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Title:
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Date:
2017-12-01

Citation:
Laholt, H., Guillemin, M., Mcleod, K., Olsen, R. E. & Lorem, G. F. (2017). Visual methods in health dialogues: A qualitative study of public health nurse practice in schools. Journal of Advanced Nursing, 73 (12), pp.3070-3078. https://doi.org/10.1111/jan.13371.

Persistent Link:
https://hdl.handle.net/11343/293287

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Article type : Original Research: Empirical research - qualitative

Visual methods in health dialogues: A qualitative study of public health nurse practice in schools

Running head: "Use of visual methods in school nursing"

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Acknowledgements

We would like to thank the study participants for their contributions and Ellinor Beddari for

assistance in planning the study.

Declaration of conflicting interests

No conflict of interest has been declared by the author(s).

Funding Statement

UiT The Arctic University of Norway funded the study.

Abstract

Aims. We aimed to explore how using visual methods might improve or complicate the dynamics of the health dialogue between public health nurses (PHNs) and school pupils. This was done from the perspective of PHNs, specifically examining how they understood their role and practice as a PHN and the application of visual methods in this practice.

Background. The health dialogue is a method used by PHNs in school nursing in Norway. In this practice, there can be communicative barriers between pupils and PHNs. Investigating how PHNs understand their professional practice can lead to ways of addressing these communicative barriers, which can affect pupil satisfaction and achievement of health-related behaviours in the school context. Specifically, the use of visual methods by PHNs may address these communicative barriers.

Design. The research design was qualitative, using focus groups combined with visual methods.

Methods. We conducted focus group interviews using a semi-structured discussion guide and visual methods with five groups of PHNs (n=31) working in northern Norwegian school health services. The data were collected during January and February 2016. Discussions were audio-

recorded, transcribed and coded into themes and sub-themes using systematic text condensation and drawings were analysed using interpretive engagement, a method of visual analysis.

Findings. Drawings and focus group discussions showed that PHNs perceived their professional practice as primarily a relational praxis. The PHNs used a variety of visual methods as part of the health dialogue with school pupils. This active use of visualization worked to build and strengthen relations when words were inadequate and served to enhance the flexible and relational practice employed by the PHNs.

Conclusions. PHNs used different kinds of visualization methods to establish relations with school pupils, especially when verbalization by the pupils was difficult. PHNs were aware of both the benefits and challenges of using visualization with school pupils in health education. We recommend the use of visual methods in schools because they are useful for PHNs, other health professionals and teachers working with children and young people in developing relations, particularly where verbal communication may be a challenge.

Key words: School nursing**,** public health nurse, health dialogue, visual methods, visualization, adolescents

SUMMARY STATEMENT

Why is this research needed?

- In school nursing there can be communicative barriers between public health nurses (PHNs) and pupils. The use of health dialogue can be useful in overcoming such barriers.

- The health dialogue in schools favours the most capable and verbal pupils.
- Investigating how PHNs understand their practice can lead to ways of addressing communicative barriers.

What are the key findings?

- PHNs in northern Norway actively used a variety of visualization methods to build and strengthen relations with school pupils.
- Active use of visualization allowed the PHNs to reach potential at-risk groups and change the dynamics of the health dialogues.
- There were challenges linked to pupils' use of visual technology in health dialogues, in terms of confidentiality, privacy and sensitive visual content.

How should findings be used to influence practice?

- We recommend the use of visualization methods especially for PHNs and other nursing specialists working with children and adolescents to assist relationship building and to reach at-risk groups.
- Providing training for PHNs and other nurses working with children and adolescents in the use of visualization would enhance their professional toolbox.

Introduction

Public health nursing aims to promote health and prevent diseases (Norwegian Directorate of Health 2016, Sosial- og helsedirektoratet 2004). The public health nurse (PHN) was established as a profession in Norway during the 1920s (Schiøtz *et al.* 2003). All local authorities are required by law to have school health services. Consequently, public health nurses (PHNs) work with children and their parents throughout primary, secondary and high school, using guidelines recommended by the Norwegian Directorate of Health (Norwegian Directorate of Health 2016,

Sosial- og helsedirektoratet 2004). Norwegian PHNs abide by the code of ethics of the International Council of Nurses (ICN) to address challenging situations in their practice (International Council of Nurses 2013). It should be noted that the Norwegian guidelines from 2004 are under revision and new guidelines for school health services are expected to be completed in 2017 (Norwegian Directorate of Health 2016). PHNs in Norway reach all children and adolescents from 0-20 years and their parents through their work in health clinics (0-5 years) and school health services (6-20 years) (Norwegian Directorate of Health 2004). PHNs therefore have a key role in health promotion and disease prevention with children, young people and their families, at both an individual and group level. The main goal of school nursing is similar in many geographic settings, but the resources and programs differs between the countries (Holmes *et al.* 2016).

Background

In this study, we draw on the health dialogue as a conceptual frame (Borup 2002, Borup & Holstein 2006). The health dialogue is a dialogue between the PHN and the pupil; the topic can be chosen by the pupil, it can be a structured discussion according to the guidelines, or an open-ended discussion with one pupil or a group of pupils about their health or development concerns. The idea of the health dialogue is to promote health and prevent diseases by raising awareness and change health-related behaviours (Borup 2002, Norwegian Directorate of Health 2004, Sosial- og helsedirektoratet 2004). Borup (2002) developed the health dialogue as a method to stimulate pupils' learning processes concerning their health. In Borup's study, adolescents reported a positive outcome following the health dialogue; however, a drawback was that the health dialogue favoured the most capable and verbal pupils who could articulate their needs (Borup & Holstein 2004, Borup & Holstein 2006, Skre *et al.* 2013).

There can be communicative barriers between adolescents and adults and adolescents will have conflicting interests between their needs for advice, supervision, assistance and care while simultaneously developing their independence and self-identity (Berzonsky 2011). Visual methods such as photographs, drawing, video and films, artwork, artefacts and photo elicitations are advocated in research (Guillemin 2004a) (Rose 2012) (McLeod 2017). Visual methods in social and health research are creative processes enabling the researcher to explore how people

understand illness, self-identity and how they make sense of world. Visual methodology uses still or moving images either as data or to elicit meanings about a given research topic and are used across a variety of sectors in health and school services. This has been extended in our study by asking how the use of visual methods can address communicative challenges in school nursing. It is anticipated that the use of visualization as part of the health dialogue can enhance communication between PHNs and school pupils. Pupils can be encouraged to bring pictures that for them represent their life experiences, such as friendships, bullying, sexuality and alcohol, into the dialogue. The use of film sequences and pictures from smartphones can offer the participant a new and more active role. Sharing pictures and movies via digital media has become an increasingly important part of adolescence (Vanden Abeele 2016). Visual methods designed to promote understanding and articulation could be particularly effective for health issues that could be problematic, complex and sensitive, as well as for groups with a low capacity for articulation. When used in research, visual methods have been found to influence the dynamics and enable various forms of expression and communication (Drew *et al.* 2010, Ginicola 2012, Rose 2012).

The study

Aims

The aim of this project was to explore how using visual methods might improve or complicate the dynamics of the health dialogue between PHNs and school pupils in schools in northern Norway. This was done from the perspective of PHNs, specifically examining how they understood their role and practice as a PHN and the application of visual methods in this practice. Our research questions were: - how do PHNs see their role when talking to young persons and how did visual methods work in this setting?

Design

We chose a qualitative approach to explore the research questions and used a combination of focus group discussions (FGDs) and visual image-elicitation (Barbour 2007, Drew & Guillemin 2014). The advantage of FGDs compared with individual interviews is that FGDs uses group dynamics and generates considerable data in a short time (Krueger & Casey 2014). Asking the PHNs to draw themselves and discuss their drawings gave the PHNs an opportunity to describe themselves and their practices in an innovative way (Guillemin 2004b).

Participants

The fieldwork took place in Tromsø, a town of 70 000 inhabitants in northern Norway. We contacted the PHNs from all six health stations in Tromsø through the leader of the public health nursing services. Of the approximately 60 PHNs in Tromsø, 31 agreed to participate and we divided them into five focus groups with 4-11 participants in each group (Table 1). All 31 PHNs signed informed consent forms. Most of the 31 PHNs worked primarily in health clinics and had days or hours in the school health services. We also considered the impact of the relationships between the researchers and participants, since the moderators were insiders. However, the focus group method allowed access to other types of descriptions through active participants drawing and discussing in groups.

Data collection

We conducted FGDs and the data were collected in January and February 2016. At the beginning of the FGDs, we gave the participants blank cards and coloured pens and asked them to draw themselves as PHNs working in the school health services. Before the FGDs, we had a meeting with all PHNs present and informed them about the project, the consent process and explained that they were under no obligation to participate. We started the FGDs with an introduction and explained the intentions of the focus groups. We used a semi-structured guide that started with discussions of the participants' drawings, followed by discussions of the school health dialogue, their use of visualization in school nursing and adolescents' use of visual technologies. Participants were given the opportunity to reflect and ideas were allowed to emerge and unexpected points to be expressed (Krueger & Casey 2009). Discussions were recorded with a digital voice recorder; the first author (HL) transcribed the audio recordings verbatim. The FGDs lasted from 73-90 minutes (Table 1). HL, with an additional observer and co-moderator (REO) present, moderated in all five groups. The moderator and co-moderator reflected on the FGDs and wrote down their reflections after each session. Participants were able to discuss any ethical concern. The study was approved by the Norwegian Centre for Research Data on 8 September 2015 (NSD: Ref. No. 4439).

Data analysis

We analysed and interpreted the transcripts, using the principles of systematic text condensation for analysis of the texts (Malterud 2012) and visual meaning making for analysis of the drawings and accompanying participant explanations (Drew & Guillemin 2014). The principles of systematic text condensation comprises four steps (Malterud 2012). HL first analysed the texts and developed categories by reading the transcribed FGDs to achieve an overview of the data and approach tentative themes that ran through the whole material: "relations", "visual methods and difficulties", "the health dialogue", "different visual methods", "why use visual methods", "adolescents' use of visual methods" and "how PHNs see themselves in school health services". In step 2, HL identified and coded the themes from the texts; the coded data were condensed and abstracted in each of the categories and then in step 3 the research team collaborated and reduced the empirical data to a decontextualized selection of meaning units sorted as thematic code groups. In step 4, the data were reconceptualised: we put the pieces together again and presented the findings as narratives: public health nursing as a relational and flexible practice, PHNs used visualization actively to build relations and that visualization was important to help pupils to articulate experiences and emotions (Malterud 2012). We brought the two analysing processes together (Malterud 2012) (Drew & Guillemin 2014) and analysed the drawings and accompanying participant explanations by using interpretive engagement, a method of visual meaning making using text and images (Drew & Guillemin 2014). This method comprises three stages. Stage 1 consisted of meaning making through participant engagement. The first stage of analysis explicitly represented the participants' voices. Based on these preliminary classifications of themes, the research group collaborated in the further analysis of the texts and images. Stage 2, meaning making through researcher-driven engagement, involved close analysis and documenting of texts and images, their content and accompanying participant explanations. We looked at the drawings and discussed their content, their symbolic representations, use of colour and intensiveness and relative size. Examples of our discussions included: "What do the relative sizes of the PHN and the children say about relations? What did the use of colour, placement of the working area and the comfortable chairs used in the health dialogue tell us about PHNs' practice?" In Stage 3, meaning making through re-contextualizing, we focused on the theoretical and analytical explanations of our material: what knowledge did we find and what did the combined text and images tell us? We read the texts and recoded the data and abstracted them in

each of the categories in the context: “a relational and flexible practice”, “active use of visualization when words are inadequate” and “when visualization became problematic”. The texts and drawings were systematically coded with NVivo v11 (QSR International Pty Ltd 2015).

Rigour

Interpretive rigour examines the problems of interpreting data (Liamputtong & Ezzy 2005). This study demonstrates interpretive rigour in two ways. First, we used systematic text condensation inspired by Giorgi’s psychological phenomenological analysis and visual meaning making for analyses in accordance with the aims of the study (Malterud 2012) (Drew & Guillemin 2014). The systematic analytic steps of the analysing methods demonstrates clearly how the interpretations was achieved (Liamputtong & Ezzy 2005) and supports the validity of findings (Malterud 2001). Second, the research group consisted of two PHNs, two health sociologists and one philosopher. We discussed and documented decisions in interpreting data and this helped to secure reliability and provided a nuanced analysis (Liamputtong & Ezzy 2005) (Malterud 2001).

Findings

The 31 PHNs were female and registered nurses, with further education as PHNs. They had experience in school nursing ranging from primary to high school level, over a period of 4 months to 34 years (Table 1). They described public health nursing as a relational and flexible practice and we found that they used visualization actively to build relations especially when words were inadequate. Visualization was especially important to help pupils to articulate experiences and emotions. They described how visualization changed the dynamics of the health dialogues and this allowed them to reach at-risk groups.

Public health nursing as a relational and flexible practice

Figure 1 shows how the PHNs expressed their work as a relational and flexible practice; it shows how the PHN engages in different types of practices and contexts. These include skipping rope in the playground, conducting health dialogues with groups of pupils in the conference room and the syringe used for vaccinations.

Susan commented on her drawing: “Sometimes I’m in the playground trying to be where they

are and sometimes I have them in my office. Here there`s everything from tears to health and here I try to ask some questions and give some vaccinations."

The next example in Figure 2 shows how Anne presents the dialogue and relationship with the pupil as her most important job through her placement and colouring of furniture. The PHN sits in a red comfortable chair, with a student in the same type of chair, having a dialogue with a pupil. The office chair, desk and the computer are drawn in blue and placed in the background while the health dialogue is centre of attention. Anne said: "I've drawn when I feel this is more than a conversation, then I move from my office chair and that's why I have a writing pad here and what I use to sit on."

In Figure 3, we see how Mary welcomes the children with an "open door", a smile and open arms. She has drawn her relationship with the children and the tools she uses in her dialogues: crayons, the pictures of "Marius the Mouse" and the "Psychological First Aid" method. Marius the Mouse is a communication guide with 34 pictures and Psychological First Aid is a tool developed by a child psychology specialist, in cooperation with key professionals in Norwegian mental health care (Holmsen 2011, Raknes *et al.* 2013, Raknes & Peterson 2014).

Active use of visualization to build relations when words are inadequate

Drawings and FGDs showed that PHNs perceived their professional practice as primarily a relational practice and that they used a variety of visualization methods as part of their health dialogue with school pupils. In the FGDs, PHNs discussed how the use of visualization methods enhances their understanding of the pupil in the interaction and any challenges they are facing. Visualization is also a tool used by the PHN for health promotion and helps the PHN to empower young people to take care of their own health. It is challenging in itself to engage in health dialogues with children and teenagers, but PHNs were also aware that certain topics and situations were especially difficult. Defining their practice as relational, PHNs used visualization to establish relations and enhance mutual understanding.

Drawings were used in different ways and different situations to establish relations and open up sensitive topics. When meeting new children and at the start of the health dialogue, some PHNs

used a relational chart. Nora said: “I use a kind of relational chart where the child can draw who they are in that relationship at home and in school and then we talk about it." Drawings were considered a useful tool by the PHNs for dialogues with younger children. Helen said: “We draw a schoolbag where the difficult thoughts are at the bottom and the good thoughts are at the top and then we open it and let the good thoughts come out first and maybe the bad ones can stay down in the bag.” Drawings were used in discussions about sensitive topics, such as puberty, sexuality and identity. Maria said: “I draw so they can understand the menstruation cycle.” Anne said: “For a dialogue about heterosexuality and being gay, they draw a simple line. Where are you on the line? I do this so they can reflect on who they are.” Drawing was seen as helpful when PHNs worked with vulnerable adolescents and young people from other cultural backgrounds. Maria said: “I- `ve been working with young asylum seekers where the language can be a challenge; I draw circles to find out: where are you now and where do you want to be?”

Visualization were used to help pupils to articulate experiences and emotions

The PHNs used pictures of the Marius the Mouse in dialogue with young children in primary school (Holmsen 2011). They selected pictures they considered suitable and suggested a parallel story between the child and the mouse. They used games with pictures to empower children**.** The games had the same role as the pictures of Marius the Mouse. Sue told us: “As a player I pick the same cards as the child: what’s causing a feeling of sadness and then I pass the card to the child. Then it`s his turn." Games were used by PHNs to create productive relations rather than strictly telling the child to take the conversation seriously. For health dialogues with adolescents, we found that some PHNs used clips from YouTube, especially in groups. One example was “Tea consent” produced by Blue Seat Studios; this was a video clip where wanting a cup of tea is an analogy for sexual consent. The aim was to discuss the need to seek consent, rather than assuming it had been granted. In addition, PHNs used the Psychological First Aid in dialogues about various topics, from fear of vaccination to bigger emotional challenges, such as feeling depressed, or having eating problems. This helped the pupils to verbalize their thoughts and emotions. Some PHNs discussed using a stone that they gave to the child. Sue said: "I’m there only a few times. When the child feels the stone in his pocket, it helps to visualize positive thinking. So, I have some children going around with stones in their pockets." Some PHNs told how they cut out pictures from magazines and newspapers illustrating everyday life situations.

The pictures were used as a visual aid in health promotion groups. Some used artefacts like the Barbie and Ken dolls to discuss body image with young people. Images of fruits and vegetables on a plate depicted healthy food and soft drinks and sugar cubes showed unhealthy eating habits.

The PHNs gave examples of adolescents showing them images with sexual content and pictures from cell phones demonstrating sexual harassments and abuse. One PHN described a high school girl drawing experiences of sexual abuse from her childhood. Ada said: “The drawing was a starting point for a health dialogue and to help the girl with her challenges.” Other examples were teachers seeking advice from PHNs on how to handle challenges such as suicidal ideation by young people. Some pupils showed films from their family life depicting drunken parents and violent fathers. Elsa told us: "It’s a vote of confidence to be invited into the young people’s challenges. They share something important in their life and it’s a sort of `help me`". Many Norwegian adolescents have access to smartphones and it is easy for them to film and document their daily life (Medietilsynet 2016). To share experiences and get confirmation from an adult they trust is important for some adolescents. The use of visual methods enabled the PHNs to have important discussions about sensitive topics with pupils that might otherwise have been difficult for the pupils to verbalize. However, not all pupils had access to smartphones because of their age or lack of permission from parents. This limited the extent to which the PHNs could disseminate health information through media such as Facebook. PHNs also felt obliged to discuss with pupils ethical challenges related to the use of inappropriate visual imagery. Kate said: “It is important for young people to learn to set limits. We have lot of dialogues with adolescents about those topics.”

Discussion

Summary of findings

PHNs in northern Norway saw their professional practice as primary a relational praxis. In their professional practice, PHNs employed visualization methods in many contexts, with various visual tools. They used visualization as an instrument to establish and build relations with school pupils, especially in situations where verbal communication was difficult; this enabled them to form relationships. We also found that there were challenges linked to young people’s use of

visual technology in the health dialogues, in terms of confidentiality, privacy and sensitive visual content. Visual methods are flexible tools that are congruent with PHNs' flexible and relational practice and they assist in relationship building and reaching target groups. This explains why PHNs may have already used visualization methods and considered them as useful tools and why they wanted to learn more about these methods.

Visualization has the potential to demonstrate flexibility and dynamics in PHN interactions

Clancy has described how relationships are important for public health nursing practice and how PHNs lacked a clear strategy for their health conversations (Clancy 2010). In contrast, our study demonstrates that PHNs had clear ideas of school nursing as a relational practice, not just between the PHN and young people, but also in terms of the tools and environment they use in their practice. This is well portrayed in Figure 2, "the most important job" and the relational and flexible practice in Figure 1, showing the PHN playing with children, giving vaccinations and communicating. Figure 3 shows the relational work with sad and happy children and the relation to and flexible use of, different kinds of tools. In the PHN`s discussions of drawing as a useful tool in health dialogues, the drawing as both a practice and an object enables a conversation to commence; the dynamics in the conversation are shaped by pupils describing themselves when drawing. We also see how the PHNs depicted their work and surroundings as a network, for example the seating arrangement in their office (Figure 2), or the health dialogues in groups (Figure 1). Playing with children is also a way for the PHN to shape her position towards pupils. Many of the interactions depicted by PHNs in their drawings include common, everyday objects, such as the jumping rope and the sofa, but also the syringe. These objects are part of the network of relations in the professional practice of the PHNs. The practice of vaccination becomes tangible by the depiction of the syringe: it represents a close physical relation and an important aspect of PHN practice, namely the prevention of infectious diseases.

Smartphones, as a central part of youth culture, are new objects that are now part of and shape, health dialogues (Medietilsynet 2016, Vanden Abeele 2016). New kinds of interactions develop with the introduction of smartphones, but they also bring with them new content like recordings of domestic problems, drunkenness and bullying through social media. New visual tools can lead

to new kinds of relationships, but the actors cannot always control how these relations will develop.

In our research, PHNs did not necessarily describe their use of different kinds of visualization methods necessarily as a strategy and they were not particularly aware of the different methods and their premises, possibilities and limits. In keeping with their flexible and relational practice, the use of visual methods enabled their practice in different situations and their relationships with different pupils. Visualization tools like drawings and pictures worked to identify pupil needs and helped them to discuss sensitive topics and address challenges. Several PHNs explained the advantage of how drawings and pictures could take away the focus from direct eye contact to the dialogue itself. The pictures of Marius the Mouse or games used in dialogues with young children could change the dynamics and enable different forms of expression, communication and sharing (Ginicola 2012).

Visualization has the potential to reach target and risk groups

Past research has demonstrated the benefits of health dialogues in health promotion, with positive responses from young people (Borup 2002, Borup 2007, Borup 2010). However, the health dialogue favours the most capable and verbal pupils and there is an ongoing debate on how to better reach and assist at-risk groups (Andersson *et al.* 2009, Skre *et al.* 2013). Visualization can enable a dialogue and can lead to changes in interactions, especially in sensitive topics like bullying, violence or sexuality and other issues that can be difficult to express, such as psychological problems. Drawing and writing have been found especially useful in enabling young children and adolescents with problems to communicate their thoughts better than conversational language (Coad 2007). Drawing a schoolbag can encourage young children to identify and address emotions and help them to focus on the healing parts of their life. Pictures and drawings are useful tools in dialogues with at-risk groups such as asylum seekers and young people from different cultural backgrounds; they offer a potential for mutual understanding and communication. Visualization represented by a stone in the pocket showed how PHNs actively presented strategies to pupils to allow them to handle problematic thoughts through visualizing positive thinking on their own, because a helper cannot be there all the time. Borup (2002) described how children's competencies, including knowledge and being an expert in their own life, were fundamental for successful health dialogues and contributed to health promotion.

Drawing and film clips from YouTube can stimulate pupils' communication skills and allow for discussion and reflection on issues of sexuality and sexual consent and teach them how to handle those challenges. Borup (2002) showed how pupils inspired each other and were more comfortable about talking openly in group sessions. In our research, the PHNs told how drawing the menstruation cycle and presenting different contraception methods in group settings could enhance pupils' learning about sexually transmitted diseases (STDs) and prevent STDs and teenage pregnancies. Drawing and discussing sexual identity with adolescents had the potential to empower the young and help them to communicate and become more aware of their identity. Artefacts like dolls and magazine pictures could help pupils to develop their self-identity and resilience and help prevent unhealthy body images.

Challenges associated with visual technologies

When pupils and teachers came to the PHN wanting help, they showed trust that the PHN would be able to help with challenges and ethical dilemmas. PHNs claimed it was a vote of confidence when adolescents invited them into their life and youth culture. Films and messages from smartphones created bigger challenges than just listening to spoken words. Dialogues about these topics were sensitive because of the risk that the adolescents might reject the PHN. PHNs also had obligations to ensure the privacy of the whole family. However, PHNs also have obligations to contact child welfare or police when pupils' lives are potentially at risk. PHNs must also consider cooperating with pupils' relatives, depending on their age. There are new advances in public health nursing focusing on providing ethical care based on respect for each individual's situation (Ivanov & Oden 2013). PHNs were also challenged when teachers came for advice on how to handle pupil'-s' smartphone pictures visualizing difficult themes such as suicidal ideations. PHNs and teachers are supposed to collaborate with the shared goal to identify and help young persons in need (Norwegian Directorate of Health 2004, Sosial- og helsedirektoratet 2004). Tveiten described supervision as relational communication with clients on health-related issues with the goal of enabling coping:, PHNs' role in school nursing also required supervision in ethical issues related to pupils (Tveiten & Severinsson 2005).

Limitations

The project had several limitations to the sample, the use of FGDs as a method and finally, the

point that the moderator and co-moderator were both PHNs themselves. Firstly, we recruited the participants through the leader of the public health nursing services. Most of the PHNs who chose to take part in this project are likely to have had strong interests in developing PHNs' practice in school health services. However, we do not know whether there were also more critical PHNs who chose not to participate. The second limitation relates to the employment of FGDs. As participants in FGDs do not necessarily answer each question as with individual in-depth interviews, FGD participants may have greater control over what they share or withhold from discussion (Barbour 2007). We conducted the FGDs on Fridays, normally meeting days for the PHNs. Recruiting to focus groups by taking over existing meetings made it easier to ensure attendance. An additional source of bias may have been some variation in the size of the focus groups. The smallest group (FGD5, n= 4) may not have represented a wide enough range of experience and the largest group (FGD3, n=11) may not have given all participants the opportunity to express their opinions. We discussed how asking participants to draw could influence the FGDs, but found that this task had a positive influence; participants responded positively to drawing and the task led to discussion of different kinds of visualization related to the health dialogue. The third possible limitation is that the moderator (HL) and co-moderator (REO) are experienced PHNs and health lecturers, both "insiders" and "outsiders" and this may have influenced the FGDs and the interpretations. However, the data was interpreted by the first author and then re- analysed and interpreted and discussed in the research group until agreement was reached. Initial analysis may have been biased because of this insider knowledge. However, the other members of the project do not have insider status, which worked to broaden the interpretations.

Conclusion and recommendations

PHNs using visualization methods have the potential to enhance health dialogues in schools. Visualization highlights the flexible and relational aspects of school nursing and the methods assist in relationship building, which is an important aspect of PHNs' work with pupils. Future research could focus on other players involved, such as teachers and pupils and explore the potential of visualization, especially digital technology. Providing training for other professionals in the use of visual methods would enhance their professional toolbox.

Author Contributions:

All authors have agreed on the final version and meet at least one of the following criteria (recommended by the ICMJE*):

1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;

2) drafting the article or revising it critically for important intellectual content.

* http://www.icmje.org/recommendations/

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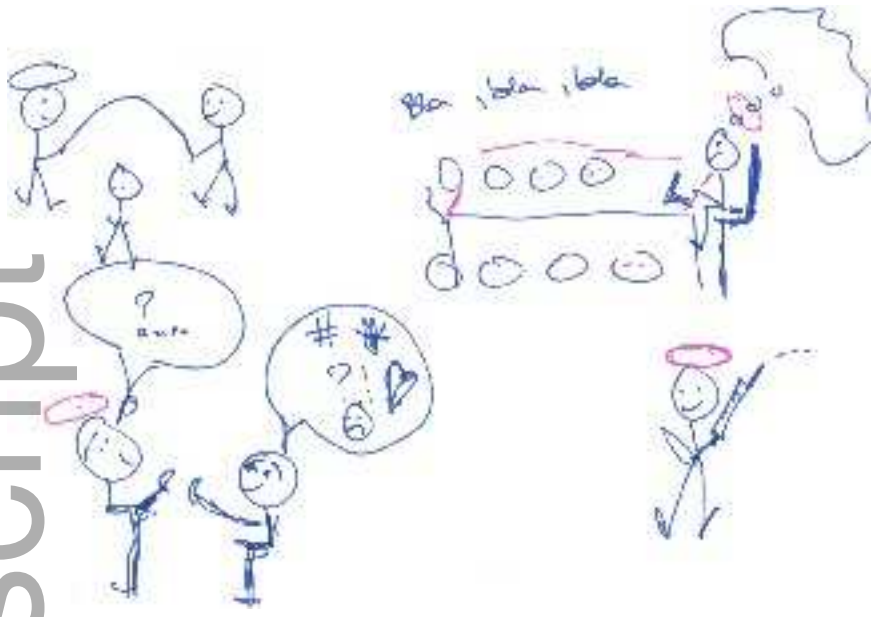
Table 1 Characteristics of focus groups and the participants.

Focus group (in date order)	No. of attendees	Experience range in years
1	5	0.4 to 9
2	5	0.6 to 34
3	11	1 to 21
4	6	2 to 17
5	4	8 to 17
Total	**31**	



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