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Digital Storytelling as an Innovative Approach to Prehospital Education: The Experiences of Teaching Academics

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Abstract

Purpose: To explore teaching academics' experiences of utilising digital storytelling as an innovative approach to prehospital education.

Method: This study describes an innovative learning activity, digital storytelling, developed for an undergraduate paramedicine program. The experiences of academics teaching the learning activity were then explored through semi-structured interviews. Thematic analysis was used to evaluate the data.

Results: Three themes were identified through thematic analysis. The first theme was 'the impact of friction on learning' which describes how a learning activity's design can negatively impact learning. The second theme 'connecting with the teaching resources' outlines how having access to sufficient resources is necessary to facilitate teaching. Finally, 'expansion opportunities' emerged as a theme as digital storytelling was discussed as having the potential to be taught further into the curriculum.

Conclusion: Digital storytelling as a learning activity has the potential to have a positive impact on student engagement and prehospital curriculum. Academic staff expressed that while there was some friction in this learning activity's design, they felt the digital story was valuable and worth expanding into the curriculum. To ensure a story can be successfully implemented, all teaching staff must receive adequate information and support on how the activity should be taught.

Keywords: Emergency medical services, Teaching, Paramedic, Curriculum, Problem-based learning

1. Introduction

Prehospital education programs must use innovative teaching methods to maintain student engagement. Creating a culture of continuous improvement and pursuing excellence when designing curricula are strategies prehospital education programs can use to ensure the success of their students [1]. Digital storytelling is a novel approach to learning which provides this opportunity. Learning through storytelling is when a real or imagined story is conveyed in such a way that the learner can be exposed to various patient presentations and feel emotionally connected and part of the story [2]. The digital aspect aims to increase

engagement, encourage reflection and enable a better understanding of the patient experience [3–5].

Using digital storytelling in paramedic education may increase student engagement in learning. Its use in nursing curricula has shown how being immersed in a story provides a fun and interesting approach to learning [3]. Moreover, storytelling provides a holistic picture of the patient's presentation which enables students to develop patient empathy and better understand the implications of clinical error [6,7]. Utilising storytelling in paramedicine may have similar benefits.

Paramedics in Australia have been recognised as health professionals since 2018. Since then, the

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importance of curriculum design has increased given the need for undergraduate programs to meet the accreditation standards set by the Paramedicine Board of Australasia [8]. In fact, many undergraduate programs are likely undertaking rigorous redevelopment of their curriculum to align with the *Professional Capabilities for Registered Paramedics* [9]. The difficulty of paramedic education is designing learning experiences that can address the multitude of clinical cases paramedics attend. Paramedics work in diverse clinical settings and must be competent in responding to medical, trauma and mental health cases [10]. However, the unpredictability of the role means some students may never experience certain cases on clinical placement before graduating. Storytelling may provide exposure to unique clinical cases and learning experiences a student may not have otherwise had.

The aim of this study was to explore the experiences of academics teaching a novel learning activity, digital storytelling, within paramedicine curriculum.

2. Methods

2.1. Overview

A social constructivist worldview guided this study. Social constructivists believe a more meaningful understanding of a phenomenon comes through sharing, collaborating and the social construction of knowledge [11]. This study reports on Phase 1 of a larger action research project which is ongoing. Phase 1 outlines the experiences of teaching academics implementing a novel digital storytelling learning activity in paramedic education. Phase 2 will be reported separately and will describe the student experience of the same learning activity. Using an action research approach will allow improvements to the activity to be made, based on the findings of this study.

2.2. Participants

The setting for this study was Australian Catholic University, Australia. Teaching academics were tasked with using a novel digital storytelling learning activity in a third-year unit (*Lifespan Health*) within the Bachelor of Paramedicine degree. The population group was all continuing and sessional academic staff members who taught *Lifespan Health*. Purposeful sampling was utilised in this study to target academics who had taught at least 70% of the weekly classes across the semester. Whilst knowing this would create a smaller sample, it would ensure the volunteering participants would have sufficient

exposure to the learning activity to provide meaningful data.

2.3. Procedure

This study's learning activity incorporates digital storytelling into problem-based learning (PBL). PBL is a collaborative approach to learning whereby students engage their critical thinking skills to solve 'real' problems [12]. Students worked through PBL activities in the weekly face-to-face tutorial classes. Many of the 'problems' were prehospital emergencies that could be classified as low frequency in attendance, but high in acuity. Appendix A (https://hpe.researchcommons.org/cgi/editor.cgi?article=1305&window=additional_files&context=journal) provides a brief outline of the topics covered.

The fictitious 'story' was initially designed to sequentially follow a central character from their birth through childhood, childbearing age and into their geriatric years over a 10-week semester. Video interviews were the digital element of the story. The interviews were filmed with multiple characters from the story and scripts were prepared to guide interview discussion. Each week, the videos were posted online with a short written chapter which connected the story between weekly face-to-face classes. Fig. 1 shows the learning activity's design and how each element was woven into the unit's content.

Continuing academic staff teaching the activity met with Author AV and were informed of the learning activity's design and structure. Weekly teaching guides were also made available. Continuing staff could access the story and teaching materials before the beginning of the semester. Three meetings occurred during the semester between Author AV and continuing staff to identify if there were any issues with the learning activity that needed to be immediately addressed. Sessional (casual) academic staff had no direct contact with Author AV as *Lifespan Health* is taught simultaneously on multiple campuses. Therefore, the research team did not orient individual sessional staff to the learning activity, and it is unknown how much preparation time was provided to sessional staff involved in teaching the activity.

2.4. Materials

Data were collected through semi-structured interviews. An interview guide (Appendix B (https://hpe.researchcommons.org/cgi/editor.cgi?article=1305&window=additional_files&context=journal)) was developed which employed an open-ended and broad approach to questioning to allow participants

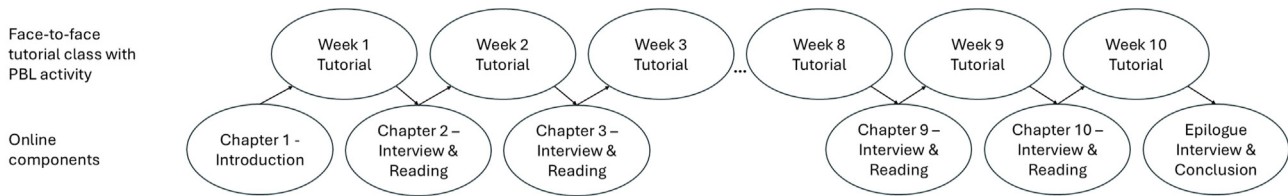


Fig. 1. Design of the learning activity.

to express their experiences in full. Interviews were conducted on Microsoft Teams during June and July 2023. Microsoft Teams transcription service was used and cross-checked by Author GS for accuracy.

2.5. Analysis

Braun and Clarke's [13] six-phase approach to thematic analysis was utilised to analyse all data. Using an evidence-based approach to thematic analysis provided a rich understanding of participant experiences and a meaningful representation of the data. Data were initially analysed separately by the researchers to generate preliminary codes. Researchers then collaborated on the final themes.

2.6. Researcher characteristics and reflexivity

We (the authors) are two teaching-focused paramedicine academics employed at Australian Catholic University. Having designed the learning activity, we acknowledge we have preconceived ideas about the activity and understand this could impact how we undertake, analyse and report our research. To mitigate this, we used a guide to ensure a reflexive approach throughout this study [14].

2.7. Ethics

Ethics was gained from the Australian Catholic University Human Research Ethics Committee (application number: 2022–2985). All participants provided informed and signed consent. Author AV also taught the learning activity at a separate campus, however, was not involved in the recruitment of participants or data collection to negate any power imbalance.

3. Results

Three staff members ($n = 3$) were identified and subsequently volunteered to be interviewed, accounting for 60% of the population group. This sample may be considered small however there was a fixed and limited number of possible participants.

This study intended to obtain the views of staff with significant exposure to teaching the activity. Whilst it was possible to expand the eligible participant pool, the research team determined it would be unlikely that staff members who taught the learning activity for less than 7 weeks would be able to provide rich, useful and meaningful data.

Participant 1 was a sessional academic and taught two separate classes across seven weeks of the semester. Participant 2 and Participant 3 were continuing academics. Participant 2 taught two separate classes across 10 weeks of the semester and Participant 3 taught three separate classes across 10 weeks of the semester. Three themes were identified through thematic analysis of the data. The themes were: 'the impact of friction on learning', 'connecting with the teaching resources', and 'expansion opportunities'.

3.1. Theme 1 - the impact of friction on learning

The participants described unintended 'friction' within the activity. 'Friction' refers to an element of a learning activity's design that either slows down or makes the learning more difficult [15]. Participants empathised with their students who experienced several technological, and storyline issues that emerged as the source of the friction. The design of the online component led to students missing key information from the story.

"There are a couple of little glitches ... the students had a few questions in the tutorials and said, oh, we don't really understand how this is linked to Marley (the main character)." – 2, continuing staff member

The storyline issues appeared early in the semester. The confusion came from the story's title: *"The Story of Marley Barrett"*, yet the initial patient and focus during the PBL activities was Marley's mother.

"The only negative that they (the students) said was at the beginning where they were a bit confused about the family tree, because obviously Marley didn't have

the baby ... Marley was the baby.” – 3 continuing staff member

“They (the students) were like it was conflicting because she had this (condition) one week, and then this (condition) another week ... it didn't make sense to them. – 1, sessional staff member

The friction caused academics to experience difficulties integrating the story into their teaching. Academics spent class time clarifying the story for the students when they should have been undertaking the PBL activity.

“They weren't always on top of the story each week. We might say have you seen the new updates about Marley or the new interview? They would say ... “Ohh no, I didn't” – 3, continuing staff member

I just had to outline the family tree a little bit more to the students and describe where Marley fits in with the family tree.” – 2, continuing staff member

The friction in the learning activity impacted the academics ability to teach as it drew the discussion away from the intended learning objectives of the class.

3.2. Theme 2 - connecting with the teaching resources

A distinct difference was identified between continuing and sessional staff members' preparedness to teach the activity. This stemmed from the continuing staff having access to the research team and teaching resources before the semester began. As a result, continuing staff were better prepared to navigate and intertwine the story into the PBL activities more effectively.

“I definitely felt well prepared and supported to teach the unit ... in terms of the progression of the Marley story ... it was easy to link that in and then explain it to the students.” – 2, continuing staff member

Contrastingly, the sessional staff member was not aware of many resources that supported the learning activity and how it should be taught.

“I didn't really understand, maybe I didn't have access to all the resources ... I didn't know there were videos!” – 1, sessional staff member

Whilst the student experience was not explored in this study, the decreased connection with the teaching resources may have influenced student

engagement as differences in class attendance were noted.

“Attendance stayed very, very consistent with probably 80–90% attendance.” – 3, continuing staff member

“I found that the attendance was pretty consistent throughout the semester.” – 2, continuing staff member

This is compared to the sessional staff member who reported reduced class attendance.

“Attendance ... dramatically dropped in the second tutorial (class) ... the weeks that I didn't teach, the person that took over for me had the class end within an hour (for a two-hour class).” – 1, sessional staff member

Being closely connected to the research team and having early access to teaching resources appeared to enhance the academics ability to successfully teach the learning activity.

3.3. Theme 3 - expansion opportunities

The participants spoke highly of this learning activity and felt it contextualised the learning for their students.

“It was a really, really clever way to get the students engaged and connected with the content”- 2, continuing staff member

The story-based approach explored biomedical concepts but also allowed students to understand the various aspects impacting on the character's wellness. Students explored the psychological and social impacts aging had on the character's health.

“They (the students) actually get to know a bit more history about them and they can pull on ... what they learnt last week about their history – 1, sessional staff member

This led to suggestions to expand the learning activity into other areas of the curriculum. The first area they could see the story expand was into other units of study and involve other family members.

“I'd love to see it taken across more units ... having Marley and her family ... integrated into another unit” – 2, continuing staff member

The second suggestion was to incorporate the story into student assessment to increase student engagement with the story and online components.

“If we made it clear to the students at the beginning, the pre-tutorial content and the content in the videos

may be assessed, I think that would definitely create more encouragement for them to watch it.” – 2, continuing staff member

The final recommendation was for the story to be added to practical (simulation) classes.

“I would have liked to have seen it (the activity) translate into the practical unit with case studies that follow along with the same story” – 3, continuing staff member

The recommendations provided by the participants outline the potential for storytelling to have a broad impact on a curriculum and provide a meaningful learning experience.

4. Discussion

This study sought to understand the academic experiences of teaching a novel learning activity, digital storytelling. Whilst acknowledging the small sample size, the results can provide valuable insight and lesson learnt. Particularly on how digital storytelling, and other learning activities more broadly, can be developed to ensure they are integrated into a curriculum successfully.

Friction was identified in the story and learning materials, creating an incongruence between the intended and actual teaching of the story. At times, both staff and students lacked an understanding of how the story was integrated into the PBL activities. Friction inevitably affects student learning and often leads to dissatisfaction and disengagement [16]. Academics intending to develop story-based activities can avoid friction by taking extra care during the design phase to ensure the usability of teaching materials and by maintaining the story's accuracy. Quality checking the learning activity's design with colleagues or student volunteers may help discover any unwanted friction before the activity is first taught.

Developing a digital storytelling activity takes considerable time and energy given the importance of maintaining a ‘real’ and accurate depiction of a patient. In saying this, the story in this study was extensive, spanning 10 weeks and covering multiple content areas. The story could be downsized or spread across a greater period and potentially have the same desired effect. Chernikova [17] describes that when attempting to recreate an authentic environment, its precise design will have a great effect on the learning experience. This sentiment is particularly important in story-based learning, where the main facilitator for learning is the story.

Our findings suggest that story-based learning requires greater preparation and a holistic

understanding of the story to be successfully taught. Continuing staff in this study had a greater understanding of the learning activity which led to a more successful teaching experience. The effect on learning may have been exaggerated in this case given the learning activity rolled from week to week. Adequate support and resources for teaching staff should be prioritised when story-based learning is used. Sessional staff or those teaching on a casual basis need even more guidance given the unique nature of the learning activity and as they often have less time to prepare for teaching. This finding is an example of those identified by Williams et al. [18] who discussed that sessional staff experience a lack of support, a connection with the university and preparation for teaching.

This study shows that a learning activity's design flaws may be exacerbated by academics having less time to prepare for teaching. Additionally, complex or more nuanced learning activities, such as storytelling, can be difficult to grasp if there is less time for academics to prepare. Sessional staff members in particular may experience greater challenges due to few having formal qualifications in teaching or involvement in curriculum design [19]. A learning activity should have clear instructions and be easy to teach for both continuing and sessional staff. In the case of story-based learning, a short preamble on each lesson plan would help provide the story's context. This would be helpful if there has been a breakdown in communicating how the learning activity is intended to be taught or if a staff member, continuing or sessional, was teaching the learning activity on a one-off.

Participants outlined how using a story may have contextualised the learning for students. Typically, PBL activities only allow for a single medical event to be the focus. Using a rolling story allowed a ‘real’ patient to develop. These findings support Clisbee et al. [5] who described the story element of a nurse professional development course as having the most educative value. This was due to the relatability, realism and empathy established through the story [5]. Therefore, academics must ensure a thoughtful and interesting story when designing story-based learning activities.

Expanding the story into other areas of the curriculum was an interesting finding that came from this research. One suggestion was to incorporate the story into assessment. Assessments are the main driver for engagement in learning [20], so if the key values and learning objectives can be addressed within the story, this may be an effective way of ensuring certain knowledge is assimilated.

Participants also recommended the story be expanded into practical (simulation) units as a form of experiential learning. In experiential learning, students build knowledge through a tangible experience, before reflecting and re-applying the experience [21]. Adding a practical component may allow students to apply their knowledge further. However, as outlined above, friction can be established if the story is unclear, changed or misrepresented. The further the story expands into a curriculum, the more staff there are involved in the teaching. This creates a greater chance of friction occurring.

5. Limitations and future research

This study has limitations. The small number of participants does not allow a wide variety of experiences to be heard. This means teaching staff with diverse backgrounds may find teaching using digital stories to be a different experience from those highlighted here. In addition, not understanding how much preparation sessional academics had to teach this activity is a limitation. Future research should explore more of the nuances around why some teachers and their classes were more engaged with digital storytelling, and how this can translate into better use of storytelling in education. Additionally, the effects of embedding storytelling in simulation and assessment activities require further exploration.

6. Conclusion

This study has explored academics' experiences utilising digital storytelling as a novel approach to student paramedic learning. Participants outlined how friction within the learning activity's design and inaccuracies within the story impacted their ability to teach. Therefore, minimising friction is the key factor when designing story-based learning. This finding can also be applied to any new learning activity being developed to help ensure engagement.

It was identified that adequate support and resources must be available to the teaching academics. As digital storytelling is a novel approach to teaching, this is even more critical. Providing adequate resources will improve the teaching experience and help ensure teaching academics have a strong understanding of the story.

Considering this, storytelling can provide an intriguing approach to learning by providing a holistic picture of a patient and their health concerns. This is enhanced by having a meaningful and

interesting story to follow. Storytelling could also be embedded into assessment and across an entire curriculum, not just a single unit of study. This would allow various components of an individual's health and well-being to be explored in different contexts.

Whilst this study focuses on paramedic education, storytelling could be utilised in other health disciplines. For example, physiotherapy could use a story of a patient experiencing ongoing and reoccurring back pain. Alternatively, medical education could focus on a patient experiencing a chronic, life-limiting illness such as chronic obstructive pulmonary disease and the associated complications. The direction a story takes is at the discretion of the learning activity's developer. Utilising the findings from this study will help ensure its success and application in any health discipline.

Ethical approval

Ethical approval was gained from the Australian Catholic University's Human Research Ethics Committee (application number: 2022–2985).

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Conflicts of interest

There are no other conflicts of interest to declare.

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