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URBAN PARAMEDICS' PERSPECTIVES ON WORKPLACE LEARNING: A THEMATIC ANALYSIS

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ABSTRACT

Background: In the most desperate and urgent situations, the public relies on the skills and expertise of paramedicine professionals. Due to the high-stress nature of responding to medical emergencies, paramedicine has a psychological cost, particularly when educational programs have a short duration and leave candidates feeling inadequately trained (Hazzard, 2016).

Purpose: We determined that further research was required to focus on the educational pipeline and to ensure that paramedicine candidates are prepared for the contextual challenges of the workplace. We highlight gaps in the education process followed in preparing paramedics for service. The overall objective of this research was to develop an understanding of how candidates learn to become paramedics, draw meaning from the work, and sustain performance in an occupation characterized by high stress and/or risk.

Methods: We conducted semi-structured interviews (n=18) with paramedics to develop a greater appreciation of the key aspects of learning in their workplace(s). Braun and Clarke's (2006; 2009) thematic analysis provided the framework to deconstruct the interview transcripts, code and develop themes, and put forth thick and rich descriptions of the learning situations described, to better understand how professional practice was developed. Our study is informed by theories of workplace learning, an umbrella term that involves understanding how people learn to solve workplace problems.

Results: We found three types of learning that paramedicine candidates apply both before and during the performance of their duties. We found that paramedics learned through a variety of situations with varying levels of outside direction, self-initiation, and reflection. We end by offering recommendations for improvements to scholars, professional paramedicine programs, and practitioners.

Conclusion: While current paramedicine training programs are effective at teaching the necessary medical skills to paramedic candidates, we found that paramedicine professionals engage in significant experiential learning to supplement their required training in order to sustain effective job performance.

INTRODUCTION

When the public hears sirens and sees the flashing lights of an emergency vehicle, they anticipate a quick and caring response. The anecdotal perception of paramedics is that they are stoic sentinels, ever watchful and present until called (Hazzard, 2016). When things go wrong, the public expects to be taken care of

by paramedics as they rush to respond to an emergency. Yet, compared to similar jobs in healthcare, the training process for paramedicine is relatively short. We define paramedics as the various public safety personnel who respond to medical emergencies and participate in medical transport. We define paramedicine as the domain of emergency and primary care practice in a pre-hospital context (Williams et al., 2021). Our fundamental research question is: What essential skills do paramedics learn beyond their formal education and training programs?

Few occupations repeatedly put their workers in harm's way. While the military may be the most obvious example, paramedics should also be included (Oliphant, 2016). The work of first responders typically involves prolonged/routine exposure to physical and psychological stressors, increasing the risk of severe injury or even death (Anderson et al., 2020; Hazzard, 2016). It is these traumatic stressors that distinguish the work of first responders from almost all other occupations (Anderson et al., 2020). A large body of research has found that consistent exposure to traumatic stressors increases the potential for first responders to experience burnout and post-traumatic stress disorder (Benedek et al., 2007; Eastwood, 2018; Haugen et al., 2021; Wallace, 2009). Throughout their careers, successful paramedics learn the necessary skills to manage exposure to these traumatic stressors.

Learning has been conceptualized in a variety of different ways. It is perhaps most commonly understood that learning occurs in an environment that offers education, training, or both (Merriam & Baumgartner, 2020). To guide this study, we are interested in exploring literature related to learning in the workplace, specifically within the pre-hospital context. Fenwick (2008) articulates that workplace learning is an umbrella term that involves understanding how people learn to solve workplace problems. Hager (2004) and Leslie et al. (1998) categorize workplace learning as occurring either through formal learning situations (mediated) or through informal learning situations (unmediated). Internal learning situations have been proposed as an additional category to describe the internal process of integrating experiential learning (Eraut, 2004, 2007; Jarvis, 2006; Merriam & Baumgartner, 2020). We have decided to use the terminology proposed by Moon (2004): mediated, unmediated, and experiential learning. While others have articulated different classifications for learning in the workplace, we feel that this terminology is appropriately descriptive of the various learning opportunities accessed by paramedics.

Mediated learning describes learning directed or taught by another person. Unmediated learning describes situations in which the learner is responsible for guiding their learning. This includes self-directed online training courses, reading manuals, and accessing optional professional development materials. Experiential learning encompasses the learning that occurs when external experiences cause the learner to integrate new information into their existing knowledge. The defining characteristic of experiential learning is that it occurs unintentionally. Although researchers have identified the significant occurrence of experiential learning in the workplace, it has traditionally been ignored and unaccredited by educational systems, as well as by the workplace in general (Eraut, 2004, 2007).

Broadly, scholarship on learning of any kind in the pre-hospital context is scant. Moreover, the work that does exist rarely features the voices of paramedics themselves. Current research in the field focuses on how ambiguity and uncertainty might impact

learning and clinical practice in emergency situations (Goldman et al., 2009; Hussain et al., 2021; Taber, 2008; Taber et al., 2008). In Canada, for example, research in the pre-hospital context has not yet examined the educational experience of paramedics. Drennan et al. (2014) conducted a randomized controlled trial to examine patient outcomes following a community paramedicine intervention. Bigham et al. (2014) used a seven-point Likert scale to measure workplace violence exposure of paramedics. Another notable study utilized grounded theory to examine a community paramedicine program and its influence on patient care through observation and interviews with both patients and families but failed to include the voices of the paramedics involved (Dainty et al., 2018). Thus, there remains a considerable gap in the literature as it relates to learning in the pre-hospital context. The purpose of this study, which focuses on the experiential learning of paramedics, is to meaningfully address this omission through the use of qualitative interviews exploring the lived experience (van Manen, 1997) of paramedicine professionals.

METHODS

Qualitative approaches to research are incredibly diverse, complex, and nuanced. Braun and Clarke's (2006) thematic analysis (TA) was selected as a widely used foundational qualitative analytic method for both essentialist and constructivist paradigms within psychology. This method was chosen to allow the perspectives of paramedics to be the guiding voice of the results. TA provides a deep analytic philosophy and clearly defined procedures while prioritizing reflexivity and theoretical engagement. We are using TA for an interpretative phenomenological analysis of narrative discourse. Epistemologically, we frame it as an experiential method examining the lived experiences of paramedic personnel. TA provides a flexible research tool that offers a rich and detailed account of our data that remains methodologically sound. The inductive approach of TA ensures that the themes identified during the analysis are strongly linked to the data. Axiologically, this research was conducted with the belief that more paramedic education would improve outcomes and should encapsulate a period of experiential learning. Therefore, it was important to explore the perspectives of experienced paramedics about the relationship between their initial education versus education obtained after licensure and their practice in the field. This method includes the ontological assumption that lived experience is an interpretive process that is situated within the lives of paramedics (Mertens, 2023). We applied Braun and Clarke's (2006) TA to the transcribed open-ended question interview data.

Reflexivity and Positionality

Reflexivity and positionality are closely intertwined and important concepts that enable readers to assess the credibility of qualitative research. Based on the work of Braun and Clarke (2006, 2019), we tried to ensure reflexivity in our TA by openly examining and acknowledging how each of our perspectives, values, assumptions, and biases might influence the research process. Positionality in qualitative research refers to the researcher's social identity, worldview, and standpoint when conducting research. It situates a researcher in relation to their participants and reflects the position that the researcher has chosen to adopt within a given research study. Reviewing the findings with consideration of our positionality, while being cognizant of the identity of the participants, served to minimize predisposition or bias.

Sampling

Participants in this study were identified as being (a) active-duty paramedic personnel, (b) having current licensure, and (c) having voluntarily agreed to participate. Several known paramedics were contacted as participants in the study. Additional participants were then acquired through snowball sampling (Parker et al., 2019).

In qualitative research, it has been argued that a sufficiently large sample exists when theoretical data saturation is reached. We have chosen to follow Braun and Clarke (2016), who state, "sample size…is something qualitative researchers often revisit during data collection, in a live and critically-reflexive, evaluative way." Paramedics tend to be a closed community; however, connections with members of the paramedic service allowed those individuals to act as keyholders, opening the door (Parker et al., 2019).

Participants

Eighteen participants were ultimately recruited, five identified as female and 13 identified as male (see Table 1). Individuals who were not yet active-duty paramedics were excluded because they could not be asked about their current experiences and/or perceptions with learning and performance, since they do not have the lived experience of the occupational context. For this project, we were interested primarily in the lived experience of current active-duty paramedicine personnel.

Participant #	Sex	Age	Level of Training	Years of Experience
P1	M	34	PCP	10
P2	M	41	ACP	11
P3	F	24	PCP	4.5
P4	M	37	ACP	17
P5	M	32	ACP	10
P6	M	40	ACP (TEMS)	12
P7	F	42	ACP	22
P8	M	39	ICP (PCP)	12
P9	F	38	ACP	12
P10	F	38	Flight Medic	8
P11	M	46	ACP	9
P12	M	38	PCP	7
P13	M	43	Instructor (ACP)	16
P14	M	44	Flight Medic	23
P15	M	36	PCP	5
P16	M	47	District Chief	19
P17	M	37	Assistant Chief	19
P18	F	35	Flight Nurse	10
AVERAGE	n/a	38.4	n/a	12.6

Note: ACP - Advanced Care Paramedic, ICP - Intermediate Care Paramedic, PCP - Primary Care Paramedic, TEMS – Tactical Emergency Medical Support.

Table 1. Participant demographics.

Ethical Considerations

Institutional Review Board ethical approval was obtained from the University's human research ethics board (HE09631), and a signed written consent was obtained from participants indicating their agreement to participate in the study.

Risk/Benefit Analysis

There was the potential for cognitive and emotional stress if the participants were reflecting on a particularly difficult learning experience or case-related performance in their occupation. As always, the participants' experience and sensitivity were prioritized. Participants were not obligated to answer any questions and could choose to withdraw from the interview at any point. The potential benefits to the participants were that they could become more mindful of their own learning and performance strategies and incorporate them further into their daily practice.

As this study involved learning about how paramedics manage themselves in situations of high stress and high pressure, the participants were free to refer to on-the-job

incidents and experiences, but they were asked not to be specific about the situations, thereby ensuring that they did not breach privacy legislation. The stories the participants shared were specific to their own experiences and learning, not to the patients involved.

Confidentiality

All participants were identified by an assigned ID number to maintain anonymity. The data collected from participants was only available to the researchers and was kept strictly confidential. Recorded media containing sensitive information is stored in a locked filing cabinet on a password-protected and encrypted hard drive. Data is reported in aggregate form.

Data Collection

Given the significance ascribed to the lived experience recalled by the participants, it is particularly important for the researchers to engage the participants in dialogue to bring meaning to those experiences so that the researchers can represent them in a written narrative. Semi-structured interviews drew out the participants lived experience with learning and sustaining performance. Data was collected through an interactive means, utilizing interviews that were open-ended. Once the interviews were completed, the digitally recorded interview data were transcribed verbatim to conduct the TA.

Data Analysis

Through the analysis, the research team discovered the emergence of patterns of meaning and issues of potential interest in the data by following Braun and Clarke's (2006) "6-phase guide to performing thematic analysis." TA is a recursive process where constant review amongst the entire data set is needed throughout the phases, rather than simply coding line by line. The research team initially followed Braun and Clarke's semantic approach, where "the themes are identified within the explicit or surface meanings of the data, and the analyst is not looking for anything beyond what a participant has said or what has been written" by taking notes and marking ideas for coding. This evolved into their latent approach, which "goes beyond the semantic content of the data, and starts to identify or examine the underlying ideas, assumptions, and conceptualizations." Using this approach, we began reading into the subtext and assumptions underlying the data. This is an important part of the analysis within an interpretive qualitative methodology.

Phase one of the TA involved reading the transcripts to become familiar with the data while simultaneously listening to the audio recordings to understand emphasis and tone. During this process, the researchers took notes on anything mentioned by the participants in relation to the learning process of paramedics, including everything they had to learn to be effective practitioners in all aspects of their careers. The notes generated in phase one identified initial codes.

Phase two is where the interpretive analysis of the data occurred. Using the initial codes generated in phase one, we began organizing interesting aspects of the lived experiences of paramedics into meaningful groups. These groups serve to create broader units of analysis, a precursor to the final themes. Repeated patterns were used to form the basis of the potential themes. This process continued until we were confident that all data extracts had been identified.

Phase three allowed us to refocus the analysis on broader level themes. We collated each potential theme, including all specific quotes relating to learning in paramedicine, into separate documents for easier analysis and to ensure anonymity. During this collation, we kept some of the surrounding data to avoid the common criticism of coding that context may be lost. Each potential theme was categorized into one or multiple of the three learning types, based on the descriptions of how the participants learned about each potential theme.

Phase four involved developing candidate themes. A candidate thematic map was created by exploring the connections between the dataset and the themes. Ultimately, the 17 themes were written out, and the data was examined again, this time looking for connections between the themes identified in phases one to three. Additionally, the map was coded using shapes to indicate the learning type (mediated, unmediated, and experiential) associated with each theme. Finally, the elements of the thematic map were cross-checked against the data by comparing the collated documents created in phase three to the thematic map. This process ensured that every connection on the thematic map could be justified using direct quotes and that no direct connections described in the data were missing from the thematic map.

Phase five involved refining the themes and ensuring they were clearly defined (Table 2). While the final themes had already been determined in phase four, phase five included writing specific definitions for each theme in the thematic map to ensure they accurately described the scope and content of each theme. We selected specific quotes from the dataset that best represented each theme. With the themes refined, we began to write our detailed analysis and identify the narrative description within each theme. We also considered how each theme fit into the broader overall narrative while ensuring that there was not excessive overlap between the themes.

Phase six involved describing and discussing the findings in this article once we had fully worked out a set of themes. The quotes selected in phase five were embedded within the analytic narrative to compellingly illustrate the findings. This analytic narrative goes beyond a description of the data and discusses the themes in relation to the research question and the three learning types while ensuring it is internally coherent and consistent.

It is anticipated that this analysis will contribute to the literature, as it challenges perceived wisdom about the comprehensiveness of mediated learning, supports the need to supplement that learning with additional unmediated learning opportunities, and recommends the inclusion of targeted experiential learning in paramedic training programs, similar to that in other medical fields.

RESULTS

The main finding from our interpretations of the interview data was a discrepancy between the learning required for effective job performance and the content of the mediated learning. Many essential components of paramedic education are learned solely through unmediated and experiential learning that are not covered in the training. Paramedics seek to learn these components because they are underprepared after completing the mediated training process.

Data Point	Description
Didactic Medical Training	Formally delivered training consisting primarily of classroom style teaching and studying through traditional methods.
Practical Training	Training done in which trainees practice applicable skills and knowledge through a simulated situation using either actors, simulation manikins, or technology.
Mindset / Mental Preparation	Refers to increasing, maintaining, and/or decreasing levels of mental arousal before, during, and/or after work and/or a specific call. Can include but is not limited to daily routine, exercise, meditation, equipment checks, tactical breathing, and compartmentalization.
Personal Health	Refers to activities performed by the paramedic designed to maintain their own health. Can include but is not limited to sleep, nutrition, exercise, socialization, decompression time, family, and techniques for managing shift work.
Time Management	Refers to planning use of time both inside and outside the work context to attain as many work and personal goals as possible while maintaining work-life balance.
Self-Defense	Formal training that paramedics can use to protect themselves while on duty. Can be either physical defense techniques or verbal de-escalation techniques.
Technology / Social Media	Includes all formal and informal use of technology related to training for and performance of paramedicine. Can include but is not limited to all social media platforms, cell phone usage, podcasts, videos, electronic medical records, and simulation manikins.
Self-Directed Learning	Refers to paramedics seeking out additional information related to their job performance (i.e. any included data point categories) using technology, academic resources, and practical simulation practice. Self-directed learning is specified as learning that is not funded or acknowledged by the training programs or paramedic service in any official capacity.
Situational Awareness	Refers to initial scene assessment for safety as well as continuous monitoring of the scene and conditions that may become dangerous.
Debriefing / Communication	Refers to verbal debriefing of events and communication between paramedics, with dispatchers, and with people in other professions.
Teamwork / Coworkers	Refers to working with other paramedics through successful teamwork strategies, managing conflicts, and working with difficult coworkers.
Leadership / Mentorship	Refers to training in leadership/mentorship practices, the development of leadership styles, preceptorship experiences, and training in adult education theories.
On-the-job Learning	Refers to anything learned specifically through time working that is not otherwise categorized and cannot effectively be learned other than through experience. Includes the development of habits and personal styles of approaching patient care.
Problem-Solving	Refers to the ability to adapt to changing scenarios and situations that differ from common or practiced situations. Includes skills such as delegation and resource management.
Service Protocol	Refers to training on the protocols specific to a paramedic service. Can be protocols regarding patient care or other logistical components of paramedicine such as transfer to a hospital.
Ethics	Refers to how paramedics make decisions that are not encompassed by service protocols. Includes triage decisions, morality, and personal biases.
Interprofessionalism	Refers to training and working with allied professionals who are not paramedics. Can include but is not limited to dispatchers, police, firefighters, nurses, and physicians.

Table 2. Theme descriptions.

Mediated Learning

Our TA revealed a total of 17 themes in which learning is essential to paramedic job performance. Interestingly, of those 17 themes, only four are included in the mediated learning process, and three of those four were still being supplemented by experiential learning. The four themes of mediated learning include didactic medical training, practical training, situational awareness, and technology.

The didactic medical training relied heavily on self-directed learning from the students due to the high volume of material covered in a short timeframe. It was emphasized that "you're only in class for about six months, so there's a lot of expectation for you to self-study and to do work at home" (P3). The practical training component was described as highly valuable by most participants. It is through this theme that situational awareness and technology are covered. Situational awareness is emphasized by checking for scene safety at the beginning of the practical training scenario; however, it becomes a redundant phrase used in simulation rather than an ongoing focus throughout the entire sce-

nario and in practice. "So, every single scenario that you would practice, that algorithm that you would go through, you would start by verbalizing and saying and checking for scene safety. It becomes a check mark, and then you move on" (P4). Technology has been incorporated into the mediated training process. Those four themes, depicted in Figure 1 with the top right corner cut, correspond to what was anecdotally stated to be about 10% of the paramedic job description. One participant noted that the training process is "hyper-focused on that 10% of that work we do. It's hyper-focused on the medicine" (P4).

Unmediated Learning

The same four themes as mediated learning are included in unmediated training processes, as well as two additional themes. Didactic medical training, delivered either in person or through an online platform, is used to teach the specific service protocol to already certified paramedics. "Today we are using an online forum, and so if a new procedure comes out, I would get onto the internal online forum and review the material that has been placed there by our training academy" (P7). There is occasional didactic continuing education that discusses maintenance of personal health habits for paramedics, but it is not included because participants suggested that the training was ineffective and that their learning within the category did not occur in the unmediated training

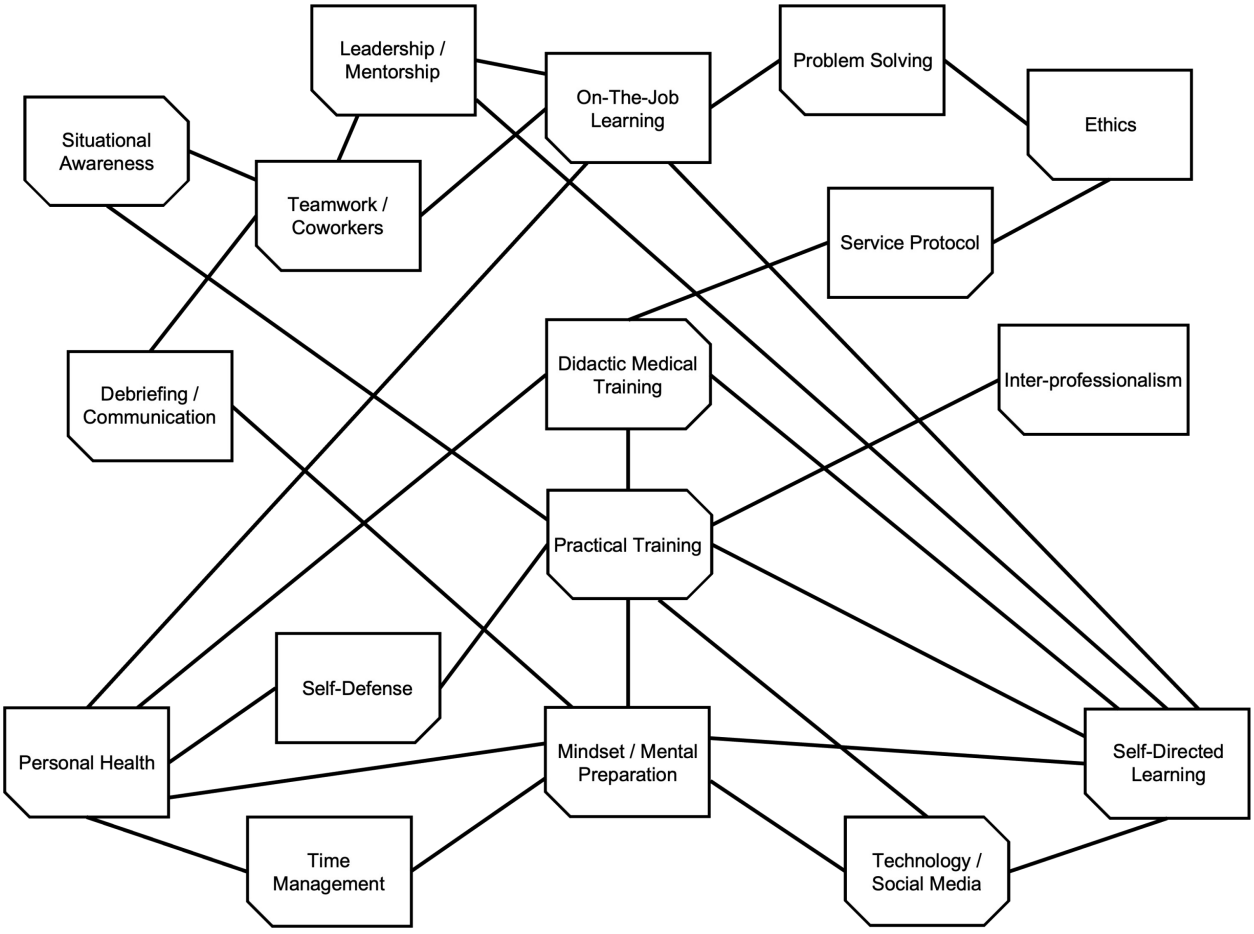

Figure 1. Thematic map of 17 final themes categorized into mediated, unmediated, and experiential learning.

Note: The top right corner cut indicates mediated learning, the bottom right corner cut indicates unmediated learning, and the bottom left corner cut indicates experiential learning.

setting. "They'll put, like, posters up or memos out about getting, like, good sleeps and stuff like that, but no, no formal training" (P9). Practical training is often used in continuing education and, therefore, includes some situational awareness and technology. If the practical training is done in conjunction with other professionals, such as firefighters or police, it helps develop interprofessionalism even if it is not explicitly taught. This area was identified as a weak point in the training program: "We need to start practicing how we play … we have an integrated response … When we do our training though, EMS does their training, and fire does their training in a separate room" (P17). Some participants also described a self-defense class and verbal judo training that were offered as part of continuing education, but that they were not adequate for use in real situations. "We practiced some sort of self-defense maneuvers that I couldn't even replicate them or tell you what they are right now" (P1). These six unmediated themes are depicted with the bottom right corner cut in Figure 1.

Experiential Learning

Three overlapping themes and the remaining 11 undiscussed themes are all components of paramedicine that are typically acquired through experiential learning. These 14 themes represent the components of paramedic work that are either excluded from or inadequately included in the mediated training process and are depicted with the bottom left corner cut in Figure 1. Due to the definition of experiential learning, all categories in this learning style are linked to on-the-job learning or self-directed learning, but only the strongest connections are depicted in Figure 1.

Since practical training was considered so valuable to the learning process, some paramedics do additional practical training outside of mediated and unmediated learning environments. Continued practical training was described as limited, and the importance was strongly emphasized in the following explanation: "You taught me how to do a cricothyrotomy six years ago when I became an ACP. It's never been revisited since… you're talking about cutting somebody open and throwing a tube down the throat because you can't vent them and they can't breathe… Those types of things I like to go review them on my own… unfortunately, we don't get the opportunities to do as much hands-on practice as I'd like" (P2).

Mindset/mental preparation is initially learned in an unmediated way during practical training, but further developed through experiential learning, often using technology/social media as a source for information. Managing one's own personal health is essential for peak job performance. Many participants talked about struggling with their personal health at the onset of their career until they were able to learn what they could do to maintain their health while working through trial and error. "I've managed to find a good sleeping schedule that works for me… but that took probably six months to figure out what worked for me" (P3). Time management is a huge component of personal health because, when done properly, it allows adequate time for sleep, nutrition, physical activity, and work-life balance. Time management is also useful in mental preparation by allowing time to check over equipment at the beginning of a shift in order to feel fully prepared.

Problem-solving was described as the majority aspect of the job, and is learned through practice in real situations. "Problem-solving is beyond a doubt the number one thing all

of us do" (P4). Problem-solving relies on paramedics' ability to make ethical decisions. Ethics is influenced by what is outlined in service protocols, but not all decisions fall within those protocols, and decisions often have to be made quickly in order to solve a problem. Awareness of personal biases is essential in effectively treating patients ethically, as demonstrated in a story shared by a respondent: "I watched two clients come in that I had picked up hundreds of times each in the ambulance… And I instantly had this, a bit of a reflection on myself, as to about, I don't want to say racism, but it was pre-judgment and a reflection on that I had never treated them like human beings. So, for me, that was profoundly affecting on future practice" (P17).

Leadership/mentorship is largely influenced by both positive and negative experiences while working on developing an initial style. "I literally model how I do things in a combination based on how not to do things, on how my first partner did things, and a lot of the things that I learned from the other successive mentors that I had along the way" (P16). The knowledge is then extended through self-directed research on leadership techniques. "Primarily, I source books and podcasts and things like that as a self-study of leadership" (P4). Working effectively with other paramedics, labelled teamwork/coworkers, is also learned through experiences guided by mentors. Another important component of teamwork is debriefing/communication, which can also have an effect on mindset. Continued situational awareness relies on teamwork so that members can warn each other about changes in scene safety. Interprofessionalism is generally learned through experience interacting with other professionals while working.

All 17 themes, their connections, and the learning types revealed through the TA are summarized in Figure 1. This patchwork for paramedic education is a concern and was acknowledged by almost every participant interviewed during this study.

DISCUSSION

Unlike many professions, paramedic training, by the nature of the career, necessitates early proficiency in all clinical skills and medical knowledge. Lives would be put at risk if paramedics were sent into the field without first completing the necessary mediated medical training. Our data, however, shows that upon entering the profession, following PCP and employer academy training, paramedics are still unprepared for the realities of the job. Much of the learning that is perceived as more valuable and applicable to everyday work is experiential, and paramedics themselves are searching for information to fill the gaps.

In the current training model, students who enter paramedic training receive basic medical and practical training focused on the delivery of emergency medical interventions, get accepted into an employer academy to learn specific protocols, equipment, and service logistics, and then enter the field, expected to work as a team. Prospective students who are attempting to become a trained and licensed primary care paramedic generally undergo 7-18 months of formal training, depending on jurisdiction and the educational institution delivering the qualification. Nevertheless, consistent among the educational streams is a focus on the formal delivery of clinical content, typically didactic classroom instruction and practical training, with accompanying high and low fidelity simulations. Those students who successfully graduate can then write the certification/licensure exam. Successful graduates are considered licensed and employable across most juris-

dictions. Separate licensing requirements are often specific to the regional or municipal requirements and usually involve additional formal training to become familiar with service-specific protocols, procedures, and equipment.

Limitations

Although the findings from this paper provide a contribution to the field, some limitations need to be addressed. While interviews offer a rich and in-depth assessment of workplace learning, limitations exist, including potential response bias and the inherent confines of qualitative data. Since we interviewed a small sample size of volunteer participants, it is possible that self-selection and non-response bias may have occurred. Our study provided valuable insight into the unmediated and experiential learning of paramedics, but further studies may benefit from a broader sample size. Additionally, due to the nature of qualitative research, direct comparison between our findings and other similar studies may present challenges. Moreover, since our sample includes participants from a combined fire paramedic service in a single municipality, results may not be generalizable to municipalities with split services.

Future Directions

As we progress towards more ratified training, such as granting university degree status to paramedical education, it is crucial to consider the inclusion of currently unmediated and experiential learning outcomes in the program to ensure a broad base of education and training. Further research should focus on integrating various practical training opportunities and unmediated on-the-job experience within the mediated education pathways. Further investigation into best practices among established degree-granting paramedic programs is warranted. Analyzing their approaches can provide valuable insights for refining and enhancing paramedic education globally. Ultimately, if the aim is to sustain an enduring career as a paramedic, mediated education should prioritize elements that align with the benefits of unmediated training and experiential learning. Our findings indicate that blending mediated education with hands-on experiences offers a viable pathway forward. There should be a deliberate effort to integrate ancillary skills, beyond core medical training, into practical training and continuing education for paramedics. This holistic approach ensures that paramedics are equipped with a diverse skill set to address the complex needs of patients and communities effectively. At the end of the day, if sustaining a career as a paramedic is the overall goal, lifelong learning needs to be emphasized throughout the mediated learning in parallel with complementary unmediated learning and crafted experiential learning.

There are several benefits associated with this research. The first is that the findings will add to the literature on workplace learning and well-being within occupations characterized by chaotic work and potential for burnout (Lauria et al., 2017; Wilson et al., 2016). Secondly, findings from the reflective interviews will help to provide a more nuanced picture of the experience of how learning and sustaining performance occur with paramedics. Finally, the trade-off between adequate preparation and moving novice paramedics into service expediently is also a political consideration for the regulators of the profession. The much-referenced statistic from David and Harrington (2011), indicating that the average career length of a paramedic is a scant 6.5 years, adds pressure to move paramedic candidates into practice quickly to replenish the workforce. There is, however,

a trade-off between moving candidates quickly through their training and providing optimal care during a crisis. We believe that the more comprehensive program suggested by this research will better prepare candidates for practice while reducing the emotional stress felt in the early part of the career through an extensive apprenticeship, leading to longer careers and better service.

CONCLUSION

Overall, our research suggests that while the current paramedic training programs successfully teach the medical skills necessary to provide patient care, many other aspects of successful paramedic practice are lacking, including problem-solving, personal health maintenance, collaboration, and continuing education, etc., as noted by our participants (see Table 2). These findings raise the concern that while newly trained paramedics are capable of providing effective medical treatment, they are underprepared for the full scope of practice in the high-stress environment. The missing educational components leave the profession with a training program that is not conducive to sustained practice, likely contributing to the high rates of burnout and rapid turnover.

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