



RESEARCH ARTICLE

Photovoice as Evaluation Tool for Effective Teaching Method on the Basic Life Training

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ARTICLE INFO

Received: May 22, 2024

Accepted: Jul 4, 2024

Keywords

Anesthesia

Basic life Support

Training

Medical Education

Photovoice

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ABSTRACT

The "Learning by Teaching" method is an approach that necessitates the direct participation of students. On the other hand, photovoice has the potential to serve as a tool to depict students' feelings while concurrently evaluating the success of implementing the "Learning by Teaching" method in the learning process. Objective: This study assesses the implementation of photovoice as an evaluation tool for effective Learning by Teaching Methods in Basic Life Support Training. Methods and Design: The study includes 40 research participants, comprising 20 anesthesia residents (students of specialty program) and 20 11th-semester medical students involved in a one-day community service event at Al-Hikmah Boarding School in Batu Malang. Residents were encouraged to capture photos with their mobile phones to document field phenomena they found most interesting and influential in their learning processes within the Department of Anesthesiology and Reanimation. Results: Data analysis identifies several positive aspects obtained from learning through the Learning-by-teaching method, such as the importance of collaboration, valuable experiences, and maximum opportunities for discussion. Conclusion: Photovoice emerges as a suitable approach for evaluating the Learning by Teaching method within educational systems, as evidenced by the benefits and challenges observed in the context of Basic Life Support training, such as the opportunity to gain hands-on experience and a non-monotonous learning process.

INTRODUCTION

Learning by Teaching Method is an instructional approach that involves an active learning process, wherein learners are not merely passive recipients of information but actively engage in delivering and teaching concepts to others (Rohmi, et al., 2023; Septianingrum, et al., 2023; Purwanti, et al., 2024). In this method, learners take on the role of educators, necessitating a profound understanding of the concepts to articulate them clearly to others (Muawanah, et al., 2023). Empirical evidence indicates that this method demonstrates proven effectiveness in enhancing in-depth understanding and long-term retention of learning materials (Shirani, et al., 2016).

Photovoice stands as a qualitative method capable of gauging the effectiveness of the learning-teaching approach. It constitutes a visual research method wherein residents capture photographs documenting their experiences and perspectives. Subsequently, these images are discussed within a

group setting (Schell, et al., 2009), providing a nuanced exploration of the impact of Learning by Teaching methods, particularly in the context of Basic Life Support training for university students. The Photovoice method has demonstrated its efficacy as a tool for enhancing critical thinking skills within the educational context (Wang, 2020).

A qualitative study utilizing the photovoice method to evaluate learning practices through the learning-by-teaching approach in a community engagement program by the Department of Anesthesiology and Reanimation, Faculty of Medicine, Universitas Airlangga. In this initiative, residents not only function as instructors in basic life support training but also actively participate in the research process to prepare the materials needed for the basic life support training. Residents were tasked with capturing photos that encapsulated phenomena deemed impactful to them. Research data were gathered through narratives provided by the residents, offering insights into the depicted phenomena. Additionally, Forum Group Discussions (FGD) played a crucial role in this research, facilitating the integration of diverse perspectives from all residents.

LITERATURE REVIEW

Numerous photovoice studies have grown rapidly in an educational context. It illuminates many issues such as the use of photovoice in the learning process. In recent years, an increasing number of systematic reviews and scoping reviews on photovoice studies have been conducted and published. While a few reviews cover broad research topics (e.g., health) or the general methodology concepts (Pandini & Yanto, 2023), more reviews focus on the application of photovoice to specific research topics (e.g., violence, mental health) and/or specific groups of population (e.g., youth) to provide more targeted evidence on health promotion programs. In addition to these published works, dozens of photovoice systematic reviews are being proposed or conducted around the world.

According to Wang's research, photovoice used to document children's visual representations and their perceptions regarding natural sites (Wang, 2020). It covers three themes, mainly: safe space in nature, unsafe spaces in nature, and favorite places in nature. Photovoice has been designed to express someone's voice regarding his or her experiences. In this term, photographs are meaningful media for communicating with others. Photovoice is a participatory research method that was developed to promote empowerment and provide marginalized individual with a platform to be heard in their communities. This research results supported Wang & Burris findings that photovoice is a good technique or process by which individuals can identify, represent and enhance their community through a specific photographic technique (Wang & Burris, 1997).

Other research found that the photovoice had three main goals: (1) enable people to record and present their identified community strengths and areas of weakness, (2) promote small group dialogue about newly identified community issues, and (3) present salient findings to community dignitaries and persons in positions of power. Moreover, Loeffler (2004) argued that photographs can capture grander levels of detail about the emotional meaning of experience versus words-only data. Photovoice remains the most commonly used form of visual research in social sciences (Wang, 2020). Entrusting students with digital cameras and allowing them to photograph what they see as strengths and weaknesses in the community is the beginning of gaining a voice. Further, Schell (2009) contends that by giving students cameras and asking them to photograph their lived experiences, they could capture a perspective that might otherwise be overlooked.

The photovoice also found widely considered a powerful tool for community-based participatory research (CBPR) and participatory action research (PAR) to build community capacity, empower community members, and advocate for social actions. Besides being a stand-alone qualitative approach, photovoice can be combined with other qualitative methods (e.g., in-depth interviews, focus groups) to better identify community issues and explore disadvantaged environments that

impact residents' well-being and health care utility. Moreover, photovoice can be part of the mixed methods approach to facilitate data triangulation in community health promotion programs.

Based on existing research, there has been no research that uses Photovoice as a method in the training that can make easier for residents to express their views on the implementation of Basic Life Support. Based on previous research, the researcher formulated the research question, does photovoice method can become effective functioning method for basic life support training?

METHODS

The research adopted a critical paradigm employing the learning-by-teaching evaluation approach through the photovoice method. The three primary objectives of photovoice were as follows: (1) to ensure that individuals can identify and capture both positive and negative aspects of the activities they engage in, (2) to facilitate discussions and critical discourse analysis involving significant elements within both large and small group settings, and (3) to present compelling arguments to policymakers regarding the societal importance of a particular issue. [4]. In this study, the researcher assumed the role of a facilitator, positioning residents as subjects or agents rather than mere objects or targets of the activity. Hence, this research represented a collaborative endeavor, emphasizing a participatory approach wherein both the researcher and residents engage in a mutual and interactive exploration of the subject matter.

The research was conducted at Al-Hikmah Boarding School in Batu, Malang, East Java. The selection of the research location was based on the consideration that within a single location, we could reach training residents from various educational levels. The chosen school is situated in a unique environment, far removed from the hustle and bustle of metropolitan life, and somewhat distant from healthcare facilities. This deliberate choice of setting allows for a comprehensive exploration of the impact of the training program within a distinct and somewhat isolated educational and healthcare context.

The determination of research subjects or informants was conducted through purposive sampling in this study. Subjects were categorized into two groups, namely primary informants and supporting informants. The primary informants of the study were referred to as residents in the photovoice project, serving as the main actors in the empowerment process. In this photovoice project participants consist of prospective specialist anesthesia medical students from various educational levels and 11th-semester medical faculty students.

This research was conducted on October 28, 2023, following a series of carefully planned stages by the photovoice process developed by Wang and Burris. In detail, the implementation stages of photovoice are as follows:

First, Recruiting Photovoice Participants: on this stage, the researcher, acting as a facilitator, initiates an initial engagement with research participants in Anesthesiology and Resuscitation. The outcome of this engagement involves the successful recruitment of 20 Anesthesia Medical Residents and 20 11th-semester Medical Students.

Second, Introducing the Photovoice Method: The residents conducted a Focus Group Discussion to familiarize participants with the Photovoice project. The introduction of the Photovoice method commenced with an overview provided by the residents serving as the facilitator, elucidating the purpose and objectives of the research project. Subsequently, instructional content about the Photovoice method, its objectives, and the sequential phases of implementation was presented. During this session, the researcher collaboratively with the residents determined the thematic focus for the photos to be captured. Following the presentation of the Photovoice method, the residents facilitated a question-and-answer and sharing session, fostering a dialogue among residents and the researcher to discuss the potential and challenges encountered during the Basic Life Support teaching process at AL Hikmah Boarding School.

Third, Capturing photographs: Subsequently, residents were instructed to take photos related to the Basic Life Support training activities at Al-Hikmah Boarding School. All the photos were taken

following strict guidelines and according to the ethics approval from the Faculty of Medicine, Universitas Airlangga under ethics protocol number 297/EC/KEPK/FKUA/2023. This research had also received Informed Consent approval from residents and the school regarding the taking of photos, especially focusing on facial features. Residents are free to capture images according to their preferences and creativity, utilizing their mobile phone cameras. The collection of photos is submitted via a WhatsApp group created by the researcher to facilitate consultation, coordination, and discussion. The accumulated photos were deliberated upon and presented by the residents during the subsequent Focus Group Discussion meeting.

Forth, Discussing Photographs: Discussing photos involves two distinct stages. In the first stage of photo discussion, the researcher presented the compiled photographs taken by the residents. These images encapsulate the active engagement of students in training sessions and the teaching experiences gained by the residents. Each resident engages in a discussion of the significance of the presented photos utilizing the SHOWED technique (Wang & Burris, 1997) [4]. SHOWED, as an acronym, stands for what do you See here? What is happening here? How does this relate to our lives? Why does this problem/condition exist? How could this image educate the community/policymakers? And what can we do about it? Nevertheless, fundamentally, each resident has the freedom to narrate comprehensively about each photograph they capture. In the first-stage photo discussion session, several faculty members and students are present, fostering a dynamic exchange of opinions, information, and knowledge among the residents and the community.

In the second phase of photo discussion, the researcher presented newly captured photos by residents and delved deeper into the information surrounding these images. The attendance of residents in the second phase photo discussion session was notably lower compared to the initial session. This focus group discussion was deliberately conducted on a smaller scale, exclusively inviting residents involved in the Photovoice project, in contrast to the previous larger-scale FGD attended by faculty members and students from the Anesthesiology and Reanimation Department. Beyond the analysis of the photographic outcomes, this meeting facilitated a collaborative discussion between the researcher and residents regarding the preparation of the subsequent action agenda. This included planning a photo exhibition to showcase the residents' works, organizing the committee structure, allocating job descriptions, and determining the schedule and theme for the photo exhibition.

Fifth, Photography Exhibition: The photography exhibition is set to take place during the accreditation event for the Department of Anesthesiology and Reanimation. Scheduled for a one-day duration from 10:00 am to 05:00 pm, the exhibition revolves around the theme of education within the Department of Anesthesiology and Reanimation. Residents aim to convey a message to the audience, shedding light on the challenges faced by trainers when delivering training materials outside the city, engaging with specific communities, and collaborating with various stakeholders. The showcased photos in the photovoice exhibition adhere to predetermined criteria jointly established by researchers and residents. The eligibility criteria for the photos include alignment with the theme, clarity, uniqueness, size, and the conveyed message. These photos will be presented in front of assessors.

Sixth, The Final FGD and Project Evaluation: The final Focus Group Discussion was conducted to determine the thematic focus resulting from the photovoice project that had been carried out. The evaluation phase constituted the final stage in the implementation of the Photovoice project. At this stage, together with the residents, the researcher evaluated the strengths and weaknesses of the entire implementation phases of the photovoice project. This includes research participant recruitment, orientation, and training on the photovoice method, photo capturing, photo discussions, and the photo exhibition.

Collecting and Analysis Data

Data collection was conducted using two methods. First, residents were asked to take photos that depicted their feelings and perspectives regarding the practice of learning by teaching during the Basic Life Support (BLS) training. From these photos, residents were required to write narratives following the SHOWED technique (Wang & Burris, 1997). Second, a Focus Group Discussion was held with residents of the photovoice project to discuss the photos, formulate issues, and draw

CONCLUSIONS

The data analysis in this research adopts the model proposed by Erlingsson & Brysiewicz encompassing the following steps: (1) condensation, which involves simplifying field notes while retaining their essential meaning; (2) coding, essentially regarded as labels that accurately describe the condensed content; (3) categorization, a form of grouping related codes based on content or context, wherein categories serve as expressions of discernible content patterns; (4) themes, revealing data at an interpretative level, with themes considered as expressions of underlying abstract meanings. The outcomes of this analysis can be further contextualized by linking the observed phenomena (data) with relevant theories and existing research findings. Subsequently, a descriptive exposition of the analytical results is presented (Erlingsson & Brysiewicz, 2017).

GUIDELINES FOR PHOTO SELECTION

Residents attending the final Focus Group Discussion session are requested to choose one photo that best represents their feelings at the "before," "during," and "after" stages of the Basic Life Support (BLS) training. Subsequently, each resident will present their selected photo, and a discussion will ensue regarding the resident's choice. The facilitator is tasked with guiding the discussion to reach a consensus on the themes to be addressed, namely: Discipline, Cooperation, Experience, and Discussion.

RESULTS

1. "The journey departing at three in the morning is indeed a bit challenging. But because I'm with other friends, it turns out to be quite enjoyable."-Residents.



Figure 1: The journey to PPJT should commence before 3:00 AM to ensure punctuality in departure



Figure 2: Performing the dawn prayer at the toll road rest area towards Malang to ensure adherence to one's primary obligations.

2. "Yeah, we know the drill for events like this. Everything's got to be a team effort, no one left behind." - Resident.



Figure 3: Residents collaborate to meticulously organize the mannequin used during training sessions



Figure 4: Togetherness at lunch

3. "Feeling happy and satisfied with all the experiences, opportunities, and new knowledge gained during this event." -Resident.



Figure 5: Experience is the best teacher



Figure 6: BLS training by Dr. Nugroho, an Anesthesiology Resident at the Faculty of Medicine, Brawijaya University, for students at Al-Hikmah Boarding School in Batu.

4. A discussion is observed between the residents and the students, enabling the exchange of information



Figure 7: The male junior high school students exhibited enthusiasm and eagerness while engaging in the activity. They were observed posing various critical questions about Basic Life Support (BLS).

5. Coordination is evident between the Postgraduate Medical Education Program of Universitas Airlangga and the PPDS of Universitas Brawijaya.



Figure 8: Coordination among cross-university committees for the smooth execution of today's Basic Life Support event.

DISCUSSION

Educational Issues

Teaching Experiences: Photovoice on the teaching experience will unveil various aspects observable in the practice of the Learning by Teaching method employed by residents. Each captured photograph will reflect how residents, in their roles as educators, interact with their peers, elucidate instructional material, and to what extent the students are engaged in the learning process. Additionally, it will encompass the relationships among residents that contribute to the successful implementation of these activities. Through the photos, residents are expected to share the experiences gained from these activities.

Residents Discipline: The remote location of the community service does not pose a hindrance to the residents involved. They demonstrate a strong commitment to this program by undertaking a considerable journey to engage in community service activities. Furthermore, punctuality and discipline are consistently emphasized principles among the residents. They recognize that fulfilling their obligations promptly is key to the success of this community service initiative. By prioritizing punctuality and discipline, the residents not only showcase their responsibility towards the program but also show respect for the time and efforts invested by all parties involved in these activities. Figure 1 illustrates residents being required to be present at Dr. Soetomo Hospital before 03.00 AM, as they have to travel for approximately 2 hours to reach the community service location. Figure 2 depicts residents performing the dawn prayer at the toll rest area. Despite the early departure, one resident expressed enjoyment in the experience.

“The journey departing at three in the morning is indeed a bit challenging. But because I’m with other friends, it turns out to be quite enjoyable.”-Residents.



Figure 1: The journey to PPJT should commence before 3:00 AM to ensure punctuality in departure



Figure 2: Performing the dawn prayer at the toll road rest area towards Malang to ensure adherence to one's primary obligations.

Cooperation among Residents: The collaboration among residents consisting of medical residents and 11th-semester students is an integral aspect inseparable from the continuity of this community service event. In Figure 3, residents are seen collaboratively organizing mannequins. Such collaboration proves indispensable in the execution of these activities. Figure 4 captures the concluding activity, a communal lunch. Following the strenuous yet enjoyable tasks, the event concludes with a shared meal filled with warmth and lighthearted banter, contributing to a sense of camaraderie. One resident remarked that such collaboration is rightfully essential, particularly in outdoor settings like this BLS training.

"Yeah, we know the drill for events like this. Everything's got to be a team effort, no one left behind."- Resident.



Figure 3: Residents collaborate to meticulously organize the mannequin used during training sessions



Figure 4: Togetherness at lunch

Critical Thinking: The paramount aspect of implementing this activity lies in fostering new experiences for the residents. Through experiential learning, residents can actively learn and apply the knowledge they acquire. In the context of teaching activities, the teaching experience goes beyond mere information delivery; it involves creating direct interaction between educators and learners. Through this teaching experience, it is anticipated that residents will gain deeper insights into communication strategies, adaptability to learners' needs, and effective management of learning situations. All these elements contribute significantly to residents' readiness as educators, enabling them to be more effective and impactful in educating and guiding future generations.

Teaching Basic Life Support is a profoundly beneficial experience, as echoed in the insights shared by the students during the Focus Group Discussion session. As expressed by one resident:

“Feeling happy and satisfied with all the experiences, opportunities, and new knowledge gained during this event.”-Resident.



Figure 5: Experience is the best teacher



Figure 6: BLS training by Dr. Nugroho, an Anesthesiology Resident at the Faculty of Medicine, Brawijaya University, for students at Al-Hikmah Boarding School in Batu.

Community Engagement: In every meeting, there is always a learning opportunity. Watkins et al., refer to Cooper and McIntyre emphasizing the significance of social interaction in the learning process. They highlight that learning through social interaction, such as discourse, drama, and group work, plays a crucial role in education. When students engage with one another through conversations, dramatic activities, or collaborative group work, learning becomes more effective and meaningful. This social interaction enables students to share ideas, discuss concepts, and learn from their collective experiences, enhancing understanding and retention of the learning material (Watkins, et al., 2007; Cooper & McIntyre, 1993).

In the practical learning activities employing the learning-by-teaching method through Basic Life Support training, residents are allowed to engage in dialogue, coordination, and discussion, thereby expanding their insights. Throughout this learning process, they not only serve as recipients of information but also actively play a role in sharing knowledge and skills. Dialogues and discussions among residents facilitate the exchange of ideas, understanding, and profound experiences. Through team coordination and collaboration, they learn to work together in situations simulating emergency conditions, which is highly relevant in Basic Life Support training. As depicted in Figure 7, a

discussion is observed between the residents and the students, enabling the exchange of information. In Figure 8, coordination is evident between the Postgraduate Medical Education Program of Universitas Airlangga and Universitas Brawijaya.



Figure 7: The male junior high school students exhibited enthusiasm and eagerness while engaging in the activity. They were observed posing various critical questions about Basic Life Support.



Figure 8: Coordination among cross-university committees for the smooth execution of today's Basic Life Support event.

LIMITATION

This study is constrained to a singular location, thereby potentially limiting the generalizability of its findings to the specific context under investigation. To address this constraint, it is hoped that future research endeavors will extend the scope to encompass multiple locations. By incorporating a diverse range of settings, subsequent studies have the potential to yield a more comprehensive understanding that can be applied more broadly.

CONCLUSION

Photovoice serves as a method facilitating residents in expressing their views on the execution of the Learning by teaching method during Basic Life Support training. The depiction of the success of this method is discussed through the theme of the teaching experience perceived by the residents. Photovoice facilitates residents in reflecting on the benefits gained through this activity, such as the need for discipline and collaboration, the experiences acquired, and the opportunity for maximum discussion. The evaluation of photovoice in the Learning by teaching method is anticipated to provide insights into the advantages of this approach, particularly for those directly involved in the field of education. Through photovoice, residents' thoughts are expected to be visually conveyed and easily comprehensible to others. Photovoice proves to be the most suitable approach for expressing residents' opinions directly and critically, making it an apt method for evaluating the Learning by teaching methods in the education system.

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