

# Undergraduate Research As Applied Learning: Exploring Evacuation Preparedness

**JOHN R. FISHER**

Utah Valley University

**MARY BENNETT**

University of Utah

*Keywords: undergraduate research, applied learning, experiential learning, mentorship, critical reflection, evacuation preparedness, community resilience*

## ABSTRACT

This study examines the effects of undergraduate research as applied learning, focusing on student researchers' experiences in Kosovo, North Macedonia, and the U.S. Utilizing faculty mentorship and critical reflection, students conducted interviews to assess disaster preparedness and community resilience. The methodology included qualitative interviews and reflective practices. The analysis was guided by theories of experiential learning. Findings reveal that mentorship and experiential learning significantly enhance research skills, cultural awareness, and personal development. The study underscores the importance of integrating experiential learning into education to foster critical thinking. Policy implications suggest that governments should support disaster preparedness and educators should prioritize applied learning initiatives.

## INTRODUCTION

This paper reports a study within a study. First, it presents a case study on how faculty mentorship of student research serves as an applied learning experience. Secondly, it highlights the results and findings from the students' research.

The project began in spring 2022, during the latter phase of the COVID-19 pandemic. Dr. John Fisher, a professor of Emergency Services at Utah Valley University, invited two students, Mary Bennett and Jordan Newman, who were already planning a study abroad trip to the Balkans, to incorporate a research project. He suggested they compare emergency preparedness in Utah with that in Kosovo and North Macedonia. The strategy proved successful, as the students had scheduled their trip, and Dr. Fisher's contacts in North Macedonia and Kosovo helped them select interview subjects, which was particularly beneficial when he was unexpectedly unable to join them.

This paper reviews literature on undergraduate research as applied learning, explores the role of faculty mentorship, and discusses the importance of reflection in research. It outlines the students' research methodology and provides insights from their experiences. The paper also reports on student reflections and analyzes the findings using applied learning theory from the literature review. Additionally, it examines how these findings apply to real-world learning. The paper concludes with a discussion of insights, final conclusions, and recommendations for educators and students interested in using undergraduate research as a hands-on learning experience.

## LITERATURE REVIEW

Student research as applied learning is a valuable pedagogical approach that integrates theoretical knowledge with practical experience. Applied learning encompasses diverse methods like undergraduate research, internships, and service learning, providing students with hands-on opportunities to engage in real-world problem-solving. These experiences, supported by faculty mentors, enable students to develop essential skills, including leadership, critical thinking, and collaboration. Reflective practice is also central to student research, allowing students to synthesize their experiences, identify strengths and areas for improvement, and set future goals. This literature review explores the role of applied learning and mentorship in enhancing students' academic and personal growth.

### *Student Research as Applied Learning*

Studies have yielded noteworthy discoveries about undergraduate research as a form of applied learning. Applied learning pedagogies encompass various educational approaches such as study abroad programs, internships, undergraduate research, and service-learning. These methods prioritize individualized outcomes and experiential learning beyond traditional classroom settings (Ash & Clayton, 2009). Additionally, research into the benefits of

integrating project-based learning into interdisciplinary teams showed significant positive effects on students' personal and academic growth (Balleisen, Howes, & Wibbels, 2024). Trolian and Jach (2022) explored the relationship between college students' well-being and their engagement in applied learning activities. As universities increasingly incorporate applied learning into their curricula, undergraduate research stands out as a prominent avenue for students to apply theoretical knowledge in practical contexts (Selznick, Trolian, & Jach, 2022).

The following two examples of student research in applied learning illustrate how research can positively impact students' personal and academic development. Nelson-Hurwitz and Tagorda (2015) developed a project execution course that allowed students to implement applied learning projects by integrating public health knowledge and skills gained during their bachelor's program. Students reflected on and presented their projects in an undergraduate capstone seminar, bridging academic theory with practical experience. Similarly, the Student Organization for the Advancement of Research (SOAR), a student-led initiative at Louisiana State University Health Sciences Center, facilitated research collaboration between students and faculty. Kepper et al. (2016) noted that over 60% of students were matched with faculty for interdisciplinary projects, and 72% of participants reported improved research skills. Both programs highlight the importance of applied learning in developing research competencies and fostering collaboration in post-secondary education.

### ***Role of the mentor***

Faculty mentors are indispensable in the realm of undergraduate research, assuming multifaceted roles that transcend mere supervision. Their contributions encompass a spectrum of services vital for both professional and academic growth. Through guidance, support, and expertise, mentors serve as trusted advisors, offering valuable insights and assistance throughout the research process (Murthy, 2019). They aid in defining research objectives, formulating questions, and developing methodologies, ensuring adherence to ethical standards and best practices. Additionally, mentors facilitate skill development by imparting research methodologies, data analysis techniques, and scientific principles, fostering critical thinking and problem-solving capabilities in students (Houser, Lemmons, & Cahill, 2013).

Moreover, mentors play a pivotal role in project supervision, overseeing progress, providing constructive feedback, and assisting in problem-solving. They create a nurturing environment conducive to scholarly exploration and growth, promoting a dynamic learning experience for mentees. In some instances, universities adopt a tiered-mentorship model, where experienced student researchers also serve as mentors alongside faculty members. This collaborative approach enhances peer-to-peer knowledge exchange and fosters a vibrant culture of inquiry and innovation on campus (Redifer, Strode, & Webb, 2021).

Beyond academic guidance, mentors support students in networking,

collaboration, and career development. They facilitate professional connections, expose students to academic communities, and offer insights into career paths and opportunities. Emotional support is also a crucial aspect of mentorship, as mentors provide encouragement, celebrate achievements, and offer solace during challenges.

Mentorship is a reciprocal relationship that requires active involvement from both mentors and students to be effective. Mentored individuals tend to experience higher job satisfaction, stronger professional commitment, and benefits such as improved performance evaluations and faster career progress. At the same time, mentors gain satisfaction from nurturing future leaders and staying current in their field (Fuchs, 2023). In research-focused mentorship, mentors help students develop research skills, guide project design, provide feedback, and connect them with professional networks. This mentorship can extend beyond the classroom to include study abroad programs, further enriching students' learning experiences (Cababaro Bueno, 2023). Students from Utah Valley University engaged in study abroad programs to Southeastern Europe in multiple years, such as 2014, 2016, 2017, 2019, and 2022. These programs aimed to supplement classroom learning with field experience, focusing on emergency response. Students not only learned from local emergency officials but also shared their knowledge with fellow students, enhancing their own skills while teaching others. This hands-on experience, which involved mentorship, allowed students to refine their emergency response abilities, fostering self-confidence and trust, crucial for effective teamwork and building relationships with those they serve (Dayberry & Fisher, 2023; Fisher, Means, & Corson, 2014).

### ***Reflection***

Reflection is a process whereby students make meaning of their experiences. It allows them to analyze and synthesize their thoughts, feelings, and actions, leading to deeper understanding and personal growth. Through reflection, students can identify patterns, challenges, and successes, which enables them to make informed decisions and set goals for future endeavors. This introspective process fosters metacognition and self-awareness, empowering students to become more effective learners and practitioners in their respective fields (Weber & Myrick, 2018).

Maxfield and Fisher (2012) conducted an experiment using reflection techniques among students enrolled in an online Homeland Security course, which adhered to Kolb's four-stage learning cycle (1984). Students engaged in reflective observation to explore the practical application of their newly acquired knowledge in their workplaces. Traditional students were encouraged to relate their learning to prospective work experiences, while non-traditional students utilized their existing work experience to enrich their learning process. The diverse knowledge and experiences of non-traditional students significantly enhanced the learning environment for all participants. To facilitate the

application of learning, the course incorporated various methods, including case studies, reflective papers, simulations and training, role-playing, journaling, and discussions (Jarvis, 2001).

Reflection plays a valuable role in undergraduate research, despite being less commonly used here than in other educational practices like service learning. Emerging research suggests that reflective activities help students process their research experiences more fully and generate new meanings regarding their work. Students can reflect on their research process, identifying strengths, weaknesses, and areas for improvement, enhancing learning and personal growth. Reflection encourages metacognitive thinking, fostering awareness of one's thought processes. Analyzing decision-making, problem-solving, and critical thinking during research aids in bridging the gap between theoretical knowledge gained in classrooms and practical application in real-world settings. Through reflection, students can set clear goals for their research journey, whether it's refining skills, exploring specific topics, or pursuing further study. Regular reflection allows students to adjust their approach, seek feedback from mentors, and refine their research strategies. Faculty mentors serve as excellent resources for discussing reflections and planning next steps. Engaging in conversations with them can help shape research paths and goals (Nye et al., 2016; Picardo & Sabourin, 2018; Wilson et al., 2016).

This literature review examines the role of student research in applied learning, highlighting methods like internships and service learning. It emphasizes mentorship's impact on skill development, leadership, and academic growth. Reflective practices further enhance students' learning experiences, fostering personal and professional development through real-world problem-solving opportunities.

## **METHODOLOGY**

This methodology section describes the goals of the student research and the process the students followed in gathering and disseminating information. The student research aimed to enhance understanding of evacuation scenarios and assess preparedness for evacuations. The study involved a comparative analysis between the smaller nations of Kosovo and North Macedonia and the state of Utah in the United States.

The study was guided by two central questions:

1. What conditions precipitate the need to evacuate?
2. How well-prepared are individuals when faced with the actual need to evacuate?

In addition, the student researchers wanted to discover whether participants had prepared a disaster survival kit (also called a 72-hour kit).

The researchers, Mary Bennett and Jordan Newman, remained in Kosovo and North Macedonia for a week following the 2022 UVU study abroad to investigate evacuation preparedness. Mentors Zijavere Keqmezi-Rexhepi and Dr. Muhaedin Bela facilitated interviews in the Balkans. They arranged contacts,

translations, transportation, and accommodation. Prior to the study abroad, the students worked with Professor John Fisher to draft a problem statement, review research literature, establish a methodology, and develop interview questions and a consent form. The research proposal received IRB approval at UVU and in Kosovo.

The researchers aimed to explore individuals' experiences forced to leave their homes, governmental responses to evacuations and refugees, the readiness of government entities and populations for evacuations, and the disaster prevention benefits of such preparedness. They conducted face-to-face interviews and surveys with government officials, educators, students, and civilians in the Balkans and Utah.

The qualitative interviews helped the researchers understand how individuals connect emotions, motivations, and meaning to their disaster experiences. The researchers used separate sets of questions for interviews with government officials and workers versus the general public, former evacuees, and former refugees. Among the 27 interviewees were nine government officials or first responders and 18 evacuees from various disasters such as fires, earthquakes, and war. The researchers conducted most interviews (24) in the Balkans, with three conducted in Utah. The findings in this paper tell the stories of seven women, who were children or young women at the time of the Kosovo War in 1998-1999.

Following their research, Bennett, Newman, and Fisher presented their findings at the Homeland Defense and Security Education Summit in Monterey, California from October 30 to November 2, 2022. Funding for the research and conference attendance was provided by UVU undergraduate and scholarly activity grants. The stories and reflection statements that follow are drawn from Mary Bennett's honors thesis (2023).

## **FINDINGS**

In the Findings section, the summaries from the interviews conducted by the two researchers are presented first. Afterward, the researchers offer their reflections based on their experiences interviewing individuals in Kosovo, North Macedonia, and Utah.

### ***Interview Summaries***

During the research, it became evident that both individuals and governments in Kosovo and Northern Macedonia lack the necessary resources, funding, and readiness for disasters. Despite experiencing ethnic cleansing, war, and natural calamities, the people of these areas seem unaware of their responsibility to be prepared, the significance of an evacuation kit, and the need to have one. Only a few individuals expressed intention to prepare kits for their families, with most considering it impractical or unaffordable. However, these individuals exhibit remarkable emotional resilience and take pride in their ability to overcome challenges.

Interviews from Utah revealed a surprising gap between the state's

preparedness claims and actual individual readiness for evacuations. While residents recognized the importance of having emergency kits, they did not prioritize making them. Firsthand accounts, including those from a Public Information Officer, Emergency Manager, and retired Fire Chief, underscored the critical need for both personal and community preparedness in emergencies. A respondent who experienced a house fire emphasized the trauma of being unprepared. The interviews highlighted the vulnerability of unprepared communities and the significant strain this places on emergency responders, stressing the importance of timely communication and local knowledge during evacuations.

Perhaps the real gems from the interviews in Kosovo and North Macedonia were found in the heart-wrenching stories of seven women who evacuated and became refugees during the war in 1998-1999 and the subsequent conflict in North Macedonia (2001). Most of the respondents were young women at the time. Their experiences highlight the fear, trauma, and resilience they exhibited in the face of extreme hardship.

**Nora's Story:** At 18 Nora with her family and others fled from their homes in Kosovo, living in constant fear of Serbian soldiers. They slept fully clothed, muffled their children's cries, and held secret schooling to avoid being discovered and executed. Her family narrowly escaped execution when a Serbian soldier intervened, delaying their deaths. After guards assaulted women, Nora, her family, and others fled into the mountains, praying they would not be found. The trauma left Nora with severe stomach issues, and although they returned home after two weeks, they lived in poverty for many years.

**Rozë's Story:** Rozë, hesitant at first, eventually shared her harrowing story of how Serbian soldiers assaulted villagers, segregated men from women, and used children's jump ropes to tie and abuse women. The trauma caused Rozë to miscarry. Despite the trauma, she now keeps supplies prepared for future emergencies, advocating for government education on preparedness.

**Agesa's Story:** Agesa's family fled Kosovo in 1998, moving to Norway. They returned to find their home looted and damaged. Unprepared for evacuation, her family faced immense challenges, including theft and poverty, and they continue to grapple with the lasting emotional and financial trauma.

**Prende's Story:** Prende's family fled to the mountains to avoid detection. The screams of women haunted them, and upon returning, they discovered their home intact but stripped of personal heirlooms. The loss of these sentimental items left an emotional void that continues to affect her sense of identity and connection to her family's past.

**Lumturi's Story:** Lumturi and her sister, aged 11 and 8, escaped to Albania with their mother. They endured dangerous conditions and narrowly avoided abduction during the journey. Though they eventually found safety, the journey was perilous and could have been easier with better preparedness.

**Orkide's Story:** Orkide stayed in her village during the war while her husband and sons hid in the mountains. She and other women supported the men with supplies. Nearby, a massacre of 45 civilians took place, highlighting the

ongoing danger. Her family survived, but the constant threat of death weighed heavily on them.

**Fatmirë's Story:** During the 2001 civil war in Northern Macedonia, Fatmirë was pregnant and targeted by armed guards who aimed to intimidate her into miscarrying. She lacked evacuation kits and viewed preparing them as impractical. Her sons shared her views, but one acknowledged the potential practicality of emergency preparedness.

These stories collectively demonstrate the overwhelming fear, trauma, and resilience of these women during the conflict. Many lacked the resources and preparedness necessary for evacuation, resulting in lasting physical, emotional, and financial scars. Their experiences highlight the importance of disaster preparedness and the need for education and resources to help communities better cope with emergencies.

### *Student Researcher Reflections*

Reflective statements about the purpose and benefits of the research project reveal profound personal growth and a commitment to making a positive impact. The student researchers were profoundly affected by the stories they were hearing, particularly those of the women they interviewed.

Mary Bennett (2023) expressed how the research broadened her perspective, exposing her to new cultures, languages, and geography. The stories shared during interviews shifted her understanding of what truly matters and underscored the importance of disaster preparedness. As a result of the experience, she pledged to support the people of Kosovo and Northern Macedonia while striving to make a positive difference in her own community and at UVU.

"As we progressed through the study it became evident that we were hitting a saturation point with our data and getting repeated similar answers," Mary stated. "It is very apparent that even though this area has seen war and natural disasters the citizens of Kosovo and Northern Macedonia are not aware of what an evacuation kits is and why it was essential for them to prepare. A small few have said they will prepare kits for their families, but most felt it was impractical or unaffordable. However, it is clear the emotional resilience of these people is very strong, and they are proud of what they have overcome."

Nevertheless, she said she was surprised and disappointed by their initial findings, indicating that most individuals they interviewed in Kosovo and North Macedonia have undertaken minimal or no preparation for emergencies and have given little thought to the importance of being prepared. As one interviewee aptly expressed, "We might perish faster than our pickles." This insight underscores the critical need for enhanced disaster preparedness efforts in both regions, Mary said.

Moreover, Mary emphasized the benefits the project aims to bring to UVU, students, and the community. She highlighted the significance of understanding the importance of emergency preparedness and how small steps can enhance



disaster resilience. Recognizing the comprehensive impact of disaster preparation on individuals, communities, and UVU, she anticipates improved outcomes in disaster prevention, protection, mitigation, response, and recovery.

Similarly, Jordan Newman (in Bennett, 2023) reflected on the profound learning experience gained from the research process, emphasizing a greater appreciation for other cultures and those facing adversity. Newman underscored the research's practical implications in preparing for and responding to disasters, offering recommendations for increased resilience. She said she hopes that governments will utilize the findings in planning and policy development, with UVU, students, and the community benefiting from enhanced disaster preparedness.

“During my time in Kosovo and North Macedonia, I felt deeply touched by the strength and courage of the people I met,” Mary indicated. “Hearing their stories of hardship made me both admire their resilience and feel sad for the difficulties they face. I empathize with their struggles and felt a strong connection with them.”

Furthermore, she stated: “These experiences made me realize how important it is for communities to be prepared for disasters. I felt motivated to advocate for support and resources to help these communities deal with emergencies better. Overall, my time there reminded me of the power of human resilience and the importance of working together to overcome challenges”

Mary was grateful for the help she and Jordan received. “Throughout our research journey, we were graciously hosted by a Kosovar family in Gjilan, with our host, Zijavere Keqmezi, facilitating many of the interviews and providing invaluable translation and transportation support.”

“The goal was to evaluate how levels of preparedness impact families and citizens in these countries, shedding light on crucial insights for future disaster planning and response efforts,” Mary stated. In doing this, “we sought to understand their past experiences of ethnic cleansing, wars, and natural disasters and how the level of preparedness affected the families and citizens of these countries.”

## **DISCUSSION**

The experiences of the two researchers underscore the value of applied learning, faculty mentorship, and critical reflection. Through their participation in research projects in Kosovo, North Macedonia, and the United States, they exemplified the practical application of theoretical knowledge in real-world contexts. These experiences provided them with opportunities for personal and professional growth while contributing to their academic development.

In Kosovo and North Macedonia, the researchers engaged in interviewing residents to understand their preparedness for evacuation in disaster situations. This hands-on approach allowed them to apply research methodologies, interact with diverse communities, and gain insights into local challenges and resilience strategies. Additionally, they benefited from mentorship from faculty members who guided them throughout the research process, providing support, expertise,

and feedback.

The literature review highlights how applied learning has significant positive effects on students' personal and academic growth (Balleisen, Howes, & Wibbels, 2024; Nelson-Hurwitz and Tagorda, 2015; Kepper et al., 2016). The reflections provided by Mary Bennett and Jordan Newman reveal the deep personal and professional growth they experienced through their research project. As a form of applied learning, this research allowed them to engage directly with communities in Kosovo and North Macedonia, highlighting the power of experiential learning in fostering a deeper understanding of real-world issues. Applied learning in this context provided the students with firsthand experience in disaster preparedness, cultural sensitivity, and community resilience. Through interviews and interactions, they were able to bridge academic theory with practical knowledge, reinforcing the critical role that such projects play in preparing students for professional life.

Mentorship played a key role in guiding their research journey. The support from their mentor and the Kosovar family who hosted them ensured that the students had the necessary resources and cultural context to conduct their research. This mentorship extended beyond academic guidance, providing logistical and emotional support, which is essential for the holistic development of student researchers (Houser, Lemmons, & Cahill, 2013). The collaborative approach (Redifer, Strode, & Webb, 2021), including translation and local insights from their host, enriched the research process, demonstrating the importance of building strong mentorship relationships in applied learning experiences.

Moreover, the researchers participated in reflection activities to analyze their experiences, identify learning outcomes, and set goals for future research endeavors. Reflection enhanced their metacognitive thinking, deepened their understanding of research methods, and facilitated their personal and professional development.

Reflection, as demonstrated by the students, is a critical component of applied learning (Weber & Myrick, 2018). Mary and Jordan's reflections on their findings, particularly on the lack of disaster preparedness in these regions and the emotional resilience of the communities, reveal how reflection enables deeper learning and personal commitment to effecting change. Mary's insight into the saturation of data and the recurring themes in interviews illustrates her growing understanding of the research process, while Jordan's reflections on cultural appreciation and adversity show the value of applying research findings to broader societal challenges.

Overall, their experiences serve as compelling examples of the transformative power of applied learning, mentorship, and critical reflection in undergraduate research. They highlight the importance of integrating practical experiences into academic curricula, fostering mentorship relationships between faculty and students, and promoting reflective practices to enhance learning outcomes.

Both students emphasized the importance of disaster preparedness and the need for greater community awareness and government action. Their reflections reveal a commitment to making a positive impact both locally at Utah Valley University and globally by advocating for policies that enhance disaster resilience. This experience not only equipped them with practical research skills but also instilled a sense of responsibility to advocate for the vulnerable communities they studied.

In conclusion, applied learning, mentorship, and reflective practice came together in this research project to offer profound learning experiences for the students. Their reflections underscore the importance of integrating real-world experiences into academic settings, demonstrating how applied learning can promote personal growth, cultural sensitivity, and actionable insights that contribute to meaningful societal change.

## CONCLUSION

The two student researchers learned valuable lessons from their research in Kosovo, North Macedonia, and Utah. They gained a deeper understanding of cultural sensitivity and were moved by the emotional resilience of the communities they studied, despite the lack of disaster preparedness. Their experience highlighted the importance of emergency preparedness and inspired them to advocate for greater awareness and action both locally and abroad. Additionally, they recognized the significance of mentorship and collaboration, which played a key role in their research success. Overall, the project fostered personal growth and a commitment to driving positive change. For educators, the findings stress the importance of experiential learning opportunities, such as research projects and internships, coupled with mentorship to develop critical thinking and research skills in students. Reflective practices can further deepen student understanding and personal growth. Government officials play a key role in promoting disaster preparedness, public education, and resource accessibility. International collaboration is also essential for creating evidence-based policies that tackle global challenges. Student researchers can use their insights to advocate for policy changes, inform disaster preparedness programs, and engage in knowledge exchange activities. By maintaining adaptability, cultural sensitivity, and an unbiased approach, student researchers can enhance the credibility of their work. This approach contributes to both academic growth and effective, culturally respectful disaster preparedness strategies, making a meaningful impact on global resilience efforts.

While the research conducted by the student researchers provides valuable insights into disaster preparedness and community resilience, it is important to acknowledge its limitations. Firstly, the study's sample size in Kosovo and North Macedonia may not represent the full range of perspectives in these regions.

Additionally, response bias could have influenced the data, as participants' answers may have been affected by social desirability or cultural factors. The focus on undergraduate researchers' experiences may also limit the generalizability of the findings to other populations or contexts. Moreover, relying on self-reported data introduces the potential for inaccuracies. However,

this research serves as an excellent example of applied learning, allowing students to connect theoretical knowledge with real-world experiences. It contributes meaningful insights to disaster preparedness and underscores the need for further investigation. Through applied learning, the student researchers were able to gain hands-on experience, develop critical thinking skills, and make an impactful contribution to the field.