make a difference in the community (Ehrlich, 2000). Service-learning is one way to foster civic learning and engagement within the curriculum (Taylor & Kridler, 2013; The National Task Force on Civic Learning and Democratic Engagement, 2010). Service-learning leads to positive effects on civic learning outcomes of efficacy, specifically, students' sense of social responsibility, ability to work with others, and the sense of being able to affect change in the community (Eyler, et al., 2001; Gallini & Moely, 2003).

Increasing scientific literacy, or the general understanding of scientific terms and how the scientific process is carried out, is a goal of science curricula in higher education (Gormally et al., 2012). Scientific literacy is not just for those being trained as career scientists (Miller, 1983). Everyday decision making is influenced by a person's understanding of science and the process of science, from the foods we eat to how we vote on policies and issues (Hobson, 2008). Although the concept of scientific literacy was first proposed in the early 1950's (see discussion in DeBoar, 2000), increasing an individual's understanding of scientific content proves difficult (Eisenhart et al., 1996).

The purpose of this study was to assess students' past experiences with civic engagement and their level of scientific literacy in courses with and without a service-learning component. We addressed two research questions. (1) How

does student participation in service-learning impact perception of civic engagement? (2) In what way does participation in service-learning impact scientific literacy for students enrolled in various courses?

METHODS

Research Design

We investigated student perceptions of civic engagement and scientific literacy by administering a survey with quantitative and qualitative methodology in a pre/post exploratory mixed methods design. A mixed methods approach is advantageous for allowing broader understanding of students' attitudes and perceptions to strengthen the interpretation of the results (Migiro & Magangi, 2011).

Participants

Purposive and convenience sampling guided recruitment for student participants from six courses: four undergraduate biology courses of which three implemented service-learning and two graduate courses of which one implemented service-learning. Undergraduate biology service courses included General Biology II and Conservation Biology, both courses offered to biology majors and Contemporary Biology, a non-biology majors' course. The non-service undergraduate biology course was General Biology I. At the graduate level in occupational therapy, Foundation Skills Lab I was offered as a service-learning course while Foundation Skills Lab II was offered as a non-service-learning course. Inclusion criteria required participants to be enrolled in the selected undergraduate biology courses or graduate occupational therapy courses. Participants were excluded from the study if they did not provide consent for their data to be used for analysis.

Setting

This study occurred over three semesters at a small, private university located in an urban area in the midwestern United States. The continuation of the Coronavirus Pandemic into the 2021 and 2022 academic years disrupted the ability to offer students in person service-learning opportunities in the community. Therefore, service-learning opportunities were modified and limited in scope during this study. The pre/post surveys were administered electronically.

Service Learning

In the undergraduate biology service courses, students participated in a virtual service-learning experience using Zooniverse (https://www.zooniverse.org/). As pandemic restrictions lifted, some students were able to participate in in-person service-learning opportunities with the Missouri Department of Conservation Anita B. Gorman Discovery Center near the Rockhurst campus. In the graduate occupational therapy service course,

service-learning included in-person health screenings of elementary age children at local elementary schools through collaboration with Score 1 for Health (https://www.kansascity.edu/programs/clinical-experience/score-1-for-health).

Instruments and Materials

Pre/Post-Assessment of Attitudes Toward Service, Science and Level of Scientific Literacy

The pre- and post-assessment survey consisted of 23 questions in 4 categories: demographic data, previous service experience, attitude toward service, attitudes toward science, and scientific literacy. Demographic data asked participants to identify grade level, major, and enrolled course. Quantitative measures utilized electronic survey methodology to collect data on previous service and attitudes toward service section of the survey (seven Likert-scale questions); attitudes toward science section (four Likert-scale questions, one rank order question on student perception of science, and one open-ended question on defining what it means to conduct a scientific study); and six multiple choice scientific literacy questions. Two of these questions required graphical interpretation of data which targeted quantitative literacy (see Gormally et al., 2012 and citations therein). Modified assessment questions on service and attitudes towards service were from the Community-Based Learning Student Survey (Gelmon et al., 2018). Two assessment questions about scientific literacy came from the Test of Scientific Literacy Skills (TOSLS; Gormally et al., 2012); other questions were modeled after TOSLS questions but developed by the authors.

Procedure

Following approval from the University Institutional Review Board (Rockhurst University IRB 2020-22), biology and occupational therapy faculty explained the overall project to students in each class. Students who consented to participate completed the online survey during the first and last weeks of the semester. The pre- and post-assessment survey assessed the current level of civic engagement, perception of service learning, and knowledge of scientific literacy.

Data Analysis

The authors utilized paired t-tests to analyze the quantitative pre- and post-assessment data through Microsoft Excel (Microsoft Corporation, 2023). Qualitative methods of individual open coding, microanalysis, and axial coding of the responses while generating audit trails until achieving redundancy and saturation analyzed the open-ended survey question (Creswell & Creswell, 2017). Researchers compared and consolidated themes into overall combined themes. Narrative smoothing helped to derive similar themes from both the pre- and post-groups. Triangulation occurred through member checking and integration of the results with quantitative data to increase the rigor of the study.

RESULTS

Participant Demographics

A total of 333 participants completed the pre/post-assessment (Table 1). The pre-test was administered to a total of 177 students. Of these, 69% of students were enrolled in service-based courses and 31% were enrolled in a non-service-based course. Occupational therapy graduate students made up 12 of 177 responses (7%), while 116 (65%) were first-year college students. 156 students participated in the post-assessment. Of these, 79% were enrolled in service-based courses and 21% were enrolled in a non-service-based course. Occupational therapy graduate students made up 10 of the 156 responses (6%), while 92 (59%) were first-year college students.

Table 1. Demographics of student participants.

	Pre-test	*Post-test*
Total number of student respondents	177	156
Number of students enrolled in service courses	122	123
Number of students enrolled in non-service courses	55	33

Table 1. Demographics of Student Participants.

Quantitative Findings

Student responses on previous service experience, attitudes towards service, and attitudes towards science were collected using a 5-point Likert-scale.

Previous Service Experience & Attitudes Towards Service

Visual trend analyses revealed that most students, regardless of enrollment in service-learning or non-service-learning courses, responded “agree” or “strongly agree” to attitude-based questions on their previous service experience, community connections, and future service (Table 3). For students enrolled in service-learning classes, minimal change occurred in the percentage of responses for “agree” or “strongly agree” when asked about their attitudes on service on the pre-test (before service) and post-test (after service). Students enrolled in non-service-learning classes showed an increased percentage of responses for “agree” and “strongly agree” between the pre-test and post-test. The one exception for this trend is the percentage of students who responded “agree” to the question: “Shared learning with other students through service-learning will help me to understand community needs” which showed a decrease from 73% to 55%; however, that same cohort of students who marked “strongly agree” for the same question increased from 9% to 18% (Table 2).

		Strongly Agree		*Agree*		*Neutral*		*Disagree*		*Strongly Disagree*	
Pre/Post-Assessment		Service	Non-Service	Service	Non-Service	Service	Non-Service	Service	Non-Service	Service	Non-Service
Previous Service Experience Questions											
I was already participating in community service before taking this course.	Pre	21%	9%	34%	38%	17%	25%	24%	24%	4%	4%
	Post	20%	21%	50%	33%	18%	18%	27%	24%	4%	3%
Service/volunteerism allows me to see how I can be more involved in the community.	Pre	46%	27%	48%	56%	7%	15%	0%	2%	0%	0%
	Post	46%	18%	50%	70%	5%	12%	0%	0%	0%	0%
I probably will participate in community service in the future.	Pre	52%	33%	42%	55%	7%	9%	0%	2%	0%	2%
	Post	48%	27%	47%	67%	5%	6%	0%	0%	0%	0%
Attitudes Towards Service Questions											
If service activities were embedded in this course, it would help connect subject matter to everyday life.	Pre	26%	13%	52%	40%	19%	33%	2%	15%	1%	0%
	Post	31%	15%	49%	58%	15%	18%	4%	9%	2%	0%
I feel that service-learning would benefit the community.	Pre	40%	22%	55%	62%	5%	11%	0%	4%	0%	2%
	Post	46%	24%	47%	67%	6%	9%	1%	0%	0%	0%
Shared learning with other students through service-learning will help me to understand community needs.	Pre	34%	9%	55%	73%	9%	16%	2%	2%	0%	0%
	Post	31%	18%	55%	55%	11%	27%	2%	0%	0%	0%
Service-learning would allow me to communicate my ideas in a real- world context.	Pre	30%	5%	52%	64%	16%	29%	2%	2%	2%	0%
	Post	34%	18%	52%	67%	11%	15%	2%	0%	0%	0%
Attitudes Towards Science Questions											
Science and technology are making our lives healthier, easier, and more comfortable.	Pre	34%	29%	50%	49%	13%	16%	2%	4%	1%	2%
	Post	38%	6%	47%	75%	14%	18%	1%	0%	0%	0%
The benefits of science are greater than any harmful effects.	Pre	6%	0%	19%	24%	39%	40%	33%	36%	3%	0%
	Post	20%	9%	49%	46%	28%	46%	2%	0%	1%	0%
Science makes our way of life move too fast.	Pre	16%	9%	48%	49%	30%	36%	4%	6%	2%	0%
	Post	4%	33%	22%	43%	32%	18%	36%	6%	6%	0%
We depend too much on science and not enough on faith.	Pre	2%	4%	13%	9%	40%	42%	27%	32%	18%	13%
	Post	2%	3%	11%	15%	36%	40%	34%	30%	17%	12%

Table 2. Percentage of Student Responses on Pre/post-Assessment Administered to Service and Non-Service Student Participants on a 5-Point Likert Scale

Table 3. Qualitative analysis of student responses to open-ended question.

Student Prompt: Please share in your own words what it means to conduct a scientific study.

Assessment	Theme	Subtheme	Student Quote
Pre-test	"Means to an end"	Focus on following the scientific method to identify a problem and find a solution.	"Using specific methdology and controls to answer a question." "Defined methods and steps to answer a question/hypothesis"
Post-test	"Discovery and dissemination"	The power of the scientific method (develop question, create hypothesis, collect data, analysis, interpret findings, share with others)	"Researchers plan an experiment to gather data about something to gather the new information. This new information could lead to future experiments or new ideas passed around" "To study something in depth collect data and analyze something in the scientific field to obtain new knowledge"

Table 3. Qualitative Analysis of Student Responses to Open-Ended Questions.

Attitude Towards Science

Results from the student responses between pre- and post-tests showed the highest percentage of change on the questions about students' attitudes towards science (Table 2). Students in both service and non-service-based courses answered more often with "strongly agree" or "agree" on both the pre- and post-test to the question "S*cience and technology are making our lives healthier, easier and more comfortable"*. Many students responded "neutral", "disagree", or "strongly disagree" on the pre- and post-tests to the question which asked, "*The benefits of science are greater than any harmful effects*" regardless of being enrolled in a service or non-service course.

Scientific Literacy

A two-tailed t-test analyzed the difference between the pre- and post-test for students in service and non-service courses as well as between the pre-tests for service and non-service and post-tests for service and non-service (Figure 1). A significant difference existed between the pre and post-test for service ($p=0.03$; a). We also found a significant difference between the post-test for service and non-service ($p=0.01$; b). No difference occurred between the pre-test for service and non-service ($p=0.5$) and no difference between the pre and post-test results for those in the non-service course ($p=0.6$). Students were asked about their perception of the term 'scientific study' and could respond with one of three options: a clear sense of understanding, a general understanding, or little understanding. Those enrolled in service-learning courses demonstrated a higher degree of confidence by responding with a clear sense of understanding of the term scientific study at 18% on the pre-test and 39% on the post-test. This level of perceived understanding was not observed in students enrolled in non-service-learning courses with 33% selecting a clear understanding of the meaning of scientific study on the pre-test and only 24% selecting this response on the post-test.

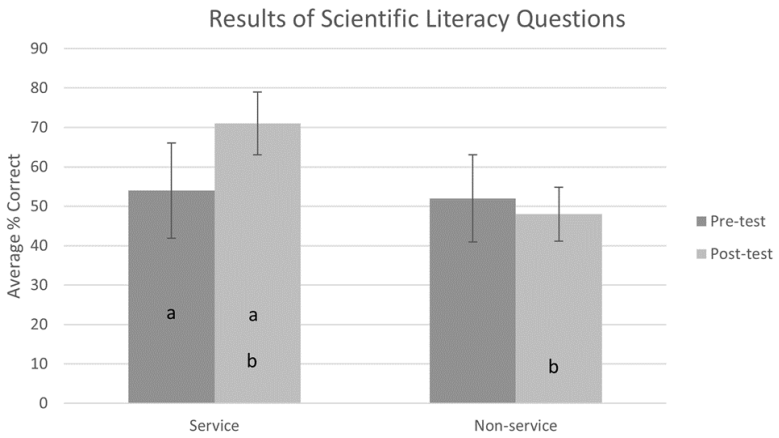

Figure 1. T-test comparing service and non-service on the pre- and post-test questions of scientific literacy.

Qualitative Findings

Results of the qualitative analyses of the open-ended question on the pre- and post-survey asking participants to describe in their "*own words what it means to conduct a scientific study*" revealed four overall themes with accompanying subthemes (Table 3). Pre-test responses tended to focus on a means to an end. While post-test responses revealed students' perception of science as a process of discovery and dissemination of data.

DISCUSSION

Civic Engagement and Service-Learning

Based on the comparative analysis of pre- and post-survey results, there was very little difference of previous civic engagement for all student participants, regardless of being in a service or non-service course. This may be due to the nature of the students attending the university. Further, students who were enrolled in non-service courses indicated that if service activities were embedded in their course, it would help connect the subject matter to everyday life and understand the community needs. Our results (Table 2) are consistent with these findings with over 85% of students enrolled in service courses responding Agree or Strongly Agree on the post-tests to both of the following questions "Service allows me to see how I can be more involved in the community." and "Shared learning with other students through service-learning will help me to understand community needs." Regardless of the service setting, virtual or in-person, student perception of civic engagement remained positive. Ahmad and Gul (2023) found that online service-learning was a useful approach for promoting social justice and civic attitudes for students working in a laboratory setting. Furthermore, other studies support the finding that students desire to be part of something bigger and utilize their education for good (Cielocha, 2022; Owusu-Agyeman & Fourie-Malherbe, 2021) whether service-learning occurs in-person or online.

Scientific Literacy

Qualitative analyses of the pre- and post-survey open-ended questions revealed that student participants grew in their understanding of how to conduct a scientific study, consistent with improved scientific literacy through service-learning (Reynolds & Ahern-Dodson, 2010). In the pre-experience survey, the focus was on the scientific method as a "means to an end" where the focus was on finding the solution to the original problem. Many students described the steps of the scientific method including identifying a question, creating a hypothesis, applying quantitative or qualitative procedures all in the hopes of answering the question. For example, one student shared that conducting a scientific study meant, "using specific methodology and controls to answer a question." Similarly, another student said, "A study to gather information to answer a bigger question." Conversely, in the post-experience

survey, students described conducting a scientific study with an emphasis on the actual process versus focusing on the end game. This theme wove throughout all student descriptions. One student's definition of a scientific study was, "Coming up with a question you wish to answer, hypothesizing about what the answer may be, developing a method in which to collect appropriate data that will help to answer or shed insight into that question, performing the study using the derived methods, compiling results in an organized way and making conclusions/discussing these results." Another student shared, "researchers plan an experiment to gather data about something to gather the new information. This new information could lead to future experiments or new ideas passed around." Therefore, students in the post-experience survey described not only the steps of the scientific process, but who they might work with and how they might disseminate their findings. Students in the post-experience survey demonstrated the broader benefits of participation in a scientific research project including collaboration, new learning, and contribution to the community (Adebisi, 2022).

Further, evidence of scientific literacy improvement existed in the multiple-choice question set. While students in both the service and non-service courses scored the same on the pre-test, students in service-learning courses showed significant improvement in their scientific literacy. This is consistent with current literature which implemented service-learning and tests of scientific literacy (Hayford et al., 2014, 2015) while those not involved in service showed no improvement on their scores on the post-test.

LIMITATIONS

A study limitation included a sampling bias as the participants were from incongruent student populations. For example, General Biology I is the non-service-learning undergraduate biology course in which the survey was administered. This course is generally taken by first semester first-year students and covers introductory topics of cellular and molecular biology. Whereas, General Biology II, the main undergraduate service-learning based course for which the survey was administered, focused more on ecology and organismal diversity. Additionally, participants consisted of mainly undergraduate students with a small sample of graduate students who completed the pre- and/or post-survey.

Measurement bias occurred within the survey design. The administered survey consisted of six multiple choice questions on scientific literacy. Two of these came directly from the TOSLS (Gormally et al., 2012). The remaining four were written by the authors, of which three covered topics relating to population growth, predator-prey interactions, and climate change—all topics which are covered in General Biology II. These ecologically based questions on the scientific literacy assessment covered topics which are aligned with the General Biology II curriculum, and are not presented in the General Biology I curriculum.

CONCLUSION

All students, regardless of the opportunity to participate in service, demonstrated growth in their understanding of the scientific method. Students enrolled in a service-learning course showed significant improvement in their scientific literacy over the semester. Many Americans express positive attitudes towards science and technology (National Science Board, 2020). The pace by which we receive this knowledge has increased in the internet age (Miller et al., 2021). Education is the most important variable for peoples' positive perception of science (National Science Board, 2020) further illustrating the need to provide students with innovative ways to learn scientific methodology through service-learning within their community.

Based on our survey data, students expressed a desire to continue to be civically engaged. Our research demonstrates that service-learning plays a role in students' perception of connection with their community. Incorporation of service-learning in coursework facilitates growth in scientific inquiry and civic engagement to prepare more civic-minded and compassionate individuals upon graduation.

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