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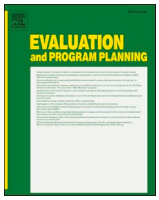

Learning from graduate students' non-formal evaluation experiences in university-based centers

Devon Charlier [a], Suness Hall [b], Hannah Kinzer [b], John M. LaVelle [c,*]

[a] WeARE, USA
[b] Washington University in St. Louis, USA
[c] University of Minnesota – Twin Cities, USA

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ABSTRACT

This paper examines graduate research assistants' informal applied learning experiences on the evaluation team at a university-based agricultural safety and health research center. The case study aims to identify the specific learning outcomes derived from the experience, as described by students, and the factors that facilitated them. The research team used a semi-structured focus group tool, and the focus group participants conducted their own analysis and interpretation of the data. An inductive qualitative analysis revealed that students had new perspectives on evaluation, greater evaluation knowledge, and comfort using evaluative tools. Students expressed that key factors like trust, respect, and reflective practice effectively fostered learning. These data were corroborated using deductive analysis using Fink's Taxonomy of Significant Learning. Ultimately, the study supports the value of informal applied learning experiences for students, particularly in the field of evaluation, and describes a model of support to facilitate learning in various contexts.

1. Introduction

Rhodes (2001) suggests that among the many functions a university's faculty and staff provide, the most essential are to provide high-quality educational experiences, to engage in professional, university, and community service, and to conduct research that promotes the "public good" and small-d democracy. These efforts sometimes overlap to focus on topics that are particularly important to an individual and sometimes seek to address larger, more complex issues. However, the scope and complexity of large-scale or systemic issues are often beyond the capacity of individuals and require the pooled resources and intellectual capital of passionate scholars and practitioners to address. In a university setting, this can take many forms. Individual faculty working with groups of undergraduate and graduate students is sometimes called a "lab." Groupings of faculty and staff working on a topic together could be described as a "community of practice." By contrast, "institutes" or "centers" are organizations that are formally recognized by a university, composed of faculty from multiple departments, and supported by externally generated funds (Sabharwal & Hu, 2013).

Centers are organized thematically around the interests and passions of faculty and staff and around the topics and types of research funded by large granting bodies such as the National Institutes for Health (NIH), the National Institute for Occupational Health and Safety (NIOSH), and the Centers for Disease Control and Prevention (CDC). When university-based centers pursue grant funding to support their work, program evaluation is a critical component and can carry significant weight in a proposal's assessment. Even when a proposal does not explicitly call for an evaluation plan or framework, it may be value-added for centers to include it, as doing so signals to the prospective funder that the center has critically considered how the project might be implemented and how the initiative(s) could lead to the desired effect(s) for individuals, groups, and systems. But while evaluation is essential for securing and maintaining funding for university-based centers, centers and their in-house staff may not have the expertise to plan evaluations (Russ-Eft & Preskill, 2009) or the professional and methodological underpinnings to carry out evaluations in the ways that scholars advise (e.g., Fitzpatrick et al., 2008; Shadish et al., 1991; Shadish, 1998; Alkin, 2012). Further compounding the challenge of planning and implementing evaluations within university centers are significant differences in how evaluation is defined and described across contexts and disciplinary areas (Wanzer, 2021), misunderstandings about evaluation and its role in organizations (Russ-Eft & Preskill, 2009), and sparse information about university centers with a focus on evaluation (Mason & Robinson, 2022, personal

* Corresponding author.

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communication).

In parallel, research suggests that evaluation-focused graduate programs are more plentiful now than ever before (LaVelle, 2019), and though most people attending graduate school are primarily interested in another substantive area (e.g., public health, K-18 education, human development, social work, public administration), many participate in an evaluation-specific course or two while focusing on their primary interest area (e.g., McAdaragh O'Brien et al., 2020; LaVelle et al., 2020b). Evaluation is similar to most other disciplines in that there are many pedagogical approaches and tools that educators can use to help students learn about evaluation (Trevisan, 2004; LaVelle et al., 2020a; LaVelle & Chouinard, 2022; LaVelle et al., 2023; Preskill & Russ-Eft, 2015). Because of the applied nature of evaluation, scholars and educators have long recommended that evaluator educators include an applied component in their courses (Altschuld, 1995; Fitzpatrick, 1994; John & Bang, 2017; Warner, 2020). Students who have had coursework in evaluation, especially applied coursework, often find themselves in demand for graduate assistant positions and other paid positions both inside and outside of the university.

2. Student learning experiences and their characteristics

There are many types of learning experiences that students can engage with throughout their educational career(s), and it is likely that people learning about evaluation engage with multiple ones which incorporate different degrees of formal structure and organization (e.g., Colardyn & Bjornavold, 2004; Furco, 1996; La Belle, 1982). Some experiences, such as class-based learning or service-learning experiences, tend towards being formally structured (Ash & Clayton, 2009) and are hopefully integrated with high-impact learning strategies described by Kuh (2008), whereas others are informally structured (e.g., book clubs or reading about evaluation topics in blogs). A third category might be described as non-formal experiences and could include full- or part-time on-the-job learning, mentoring, and coaching (Peeters et al., 2009).

Non-formal education can include internships and work-integrated learning experiences (Fleming et al., 2009) wherein the students gain on-the-job work experience and seek to apply the principles and concepts they learned in the classroom to the world of work. Fleming and colleagues' (2009) inductive multi-method case study suggested that work-integrated-learning experiences were improved when the students and context included characteristics such as ability and willingness to learn, personal enthusiasm, self-sufficiency, personal organization, communication skills, self-confidence, developing professional networks, increasing industry knowledge, and developing and refining professional ethics (see also: Martin & Hughes, 2009). Fleming and colleagues' work broadly agrees with Peeters and colleagues' 2014 inductive qualitative study of informal education, which suggested changes in professional domains (i.e., more positive attitude towards the field), educational beliefs (i.e., learning can be interesting and fun), and personal/societal domains (e.g., decisiveness, courage, confidence, learning about others). Further, these studies largely agree with Fink's Taxonomy of Significant Learning Outcomes (2013) which suggested that student learning could be grouped into six groups: foundational knowledge, application, integration, human dimensions, caring, and learning how to learn. Fink's taxonomy is valuable in this space because it represents a deductive tool for framing learning experiences, which can help faculty and students understand what was significant—or meaningful—about them. This framework has been used to understand students' reflections in many disciplines (Barnes & Caprino, 2016; Branzetti et al., 2019; Fallahi & LaMonaca, 2009; Fallahi & Levine, Nicoll-Senft, et al., 2009; Krueger et al., 2011; Levine et al., 2008) including the teaching of evaluation (LaVelle & Yang, 2021). Taken as a whole, these studies illustrate the value of analyzing data about learning experiences both inductively and deductively so as to most fairly represent the stories the data wish to tell.

2.1. Opportunities and challenges

One challenge, and an opportunity, is for university-based centers to purposefully build relationships with educational programs and courses that focus on evaluation to 1) help the center with its evaluation capacity, 2) provide students with applied learning opportunities, and 3) help both the students and the center imagine what it could be like to work together into the future. It is also important that these experiences be evaluated through multiple perspectives, including those of the students, educators, and the center's leadership team, to build a collective understanding of what works well in the arrangement and what could be improved. This paper will describe a case study whose focus was to engage in systematic research to understand the non-formal, applied learning experience of three graduate students engaged with an evaluation team in a university-based Center, such as the specific learning outcomes, the contributing factors that facilitated such outcomes, and opportunities to optimize such learning environments. By systematically exploring students' perspectives, this case study seeks to reveal the importance of a reciprocal learning process between students and the organizations with which they work.

3. Context

The Upper Midwest Agricultural Safety and Health Center (UMASH) is a collaboration between the Minnesota Department of Health (MDH), the Migrant Clinician Network (MCN), the National Farm Medical Center (NFMC), and the College of Veterinary Medicine and the School of Public Health at the University of Minnesota (UMN). UMASH coordinates innovative research projects and community-engaged outreach and responds to emerging issues to improve the health and safety of agricultural workers, owner-operators, and communities in the Upper Midwest region of the United States. UMASH is a small organization whose organizational structure includes three full-time staff, a Director, two associate directors, faculty and researchers who are responsible for individual projects, and a part-time Evaluation Director whose focus is supporting strategic evaluation efforts and on evaluator education.

UMASH's fiscal and operational home is in the UMN structure and therefore engages undergraduate and graduate students in educational activities, mentoring, and helping prepare them for their desired future work; it also has a long-standing commitment to evaluation processes but, like many organizations, has limited staff capacity. To help address the Center's evaluation needs and support UMN students, the Center routinely hires one to two graduate students at a time to work as research assistants. Many students have filled this role over the years and have represented multiple disciplines, including public health, business administration, and evaluation studies. The students usually focus on one or two projects at a time and engage in regular mentoring and professional development activities with the Center staff and the Evaluation Director.

3.1. Students' applied project

In 2021, three UMASH evaluation students collaboratively conducted an empirical organizational assessment process to understand UMASH's opportunities for capacity building and strategic planning. This involved conducting, analyzing, triangulating, and summarizing one-on-one semi-structured interviews with UMASH staff, researchers, and personnel about their experiences with the Center, their perspectives about various organizational capacity and development indicators, and their visions for UMASH's future work. The project was augmented by individual consultations with staff from each research project supported by UMASH (n=6 research projects, plus outreach and administration/planning), review and development of each project's logic model, discussion of project indicators and outputs, and assistance for each project lead in conceptually aligning their projects with UMASH's

overarching goals. The processes and findings from these efforts provided the foundation for crafting UMASH's five-year strategic plan.

4. Methods

All participants in this case study were graduate research assistants on the evaluation team at UMASH, and all are the lead authors of this manuscript[1]. They span several graduate-level educational stages; one of the student authors started this experience at the beginning of her master's program in public health and transitioned into a full-time staff position by the end of the project; another started the experience as a second-year master's student about to transition to a Ph.D. program at another university; and the third began the experience at the end of her first year of master's study. The participants started with varied experiences relevant to evaluation work; one had nonprofit grantmaking experience and prior undergraduate evaluation training; another had experience with interviewing and qualitative analyses; and the third had experience with nonprofit program implementation. As individuals, the authors involved in collecting and analyzing the data and authors span a range of experience with qualitative inquiry and analysis from leading graduate courses on the topic for scholars and practitioners to using qualitative tools and analysis in their usual work to taking courses in qualitative processes; as a group, they represent a depth of experience that is reflected in their processes inclusive of how the data were analyzed and checked against potential biases.

The Center Evaluation Director facilitated the focus group and invited the three student authors to participate in a one and a half (1.5) hour virtual, semi-structured focus group on the Zoom platform to learn about their individual- and group-level reflections on their experiences as students at UMASH. He facilitated a focus group discussion around four overarching topics drawn broadly from appreciative inquiry (e.g., Coghlan, Preskill, & Catsambas, 2003; Preskill & Catsambas, 2006; Whitney & Cooperrider, 2011) reflection (e.g., Boyd & Fales, 1983) and key learning experiences (Timoštšuk & Ugaste, 2012):

1) impressions about working in evaluation and agricultural health and safety before, during, and after the applied experience at UMASH,
2) the reality of the projects worked on at UMASH,
3) what went well to foster student learning during the experience, and
4) what could be improved.

The focus group was recorded, transcribed, and analyzed using both inductive and deductive approaches. The first and second authors independently reviewed the transcript using an inductive grounded theory process (Miles & Huberman, 1994) to identify emerging codes, themes, and illustrative quotes. Then, they met to compare their coding strategies and decision-making to agree upon a shared approach and consistent meaning, ultimately reaching a consensus, which was reflected in a comprehensive codebook. The authors used this codebook to engage in a second round of coding to ensure consistency, integrity, and code trustworthiness. They then used a deductive process to organize the qualitative data according to Fink's taxonomy. Fink's taxonomy was selected as the initial deductive analysis framework because of its use in analyzing educational experiences and because the taxonomy had previously been used to analyze evaluation-specific experiences. The authors engaged in ongoing communication throughout the analysis through regular meetings to clarify interpretations and resolve disagreements between them; as an added layer of data analysis quality, the codebook and analysis were independently verified by another author who had not engaged in the original rounds of data interpretation.

The findings were compiled into a brief data summary shared with the UMASH leadership team in a virtual meeting setting. The leadership team members, including the Director of Evaluation, were invited to reflect and provide verbal and written responses to the students' observations and interpretations of their experiences, and these have been summarized in the results section.

5. Results

5.1. Expanding perspectives

The inductive analysis confirmed that the students in this case study had a largely positive learning experience during their time on the UMASH evaluation team (Table 1). The students all indicated they were largely supportive of evaluation before starting the experience, which they attributed to their previous experiences in formal courses. They also indicated some less favorable initial perspectives about university-based research centers (which could also apply to academic centers and institutions in general), highlighting potential perceived disconnects between the centers and students and, by extension, the people those centers aim to support.

Student support for evaluation seems to have deepened throughout their time on the projects, and their examples highlight the importance of both technical skills and supportive leadership. They seemed surprised by the lack of pushback against evaluation, attributing it to the leadership's modeling of value and support for the evaluation and evaluation team. One reflected:

> I think a lot of the conversations, even in evaluation classes, [say], "You're going to get pushback, people don't like this, they're scared of it, and they won't know what you're talking about." And I actually found it very easy to talk about it with people like [member of center leadership], and [they] really infused an evaluation lens throughout.

Students were also surprised by some of the realities of applied projects (e.g., how long things take to get set up and done), which, although often true in practice, may have been exacerbated by the COVID-19 pandemic. Students recommended keeping the same level of tacit and operational support for evaluation and the team and more intentionality in the onboarding task systemization.

Students described arriving at UMASH with assumptions about what type of work would be energizing and meaningful, what evaluation work would be like based on their prior coursework, and how the organization would work in the agricultural health and safety spaces. These assumptions were often challenged, leading to broader perspectives. Some students, for example, assumed that UMASH would be disconnected from the populations it serves but were then excited to learn that UMASH was highly engaged with its audiences and valued respect and intentionality in its interactions.

> Going back to the biases that I came in with towards ag health and safety, I was really pleasantly surprised to learn about how much [the center] values stakeholder input and outreach engagement, and how the people are using the information are really centered; that's something in the project, the relationships and collaboration…that is such an asset of the Center.

Further, the firsthand experiences of coordinating and conducting projects challenged student expectations around the logistics of conducting evaluations. For instance, students underestimated the time and emotional energy necessary to schedule and conduct one-on-one interviews. All students agreed that the processes involved in expanding their perspectives were fulfilling.

5.2. Fostering learning

Students also reflected upon the factors that promoted learning during their experiences at UMASH. The common theme was that the organization's leadership is invested in accommodating student needs, desires, and interests by identifying goals and activities that are

[1] Individual participants and contributors will be referred to using their self-identified pronouns.

Table 1
Summary table of raw qualitative data organized by prompt.

Prompt	Illustrative quotes*
Impressions of working in evaluation and agricultural health before this experience	Generally, I was kind of thinking that a research center like this would maybe have like academics that were disconnected from the actual experience or the desires of people in agriculture; a lot of people in ag [agriculture] maybe aren't interested in safety or health. I was very focused on evaluation, and building that skill, and I was imagining that it would be a lot of project-based work. I had some eval[uation] courses as an undergrad, and I imagined it would be kind of typical to make an evaluation plan, execute the plan, write a report, etc… I definitely came in knowing I wanted to work on evaluation. Similarly to the others in that evaluation was my focus, and I thought, "I have some experience in ag, I love ag, so I can see this context really working well for learning evaluation." I was expecting to be interviewing and coding those interviews and doing logic models…really learning how to apply skills that I had heard about in classes in my graduate studies
Impressions of working in evaluation and agricultural health after this experience	Going back to the biases that I came in with towards ag health and safety, I was really pleasantly surprised to learn about how much [the center] values stakeholder input and outreach engagement, and how the people are using the information are really centered; that's something in the project, the relationships and collaboration…that is such an asset of the Center. I was really pleasantly surprised by how valued evaluation was at UMASH …I've definitely encountered it [evaluation] in the negative sense, but I hadn't encountered it much in a positive sense. People were saying, "oh, I love working with [evaluator]" or "you should connect with [evaluation director]; he's doing some cool stuff with the evaluation." That was really exciting to me because it showed me that [evaluation] is something that can be useful, and it's something that people want. I think a lot of the conversations, even in evaluation classes, [say] "you're going to get pushback, people don't like this, they're scared of it, and they won't know what you're talking about." And I actually found it very easy to talk about it with people like [member of center leadership], and [they] really infused an evaluation lens throughout.
Reality of applied projects	I had not anticipated just how long it takes to set up interviews and clean transcripts. It takes so much time! I think it really solidifies things they say in class, like, "you might want to plan on having this [interview and analysis] go on for two months." I think it takes a lot of time and intentionality. Really spending time with people and listening, as [another student] mentioned, felt so fulfilling, but it's also the tiring part and the hard part and the time-sensitive part that you don't get to talk about in class. I think [the leadership] plays a huge role, and I didn't realize just how much of a role that it plays; I think it plays a role in who is at the table, and valuing people's voices, and it sets a tone and precedent for how formal the interactions are going to be.
What went well?	The opportunities for development and leadership, and the team putting trust in me as a student to represent UMASH and do like important work for them…I really felt valued as a team member and as a student. I think that was a level of like trust [from the leadership] that I really, really appreciated, and it makes me want to come back. I've seen UMASH invest in each of us and kind of, bring the work to us…merging our skills and the needs of the organization. I would advocate that to continue happening with our students. But, at the same time, pushing us with the trust that [another student] identified. That [trust] was the thing that really did push me to grow and try new things. The set expectations and defined projects are what first attracted me to UMASH. That structure gave me an introduction to understanding what was going on [across the center].
What could be improved?	Maybe like a bit more networking opportunities, or just like face time/in-person contact time with full-time staff.** I think the training manual that [the evaluation coordinator] gave out at the beginning was really helpful but very overwhelming because it is a lot to look at all at once. I think having a little bit more of a structured orientation, like starting with introductions, then about [evaluation] terms and definitions, and then some of the common terms and acronyms, and what the different partners bring. That would be, I think, a really helpful way to just sort of slowly bring people into the fold.

* Note: Quotes are lightly edited for clarity and ease of reading.
** Note: This experience took place in the middle of the COVID-19 pandemic, and the majority of the work was done online via web conferencing technology.

mutually beneficial for students.

> I've definitely felt like my strengths and interests and my passions have been prioritized sometimes over what UMASH needs, and it's like, 'Well, let's figure out how this works together.'

In the same vein, students valued the trust that UMASH leadership placed in them. Students were offered a range of opportunities to engage across the Center, from attending leadership meetings to representing the organization during outreach with legislators and county fair attendees.

> [With] the team putting trust in me as a student to represent UMASH and do important work for them…I really felt valued as a team member and as a student.

While these opportunities may not have been directly relevant to the students' evaluation work, engaging with the organization holistically promoted practical analysis, synthesis, and communication of evaluation information during the needs assessment and strategic planning processes.

The team of students also described that they each had distinct perspectives and positionalities that situated them well to work in evaluation at UMASH. Their differences were highly complementary, and collaboration supported their efforts to be well-rounded and effective practitioners. The evaluation team and design allowed for great flexibility in roles where individual student strengths could be leveraged. One student, for example, used her prior experience to construct the template for a qualitative codebook, while another used her institutional knowledge to plan and manage a project timeline that worked well with Center activities. Students were also equipped with clear project expectations and timelines and had the option to conduct continued work with UMASH.

5.3. Opportunities for improved learning

Further, students made two suggestions for improving future student experiences. They noted that the onboarding process was overwhelming and required laborious reading, which could be improved with a more intentional and engaging emphasis on the Center's structure, activities, people, connections, and goals. Further, while remote work was more accessible than in-person work, COVID-19 made it challenging to benefit from meaningful networking opportunities. One suggestion for a continued remote or hybrid work environment would be to offer optional online office hours where people can work collaboratively or independently at the same time.

Table 2
Student reflections organized by Fink's taxonomy.

Learning Outcome	Definition	Illustrative Quote
Foundational Knowledge	Refers to the students' ability to understand and remember specific information and ideas.	"Talking about [evaluation] in a very theoretical sense felt very difficult to translate into the practical, like the movement from academics to the in-person or in an organization that has real human beings and stakes."
Application	Application learning allows other kinds of learning to become useful.	"I had not anticipated just how long it takes to set up interviews and to clean transcripts… it takes so much time, and I think it really contextualizes when they say in class 'oh, you know you might want to like plan on having this [evaluation component] go on for two months.'"
Integration	The act of making connections gives learners a new form of power, especially intellectual power.	"I think of sometimes evaluation is giving us templates to organize how we would approach a question or organize our thoughts around a general topic that we either need to communicate or organize and help others to discuss."
Human Dimension	This kind of learning informs students about the human significance of what they are learning.	"I think the results of doing something like this [needs assessment], where it takes a lot of time and intentionality and really spending time with people and listening…that felt so fulfilling, but it's also the tiring part and the hard part and the time-sensitive part that you don't often get to talk about in class."
Caring	When students care about something, they then have the energy they need to learn more about it and make it a part of their lives.	"[UMASH's emphasis on evaluation] was something that was really exciting to me because it showed me that this is something that can be useful and it's something that people want." "I feel like the trust that's been placed in me as a student at UMASH was the thing that really did push me to grow and try new things."
Learning How to Learn	This kind of learning enables students to continue learning in the future and to do so with greater effectiveness.	"I think it helps to set aside time that was really deeply rooted in taking time to reflect about evaluation, how it works within all the other tools that you've been taught, and how it can be helpful in the future."

Note. Definitions are from Fink (2013, pp. 31–32).

6. Deductive analysis of learning outcomes

Table 2 displays the results of framing student reflections in terms of Fink's (2013) taxonomy, including definitions and illustrative quotes that the authors felt best represented their own reflections. This analysis revealed reflections crossing all types of learning outcomes.

In terms of *foundational knowledge*, it was clear that a degree of foundational evaluation knowledge was critical to a successful experience at UMASH. All participating students had taken at least two graduate-level courses in evaluation methods, and they did not report gaining substantial foundational knowledge through the UMASH experience. The applied experience did allow students to gain a deeper understanding of their existing knowledge and facilitated the translation of such knowledge into *application*. Additionally, the experience illuminated connections between evaluation and activities such as communication, relationship building, and leadership initiative. This reflects a level of *integration*, where students were able to see not only how evaluation theory is translated into practice but also how it is connected and intertwined with other Center activities.

> I think sometimes evaluation is giving us templates to organize how we would approach a question or organize our thoughts around a general topic that we either need to communicate or organize and help others to discuss.

Regarding the *human dimension*, students reflected on the value UMASH places on building relationships with those served by the Center. UMASH also has a strong investment in evaluation work, recognizing how it affects the people benefiting from and working within the organization. This emphasis on the human impact of evaluation offered a lens through which students could see the importance of their contributions. Understanding the importance of their work motivated the students to care more about creating evaluation products that were useful to UMASH staff.

Concerning the learning outcome of *caring*, students recognized that their own positionalities and past experiences—with evaluation, agriculture, occupational health, and more—allowed for a level of inherent passion for their work at UMASH. They also agreed that relationship-building during the needs assessment and strategic planning processes was a particularly fulfilling component of the experience and that it further underscored the significance of their evaluation work. Further, the leadership's great trust in and respect for these students was energizing and critical to effective learning.

> [UMASH's emphasis on evaluation] was something that was really exciting to me because it showed me that this is something that can be useful and it's something that people want.

When given networking opportunities, students felt an even greater sense of caring, which supported their pursuit of careers in evaluation or agricultural health and safety.

Regarding *learning to learn*, all students felt strongly that engaging in intentional reflective practice not only facilitated application and integration but provided the foundation for learning to learn throughout the experience.

> I think it helps to set aside time that was really deeply rooted in taking time to reflect about evaluation, how it works within all the other tools that you've been taught, and how it can be helpful in the future.

Overall, students described their time as evaluation research assistants as a comprehensive learning experience in which they grew as evaluators and were treated as trusted and valued colleagues.

To help complete the interpretation cycle of these data and to help make the process align with the UMASH organizational development principles, we thought it important to invite the UMASH leadership team to review the research process and its findings and to invite them to react to the data about the students' experiences.

6.1. UMASH leadership team interpretation

The UMASH leadership team, including the Center Director, Coordinator, and Evaluation Director, placed a high value on the insights and feedback shared through the focus group data at each level of analysis and are hopeful that this evaluation student model could be useful to other organizations. They agreed that the inductive analysis alongside the deductive analysis framed using the learning taxonomy was helpful for framing the data about the experience because they helped tell slightly different stories from the same information. They also noted how much consistency there was between the students' data and the frameworks, which they took as an indication that things at UMASH seemed to be moving in a good direction, albeit one that could always be improved.

As a group, they appreciated the feedback from the students'

perspectives and are committed to taking steps to strengthen what already works and address areas that need improvement. One senior leader shared, "From a leadership standpoint, this [student reflection] is an evaluation of leadership. This provides some valued feedback for leadership and leadership development." They described that the culture of trust and respect the students described has historically come from its leadership, emphasizing a flat management style where each person's expertise is valued. This, they think, helps UMASH be an agile learning organization (e.g., Edmonson & Moingeon, 1998; Yang, Watkins, & Marsick, 2004) learning from students as students learn from it, as both use evaluation processes to create a shared understanding of what the center is and why it exists. They also agreed with the students' insights about the nature of the work—i.e., managing the timeline for a large project, such as a needs assessment—was challenging and that they could relate to these challenges as full-time employees.

Because it is situated within the UMN and because it aligns with the values of the leadership team, UMASH actively seeks to mentor and prepare students for entering the workforce or continuing their education. This requires cultivating a mutual interest in the students' goals and the needs of the Center; this may differ from traditional internships because of the primary emphasis on the student's personal interests and goals. This, in turn, led to student autonomy and ownership of the experience as important aspects of the experience. The leadership team expressed a desire to cultivate more research and outreach projects that are reciprocally beneficial – both student-led and driven by UMASH needs – as they tend to produce innovative and productive ideas.

The inquiry processes and findings from the students' reflective data strengthened the leadership team's perspective that pre-service education is critically important and that students significantly benefit from structured classroom experiences before being asked to do evaluation tasks and projects in a less structured environment. The students in this particular experience had all taken multiple courses in evaluation from the School of Public Health, and this experience was reflected in both their incoming perspectives on evaluation and the speed with which they jumped into evaluation activities and tasks. They also noted that the students engaged with a number of very sophisticated tasks in sequence, and any one of these tasks could have been a separate project by itself (i.e., interviewed many stakeholders, developed logic models for each project, solicited feedback on each new logic model, analyzed emergent and existing data, and pointed all of those information sources toward a strategic plan). The leadership team wonders and is hopeful that the most impactful piece of this experience was not any one of the tasks alone but seeing how they all linked together towards a greater objective. The leadership team quickly picked up on reflective practice as an important factor for learning. They observed that the grant renewal process, which came after the needs assessment, encouraged another round of reflection that included projects from the last five years.

7. Discussion

The analysis and reflections described in this paper align with literature emphasizing the importance of applied experiences in evaluator education (Altschuld, 1995; Fitzpatrick, 1994; Trevisan, 2004; LaVelle et al., 2020; Warner, 2020) and support the importance of high-impact educational experiences both inside and outside of the formal classroom (Kuh, 2008), such as service learning (Furco, 1996; Furco & Billig, 2002) and work-integrated-experiences (Fleming et al., 2009). The inductive analysis in the current study supported previous research by Fleming and colleagues (2009) and Martin and Hughes (2009), wherein the inductive analysis of student data elicited important themes of ability and willingness to learn, communication skills, developing professional networks, and increasing industry knowledge. It is interesting to note that the students in this study increased their industry knowledge across two major areas: agricultural health and safety and evaluation. Further, the inductive analysis of the current study also broadly supported the work by Peeters and colleagues (2014) in that the non-formal educational experiences elicited changes in students' personal and professional orientations, as well as in their educational beliefs. The data from the current study suggested positive changes across all these domains, though educators and researchers should also be cognizant of – and be ready to address – the possibility of negative change.

The findings also support previous literature that indicates that Fink's taxonomy is a useful framework for organizing reflections on applied learning experiences (e.g., Barnes & Caprino, 2016; Branzetti et al., 2019; Fallahi & LaMonaca, 2009; Fallahi & Levine, Nicoll-Senft, et al., 2009; Krueger et al., 2011; LaVelle & Yang, 2021; Levine et al., 2008). However, by itself, the framework does not fully represent the depth of the students' experiences or the nuanced ways in which non-formal educational experiences might impact students. Indeed, while the domains described by Fink are important, it seems that the focus of the framework might have been more narrow than the scope of questions we asked in this study and did not seem to represent well the career and/or professional development aspects important to graduate students. A similar disconnect was noted in research by LaVelle and Yang (2021), whose inductive-deductive analysis strategy of student reflection essays also found evidence of professional development change that was not wholly represented in Fink's taxonomy; this may be an opportunity for future research to better understand significant learning experiences for graduate d professional students. Together, these findings highlight the importance of leveraging both inductive and deductive reasoning for studying student learning so as to get a more complete understanding of the phenomena.

In this case study, students arrived at the non-formal, applied learning experience with varying degrees of foundational evaluation knowledge that they had gained from their formal classroom experiences. The data suggest that during the non-formal UMASH experience, this foundational knowledge was effectively expanded and transformed into the other significant learning outcomes defined by Fink (2013), Fleming and colleagues (2009), and Martin and Hughes (2009). The inductive analysis also elicited themes complementary to Fink's taxonomy, offering important insights into contributing factors to reaching these outcomes. Some learning outcomes, such as human dimension and caring (Fink, 2013), appear to have been facilitated through relationship building, as well as trust and respect from leadership, as students were able to see the enduring and human impact of their work. The time that UMASH designated for reflective practice seems to have been a key component to outcomes like application, integration, and learning to learn.

Through the process of engaging in this analysis and considering the reflections and perspectives of students, it appears that the way UMASH engages with its students and priorities could be an effective model for fostering learning in environments in which informal, applied learning takes place. For the current study, the most salient components were 1) students bringing existing, foundational knowledge about an area relevant to the role (in this case study, evaluation) and a commitment to the center's focus area, 2) expert guidance from an educator (in this case, the Center Evaluation Director), and 3) an organizational culture that values students as well as systematic inquiry and continuous improvement. In this model, the students bring their knowledge, skills, time, innovative perspectives, and aspirations to the organization. An educator would bring an expert perspective on theory and practice, facilitating reflection, integration, and mentorship across the student experience. Finally, the leadership of the organization would establish a culture of respect, learning, and valuing student expertise and abilities. In the case of UMASH, the three components supported each other in ways that catalyzed positive learning outcomes and allowed students to contribute in important and impactful ways. The degree to which this model could be replicated in other, similar organizations is, of course, an open question and one that we hope future scholars and practitioners will explore and share their lessons learned.

7.1. Evaluative and educational processes

This study offered incremental support for self-evaluation processes, in this case, processes that hew closely to the principles from the Empowerment Evaluation (EE) model because of the ways in which stakeholders were involved in the evaluation process and helped make sense of the findings (Donaldson, 2017; Fetterman, Rodríguez-Campos, Wandersman, & O'Sullivan, 2014; Fetterman & Wandersman, 2010) with the support of an evaluator. For example, Fetterman and colleagues (2014) point out that in EE, the program staff, participants, and community members are in control of the direction of the evaluation, but that the evaluative processes do not happen without support from an experienced evaluator. For the current study, the Evaluation Director helped the graduate students develop and evaluate the Center initiatives, and then helped the evaluators evaluate their own learning through meta-level reflection practices. The structure offered by the Evaluation Director aligned with the professional evaluation principles and standards for credible evidence, which may have helped the process be more credible, as well as more rigorous and trustworthy to the stakeholders. Thus, this experience supports the idea that while self-evaluation and self-reflection can be helpful tools for learning, they may be even more impactful when done collectively and organized through a learning-focused structure.

The study also supports elements of applied educational theory as applied to nonformal educational experiences. For example, Kolb's experiential learning cycle (1984) has been used to frame student learning in formal environments for topics such as sustainability (Watson et al., 2019), management (Tomkins & Ulus, 2016), and occupational therapy (Barker, Lenchucha, & Anderson, 2016), and is premised on four elements: reflective observation (watching), abstract conceptualization (thinking), active experimentation (doing), and concrete experiences (feeling). In the current case, the data from the focus group reflected the ways in which the elements synergized with each other at both the individual levels but also in the ways the student reflections added to each other. Indeed, this may offer incremental support for how experiences may influence individual learning as well as group learning (e.g., Akella, 2010), as well as how tacit (implicit) knowledge might be gathered together and maintained in organizations via their application to applied projects and knowledge-management opportunities (Argyris, 1999; Venkitachalam & Busch, 2012). Further, the study illustrated the ways in which both inductive and deductive qualitative analysis can be used to understand the same data, which may have implications for expanding educational theorycrafting and testing in Center and evaluation contexts.

8. Limitations

Like any study, the findings and conclusions of this case study have multiple limitations that we hope can be addressed in future research. First, the data represented the perspectives of three students who worked closely together on an intensive project. Although this may be a feature of case study research, it also may limit the transferability of the findings except to other, similar university-based centers. Thus, future work will need to explore non-formal student experiences with evaluation in other types of university centers in order to more fully understand the ways in which the experiences are helpful and where they might be improved. Additionally, the study focuses primarily on the perspectives of this small group of graduate students and does not explore as deeply other important perspectives, such as those of the Center's leadership. However, the organizational representatives, including the Evaluation Director, were highly involved in the writing of this paper and the development of the conclusions presented; we recognize that this could be misperceived as a conflict of interest or self-promotion, though we also note that the rest of the Center's leadership team were not involved in the data analysis or interpretation. Last, the study does not involve any sort of comparison with other case studies (e.g., comparative case study, see Bartlett & Vavrus, 2017; Alkin (2013); Argyris (1999); Barker et al. (2016); Coghlan et al. (2003); Edmondson and Moingeon (1998); Fetterman and Wandersman (2010); Fitzpatrick (2004); Fitzpatrick et al. (2009); Kolb (2014); LaBelle (1982); LaVelle and Chouinard (2021); McAdaragh et al. (2020); Miles (1994); Peeters et al. (2014)), meaning that causality or reciprocal relationships are difficult to establish empirically. It is possible that the observed learning outcomes and factors facilitating those outcomes are unique to the students' experiences at UMASH, though we are hopeful that they would be found in other settings.

9. Conclusion

Overall, this case study emphasizes the importance of non-formal applied experiences in evaluator education and the capacity for informal experiences to nurture positive learning outcomes. The data and its analysis align with existing literature supporting the value of such experiences and provide an illustration of how both inductive and deductive tools can be helpful for making sense of students' experiences. The findings, albeit with some limitations, offer insights for both educators and organizations seeking to optimize informal, applied learning environments and enhance students' learning outcomes because that is one of the essential functions of the University and its centers.

CRediT authorship contribution statement

John LaVelle: Writing – review & editing, Writing – original draft, Validation, Supervision, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Hannah Kinzer:** Writing – review & editing, Writing – original draft, Validation, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Suness Hall:** Writing – review & editing, Writing – original draft, Validation, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Devon Charlier:** Writing – review & editing, Writing – original draft, Validation, Project administration, Methodology, Investigation, Formal analysis, Conceptualization.

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Devon Charlier, MPH, is Executive Director of WeARE, an organization focused on comprehensive reproductive healthcare and education for youth, young adults, and underserved communities in Brainerd Lakes area of Minnesota.

Suness Hall, MPH, is interested in public health with a particular emphasis on special risk populations in agricultural communities.

Hannah Kinzer, MPH, is a doctoral student in Public Health Sciences at Washington University in St. Louis, with a focus area on communication inequalities in infectious diseases.

John M. LaVelle, Ph.D., is assistant professor of Evaluation Studies in the Department of Organizational Leadership, Policy, and Development. He researches evaluator education programs, evaluator values, the impostor phenomenon in evaluators, and evaluation theory.