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Participatory visual research with subsistence farmers in Papua New Guinea

Katja Mikhailovich[*], Barbara Pamphilon, and Barbara Chambers

This article discusses the trial of visual research methods in a socio-economic research and development project with women subsistence farmers and their families in two regions of Papua New Guinea (PNG). It reports on the benefits and challenges of three visual research methods (drawing, participatory photography, and picture elicitation) to explore the agricultural practice of women subsistence farmers and their families. The paper discusses the potential of these methods for enhancing community engagement, reducing the power imbalance between researchers and participants, and promoting dialogue and reflection to better understand the needs and practices of subsistence farmers.

Cet article traite de l'essai de méthodes de recherches visuelles dans le cadre d'un projet de recherche et développement socio-économiques avec des agricultrices de subsistance et leurs familles respectives dans deux régions de Papouasie-Nouvelle-Guinée (PNG). Il présente les avantages et les difficultés de trois méthodes visuelles de recherches (dessin, photographie participative et photo-élicitation) pour examiner les pratiques agricoles des agricultrices de subsistance et de leurs familles respectives. Cet article traite du potentiel de ces méthodes pour améliorer la mobilisation communautaire, réduire le déséquilibre des pouvoirs entre chercheurs et participants et promouvoir un dialogue et une réflexion pour mieux comprendre les besoins et les pratiques des agricultrices.

El presente artículo examina el ensayo de métodos de investigación visuales en el marco de un proyecto de investigación socioeconómico y de desarrollo en el que participaron mujeres campesinas de subsistencia, habitantes de dos regiones de Papúa, Nueva Guinea (PNG) conjuntamente con sus familias. El estudio constata los beneficios y los retos vinculados a tres métodos de investigación visuales —dibujo, fotografía participativa y obtención de imágenes—, utilizados para indagar sobre la práctica agrícola realizada por dichas mujeres y sus familias. El artículo analiza el potencial que tienen estos métodos para mejorar la participación comunitaria, reducir el desequilibrio de poder entre investigadores y participantes, así como para promover el diálogo y la reflexión orientados a comprender las necesidades y las prácticas de las campesinas de subsistencia.

Keywords: Environment (built and natural) – Agriculture; Gender and diversity – Youth; Methods; Civil society – Participation

Introduction

This article discusses the trial of three visual participatory methods (drawing, participatory photography, and picture elicitation) utilised within a four-year socio-economic research and development project that commenced in 2012.[1] The project was designed to examine, develop, and facilitate ways to build the business and agricultural skills and knowledge of women subsistence

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food crop producers across three geographically diverse regions of PNG (Western Highlands, Central Provence, and East New Britain).

PNG is a socially complex, rapidly changing developing country with approximately 7.2 million people and more than 800 distinct language groups each with strong culture and traditions. The country can be described as a dual economy, with a prosperous formal sector (largely mining) and an informal sector dominated by subsistence activities in which 85% of the population participate. Despite the booming resource economy, rural poverty continues to be a significant issue, with an estimated 38% of the population living under the poverty line (UNDP 2014). The country has poor infrastructure, limited health and education services, and ongoing problems with security and safety.

Investment in information technologies has been slow, with most development focused on telecommunications. Mobile phone user rates are increasing but few have internet-enabled phones. Mainstream mass media penetration is primarily restricted to a small number of urban centres. In rural areas people predominantly communicate by word of mouth, through community and church activities, as well as through traditional ceremonies and storytelling. Unlike developed countries where communities are bombarded with an array of images from television, film, advertising, news images, and have easy access to print and digital media, there is a noticeable absence of such media in rural PNG. In our research communities, the only visual materials were educational posters displayed in community or health centres. Nonetheless, PNG maintains its rich traditional culture of singing, drama, dance, and visual arts such as painting, weaving, and carving.

As the participants in our project were subsistence farmers, who had little or no access to contemporary visual media, we did not know how individuals or groups would respond to visual research formats or have a sense of the visual literacy within their communities (Marion and Crowder 2013), that is the ability to interpret and/or generate images for communicating ideas and concepts (Stokes 2002, 10). However, we did know that adult literacy rates in PNG are among the lowest in the Pacific region, with only 57% of women reporting they could read and write, compared to 69% of men, and urban populations being 30% more likely to report being literate than those living in rural areas. Low literacy rates have been identified as a factor that marginalises women from agricultural extension activities in PNG (Cahn and Liu 2008) and hence was the driving factor that prompted the use of visual research methods.

We felt that visual materials designed for low literacy groups would enhance our ability to engage and include those with low literacy in research and development activities. While there is a long tradition of agricultural extension training in PNG, much of this form of farmer education has primarily benefited men and has excluded women whose literacy, low education, family responsibilities, and daily work preclude participation in this form of farmer learning (Pamphilon, Mikhailovich, and Chambers 2014). In PNG it can be difficult to actively involve women in community processes without the participation of men. Vaughan (2011) noted that this is particularly so for young women who may be sidelined by men as well as their elders.

The research was underpinned by principles of asset-based community development (Green and Haines 2012) and appreciative inquiry (Cooperrider, Whitney, and Stavros 2003) which share a philosophy that recognises local communities as resilient and resourceful and aims to work collaboratively to identify and build on the assets in a community. In order to gain important contextual information about the communities and their farming practices, during the first 12 months of the project we engaged farmers in a range of participatory rural appraisal and social analysis activities using a small-scale livelihood survey (329 women) and community workshops (197 women, 86 men). During the second and third years of the project we sought to trial a range of visual methods in our research to foster the engagement of women and youth, particularly those with low literacy, and to promote dialogue and reflection between researchers and participants.

We also felt that working with visual media as a representational system could assist communication, particularly when working across different languages (see Hall 1997; Sturken and Cartwright 2001; Pink 2007).

Visual methods in development contexts

Visual methods such as mapping, diagrams, timelines and charts have been utilised in development contexts for many years as part of participatory rural appraisal and participatory action research. More recently a broader range of visual methods have emerged in which participants are asked by the researcher to produce photographs, video, drawings, or other types of visual images as research data, as well as actively engaging in the interpretation of those images (Guillemin and Drew 2010). There are now many examples of such visual methods in social research as well as in the development context (Gervais and Rivard 2013; Marion and Crowder 2013).

An extensive literature review on the use of visual methods in qualitative research by Pain (2012) found two instrumental reasons for using visual methods in qualitative research:

- *To enhance data collection or presentation*: for example, through rapport-building, facilitating communication and the expression of tacit knowledge, improving the researcher's access to difficult-to-reach places or groups, fostering engagement, and promoting reflection.
- *To mediate the relationship between researcher and participant*: for example, through enabling participant voices to be heard, valuing participants' experience and expertise in their own field, reducing the power imbalance between researcher and participants, empowering participants, working collaboratively with participants, and effecting change in individuals or communities.

This article explores three visual methods of drawing, photography, and picture elicitation that were trialled with farming families between 2013 and 2014. Purposive sampling was used for recruitment to all workshops and was made by invitation by local, in-country researchers and community leaders in each village. Workshops were open to all local farmers, although parameters were set on maximum numbers within workshops with requirements of at least 60% women and a range of ages, hence limiting sample bias.

Drawing in development research

Much of the research that uses drawing as a visual method has focused on children and less frequently with adults, particularly in the development context. We knew from other visual researchers (Guillemin and Drew 2010; Theron et al. 2011) that drawing can be an effective tool in working with adults, particularly when cross-cultural or language differences between researchers and participants exist. In the agricultural context, drawing techniques have been usefully applied in resource, labour, and gender mapping activities (Geilfus 2008). Mapping has also been identified as a meaningful way to identify the local and place-specific geographies of communities and for exploring the terrain between individual experience and social reality (Futch and Fine 2014, 42). Carvey, Arcury, and Quandt (2007) note the process of mapping has the potential to contribute to profound shifts in thought because the activity simultaneously draws on and challenges deep-seated experiential knowledge. At a practical level, farm mapping can be useful for planning of land use, developing farm budgets, and management of environmental issues, and hence was of particular importance to our work.
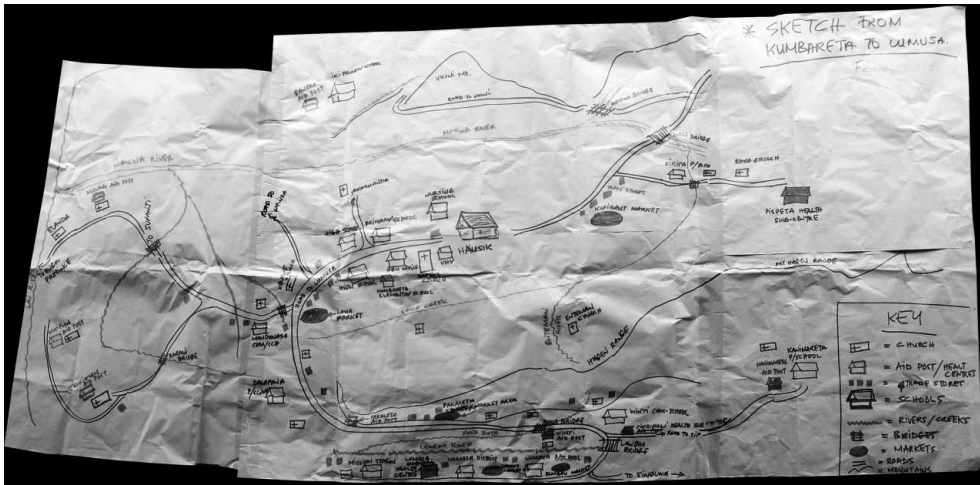
Figure 1.   Village map of Kumbareta (Western Highlands, PNG).

Our initial mapping activity occurred in community workshops with adults. This involved village-level asset mapping that formed part of the baseline data for our contextual analysis with participating villagers. Figure 1 shows a village map in the Western Highlands. In all the villages, it was men who were chosen to draw the maps. These maps explained the village as a place, its community assets and village boundaries. Mapping also provided a focus for discussing how things change over time, for example, in one community a coffee processing plant was being established, the first secondary school was being built, and the road to the market was being sealed. These types of changes impact significantly on small under-resourced rural communities. As this activity occurred during the early months of our involvement with communities we were guided by community leaders about who should be involved in the creation of maps. In hindsight we may have learnt more by suggesting that both women and men were involved in mapping, as significant features of the spatial environment and differences in women's social mobility may have become apparent.

Mapping with young farmers

In our youth workshops, young farmers were invited to draw a map or plan of their own garden, a drawing activity intended to elicit information about the physical and spatial features of young people's farm gardens (adapted from Geilfus 2008).[2] Initially we held concerns that young people might find the activity awkward and somewhat "school-like". However, participants took considerable time and care in producing their drawings. The representations of their gardens contained details about their agricultural activities, farm assets, and family relations. Participants were invited to mark the farming activities from which they gained most satisfaction/success and those that they found the most difficult. Valuable cultural insights emerged, for example, many young people highly valued the plants that had traditional uses and others noted gender role changes in which young women now often had to dig large plots of land because of a lack of male family labour. Through this activity young people identified issues of land pressure as family farms are being continually divided to accommodate the next generation of children and their families. As land is traditionally owned and therefore limited, such land pressure impacts upon family relationships, youth opportunities, and agricultural decision-making.

Figure 2.   Young woman from the village of Kwinkya (Western Highlands, PNG) displaying a garden plan.

When the farm plans were displayed to enable group review and comments, young people took great interest in the range of garden diagrams but offered few comments. Figure 2 shows a young woman from the Western Highlands Baiyer Valley region displaying her farm plan. Initially we had not recognised that young people were not accustomed or practised in speaking at public forums or in sharing and discussing their work in front of a large group. Therefore in later sites, we moved to working in small groups which proved much more conducive to dialogue, particularly between family members who actively discussed what should be included in the diagram. Researchers then took the role of summarising and drawing common features in the garden plans and discussed the possibilities of using these farm maps for planning purposes in the future.

As with Carvey, Arcury, and Quandt (2007), we found that drawing farm maps provided opportunities for reflection and some dialogue on various aspects of young people's farming activity. Even when the dialogue was not extensive, the images themselves provided useful information about land use, livestock, crops, and family composition. Some of this information had been collected previously from adults, but farm mapping gave young people the opportunity to begin to have a voice in the project. Farm maps were particularly informative about household composition. Our initial small-scale livelihood survey asked about households, eliciting simple demographic information; however, through this drawing activity, visual representations allowed us to gain more complex information about the roles of males, females, young people, elderly adults, and children.

The activity was later repeated with a group of adult farmers who drew both existing farm maps and developed diagrams reflecting a five-year plan for their farms, identifying barriers

and resources needed to accomplish their plans. However, in both youth and adult workshops, the process was not without difficulty. As most participants preferred to speak in their local language (rather than the national languages of Tok Pisin or English) there were limited opportunities for interactive discussions of the drawings. However, the drawings themselves acted as a vehicle for communication of concepts, issues, and ideas in the face of language barriers.

Participatory photography in development research

Photography has a long history in social research. Documentary photography in colonial projects of the late nineteenth and early twentieth century were used as an "objective" recording device where the photograph was seen as a reproduction of reality, yielding unbiased documentary evidence (Pink 2007). By the 1970s there was a recognition that the meaning of an image is constructed by the maker and the viewer, both of whom carry social positions, interests, and relations of power. Participatory photography in a variety of forms (photo elicitation, photo novella, photovoice) emerged in the 1990s reflecting the turn from documentary to more reflexive approaches. Participatory photography emphasises the active role of participants in the generation and interpretation of photos and understands it as a research method that hands over the cameras to people for the purpose of eliciting information to inform research and stimulate self-reflection and interactions with others.

In our work with youth, we used an adapted form of photovoice (Wang and Burris 1997). Photovoice draws on Freire's (1970) philosophy of problem-posing education, by utilising photographs and drawings to foster critical analysis of social problems and collective action. It is based on the idea that photographs can enable and facilitate discussion, and can assist people to explore solutions to challenges they may be facing. Typically photovoice involves working collaboratively with small groups over a considerable period of time, from weeks to months, as this extended engagement contributes to building trust and group familiarity. When we first considered using photography in our research, we knew we would be limited by time but made the decision to trial an adapted form of photovoice and evaluate the outcomes.

Participatory photography with young farmers

Our work used a form of rapid photovoice to make it practical and effective for young farmers to participate despite the financial and time barriers that significantly constrain participants and researchers in development contexts (Gervais and Rivard 2013). We planned to undertake the rapid photovoice process over two rather than three days but due to a range of unexpected logistical and security issues we found we had only one day with youth in each village .We were concerned that such a short period of time would compromise the process significantly but were faced with the situation of arriving in a community where young farmers were eager and ready to participate. Hence, we decided to continue, and we share our reflections here to demonstrate what can be gained from participatory photography even when conditions are not ideal. We had two objectives: to explore young people's strengths, and to identify the challenges or problems they encounter as young farmers.

Arrangements had been made to recruit 8–16 young people aged between 18 and 35 from each village. However, such was the enthusiasm that we had up to 30 young people in some workshops, with 77 young people participating across four villages. We had eight digital cameras and one portable battery-operated printer. We had envisaged that young people would work in pairs sharing a camera, however due to the large numbers we changed our strategy to working in small groups. Young people were invited to take the cameras away in groups for up to an hour and take a range of photos in response to the two focus prompts: take a picture of something they were proud

Figure 3.   Photovoice participants learning about cameras in Kumbareta (Western Highlands, PNG).

of or do really well in their gardens; and second, take a picture of something they needed to learn more about, or that was a problem or challenge for them in their gardens. In line with Freirian philosophy and appreciative inquiry, the first prompt aimed to draw on young people's strengths and affirm what they do well as young growers. The second was designed to identify challenges

Figure 4.   Photovoice participant displaying produce grown in Kwinkya (Western Highlands, PNG).

and learning needs that could inform future training in our project. Due to limited printer capacity, each group was asked to print only one photo in response to each question, requiring them to negotiate as a group over the choice of image.

Each group then took their printed photo to a workshop facilitator to record an explanation of the photograph and why they had chosen the image. When each group had explained their photo they were shown how to mount their image for display, viewing, and discussion. Young people were invited to explain their photo to the larger group but again only a few were able to speak about their photo. Again language was barrier to in-depth dialogue as no local language speakers were available as facilitators in some villages, but the images themselves contained useful information for researchers. Figure 3 shows participants from the Western Highlands learning about cameras and the production of images, and Figure 4 shows an example of an image of a participant and the produce they had grown.

As we were interested in which images were produced, what they showed, and the meanings made by the image makers and the audience, we summarised emerging categories or themes back to the whole group for validation. These themes provided information on regional crops, livestock, and produce valued for income, plants that had medicinal value, food crops that were staples for families, plants that were valued for beauty and ceremony, and crops that were important in cultural practices such as bride price or wantok obligations.[3] The process also effectively identified a range of problems and challenges faced by young farmers and indicated a need for agricultural training in areas such as pest control, nursery management, and animal husbandry.

While we were unable to engage in deep dialogue, the visual images mediated a form of communication that enabled us to gain an understanding of those things that young people perceived they were doing successfully and some of the challenges they faced in their farming practice. The data produced through photographs contributed to quality in the form of triangulation of data from other sources (survey and participatory workshops with adults) and identification of training needs which were subsequently addressed by local agencies. The pride of the young people in their photography skills and their farming work was an important complementary outcome.

Picture elicitation

Picture elicitation has been extensively used in agricultural development projects (Mitchell 2008). It involves showing an individual or group a photo or picture and exploring meaning through interviews or other group processes. Picture elicitation centres on gaining the viewer's interpretation or understanding of the picture and reflecting on the meanings or learning that can be made. We utilised a set of illustrated flash cards produced by Carnegie et al. (2012) that are part of a resource kit of materials that help to understand and measure change in economic activities and relations between women and men in Melanesian communities. Because the images are illustrations rather than photographs they can represent a wide range of families and individuals in the PNG and Melanesian context.

Traditionally, PNG women farmers produce food crops while men work on commodity crops (coffee, cocoa, oil palm, coconut). Even though women produce goods, men may still control the resultant family income (Cahn and Liu 2008). Therefore for this activity we selected six cards about decision-making and managing money in the family. Participants (25–30 men and women per workshop) were divided into small groups by gender, enabling men and women to discuss the image on the card separately and interpret what was happening in the picture. Each group was provided with a different card and asked to consider three questions:

Figure 5.   Young woman from the East New Britain sharing story produced through picture elicitation.

- What is happening on this card?
- How common and/or acceptable is this behaviour in the community?
- What are the impacts on men and women in the community?

After a full group discussion, a member of each group reported on the group's conclusions. Figure 5 shows a participant sharing a story produced by their group. The stories were rich in detail, drawing on the experiences of group members without attributing the story to any individual. In some groups a number of alternative stories were constructed. After all the stories were told, other groups had the opportunity to comment on both stories and impacts in the community. Unlike the two previously discussed visual methods the picture elicitation prompted vigorous and deep discussion about the gendered dynamics of families. Participants readily interpreted, negotiated, and made meaning of the images.

Callow (2012) argues that pictures and photographs can have an immediate emotional power and affect on the viewer. We observed. Participants engaging deeply with the images, drawing on their own individual experiences and leading to collective group reflection. As the images on the flash cards represented different scenarios for possible decision-making processes, men and women were able to step back and reflect on family practices in their community. A telling finding was that by talking about the card rather than their own practices, men were willing to publicly name common negative practices of controlling money such as stealing from a wife's purse or keeping money to themselves. Women talked about the need to hide money from men so they would have enough for the family. The laughter of both men and women indicated that the cards were a non-threatening way to raise sensitive issues.

Reflections on visual methods in a research and development context

Visual methods were initially included in this research as they held the promise of enhancing engagement of participants with low literacy in a cross-cultural context. We hoped that the methods would foster dialogue and reflection. Further to this, the literature indicated that visual methods have the potential to reduce power imbalances between researchers and participants, empower participants, and effect change in individuals or communities (Pain 2012). Our research using three different visual methods supports such assertions, notwithstanding variations in the degrees of effect and the limitations associated with shortage of time.

The techniques involving drawing and photography had a certain novelty factor that created interest and involvement among youth and adults in each community. Engaging with technology and learning new skills offered opportunities for participants and researchers to collaborate in practical ways that enhanced the participant researcher relationship. However, we also recognised other factors not directly related to the methods that had a bearing on participation and the researcher–participant relationship. Our findings align with those of Vaughan (2011) in her work with PNG youth, in particular the role of visual methodologies to bridge preconceived perceptions of researchers held by communities and power relations between participants and researchers.

From our first engagement with communities we reflected on the researcher–participant relationship and the dialectic between how we positioned ourselves as participatory researchers and how we saw ourselves positioned by community members. We experienced being positioned across a range of social identities that included being part of the ongoing research agenda of a former colonising nation (Vaughan 2011), as "modern missionaries" who brought outsider knowledge, and as bearers of resources and funds that could be locally leveraged. We believe that the use of participatory visual approaches demonstrated our commitment to working collaboratively, valuing local knowledge and ensuring that communities understood their own data, all key steps in building reciprocal relationships.

While participatory and visual approaches encouraged people to find their own voice and tell their own stories, we observed that there were always dynamics of power impacting upon communication and collaboration. Some of these power relations stem from the cultural, social, and economic differences between researchers and participants and some from the differences that exist between the various actors and groups within each of the communities. Some actors and groups are more influential and yield more power than others, such as adults in relation to youth, men in relation to women, church or community leaders or those with more education and literacy to those without education. These power relationships were apparent in many activities and at times influenced dialogue and participation, sometimes in positive and sometimes in detrimental ways. We observed that the use of visual methods acted to disrupt or unsettle some of these patterns of social and power relations. When participants were learning about the cameras, everyone worked together, old and young, men and women, community leaders and those with very little education. They all began from the same position as technology beginners. The room was filled with talk as people assisted each other in their learning, free of the cultural constraints evident in groups or public meetings we had experienced elsewhere.

However, it is still difficult to claim that participants were empowered through these visual processes. There are many ways of understanding empowerment in the development context, but one tangible notion is empowerment associated with the development of self-efficacy, confidence, and competence that often accompanies the learning of new skills (Vaughan 2011). Certainly the skills gained in mastering photography provided participants with confidence in negotiating new technology, while the drawing activities presented an opportunity to develop skills in farm planning through representational diagrams.

There are a number of ways in which visual methods fosters dialogue: dialogue among participants; dialogue between participant and researcher; dialogue between participants; and dialogue with self (Bananuka and John 2015). We found that the dialogue that emerged between participants and between researchers and participants was more limited than we anticipated in the drawing and photography processes. We attribute this to language barriers, cultural practices relating to the status of youth, and limitations of time allowed for the implementation of the processes. We are however confident that the processes facilitated dialogue between participants and dialogue with the self or self-reflection. This reflection and dialogue with self was most evident in response to the picture elicitation activity that required both self-reflection as well as a collective analysis of community norms and practices around gender equity in decision-making, opening up possibilities for people to explore new ways of acting. Illustrating this was a pastor who stood and spoke in the group, saying:

> "These are things that happen in our community. We have had no way of talking about them together. In our community men and women do not talk together or make decisions together. These pictures help us talk so men and women can work together."

Such self-reflection and community dialogue can be linked to Freire's (1970) concept of conscientisation where people develop an understanding of the context of their lives and through this become open to possibilities of something new. Perhaps some of our visual work invited participants to envisage their future in different ways.

Yang (2013) argues that the creative image production process itself and the conceptualisation of ideas that emerge from this process can be conducive to both adult learning and agency. The visual processes used in our research provided the space for reflection and learning about the gendered relations of family life but may not have not necessarily have enhanced agency. Agency, a willingness and capacity to act and have a consciousness of one's own subjectivity, requires intentionality to carry out action. The visual processes we used did not include collaboratively exploring the dimension of collective action. Yang (2013) suggests that the capacity to act is dependent upon individuals or groups having the freedom to act, the capacities needed to act, and environments that are supportive of people acting rather than constraining that action. Women and young people in PNG face many social, cultural, and physical constraints which impact on their capacity to act.

Although visual methods hold many potential benefits, researchers should also anticipate unintended consequences and recognise how these methods are mediated by the context. In PNG it is particularly apparent that young people are typically silenced or muted in public spheres (Vaughan 2011). There are many informal barriers – such as cultural style, vocabulary, or cultural protocol – that can act to stifle the voice of women and young people in public forums, particularly when engaging with powerful others, including well-meaning, privileged researchers. Vaughan found that young people in PNG, especially young women, consequently find it difficult to articulate their views or tell their stories (Vaughan 2011). We also found that in our activities young men were more prominent in taking charge of cameras, in the number of images they produced, and in offering to explain their images. Women were more likely to speak up when in an all-female group, but this proved difficult to facilitate. As Vaughan notes there will be occasions that can develop a new shared understanding through dialogue, however the achievement of dialogue could never be assumed and can prove to be "*quite a fragile thing*" (Vaughan 2011, 166).

We have found that research in the PNG context presents constant logistical challenges and requires flexibility and a respect of community needs. Other community responsibilities and the daily burden of agricultural activities meant time was limited for the participants. This reduced the opportunities for dialogue but still enabled us to gain useful information from the farmers who actively engaged and participated in the research. An optimal learning environment

provides sufficient time for both process and reflection. We felt we needed more time to meet and talk, to reflect and engage in various iterations of taking photographs and making drawings if we were to gain greater depth in dialogue. The use of visual media did however act as a vehicle for communication and created a different social space that facilitated reflection among participants. Such reflection is a key element for learning.

Conclusion

From the experience in this study we have identified various benefits and challenges to using visual methods in rural agricultural development research. We faced logistical challenges in implementing the methods and found that adequate time is required to maximise the benefits of dialogue and reflection that lead to learning for both participants and researchers through the use of visual methods. Despite time limitations, we found that the use of visual media facilitated opportunities for communication with participants with low literacy and in a cross-cultural context in which language differences are frequent.

The benefits for researchers and participants are quite different. As researchers we were able to successfully engage a range of farmers, gather useful research data, and continue to deepen our understanding of life for farmers. Young farmers had the opportunity to learn new skills, perhaps fostering a sense of confidence and self-efficacy, and to engage in creative production processes that facilitated reflection and provided them with a means to express what mattered to them in their agricultural practice. Whether the act of image-making is empowering in itself is not clear from our work but it did offer new ways of working together using participatory research processes, sharing ideas and knowledge, and contributing to building trusting relationships. The process of choosing things to photograph or draw meant that participants had the opportunity to frame and potentially reframe commonplace subjects. Such reframing interrupts the taken-for-granted, and as such aligns with the starting point of a Freirian process of conscientisation. Visual methodologies take seriously participants as knowers (Guillemin and Drew 2010, 177–178) and can be empowering for those whose voices have previously been muted.

Disclosure statement

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Barbara Pamphilon has over 20 years' experience in the tertiary sector where she has taught community development, programme planning and evaluation, and research methodology. She is the Director of the Australian Institute for Sustainable Communities at the University of Canberra, Australia. She has extensive experience in international education and community development research in Asia and the Pacific. Prior to her academic career Professor Pamphilon was a health educator working in HIV/AIDS, disability, and sexuality and women's support services.

Barbara Chambers is an Adjunct Professor International Education and Development in the Faculty of Education, Science, Technology and Mathematics at the University of Canberra. She is a member of the Australian Institute for Sustainable Communities and has extensive experience in working in PNG, Cambodia, Vietnam, and Pakistan, with particular experience in international agricultural research.

Notes

1. The research was conducted by the University of Canberra, Australia in partnership with the Pacific Adventist University PNG (PAU), Baptist Union PNG (BU), and the National Agricultural Research Institute of PNG (NARI) between 2012 and 2016.
2. We use the terms "garden" (the most commonly used PNG term) and "farm" (the most commonly used term internationally) inter-changeably referring to the land on which food crops are grown. In PNG, these areas of land are often but not always customary land, and these subsistence farms vary in size from .25 of a hectare to up to 10 hectares.
3. A widely used Tok Pisin term that means "one talk". The wantok system can be loosely defined as the system of relationships (or set of obligations) between individuals characterised by some or all of the following: (1) common language; (2) common kinship group; (3) common geographical area of origin; and (4) common social associations or religious groups (Asian Development Bank 2012).

References

Asian Development Bank. 2012. "Papua New Guinea: Critical Development Constraints." Mandaluyong City, Philippines: Asian Development Bank. Accessed June 1, 2015. www.adb.org/sites/default/files/pub/2012/png-critical-development-constraints.pdf.

Bananuka, T., and V. M. John. 2015. "Picturing Community Development Work in Uganda: Fostering Dialogue Through Photovoice." *Community Development Journal* 50 (2): 196–212. doi:10.1093/cdj/bsu036

Cahn, M., and M. Liu. 2008. "Women and Rural Livelihood Training: A Case Study from Papua New Guinea." *Gender and Development* 16 (1): 133–146. doi:10.1080/13552070701876342

Callow, J. 2012. "The Rules of Visual Engagement: Images as Tools for Learning." *Screen Education* 65: 72–79.

Carnegie, M., C. Rowland, K. Gibson, K. McKinnon, J. Crawford, and C. Slatter. 2012. *Monitoring Gender and Economy in Melanesian Communities*. Resources for NGOs, government and researchers on Melanesia. University of Western Sydney, Macquarie University, and International Women's Development Agency.

Carvey, A. J., T. A. Arcury, and S. A. Quandt. 2007. "Mapping as a Means of Farmworker Education and Empowerment." *Journal of Geography* 99 (6): 229–237. doi:10.1080/00221340008978973

Cooperrider, D., D. Whitney, and J. M. Stavros. 2003. *Appreciative Inquiry Handbook*. Bedford Heights: Lakeshore.

Freire, P. 1970. *Pedagogy of the Oppressed*. Middlesex: Penguin.

Futch, A. V., and M. Fine. 2014. "Mapping as a Method: History and Theoretical Commitments." *Qualitative Research in Psychology* 11 (1): 42–59. doi: 0.1080/14780887.2012719070

Geilfus, F. 2008. *80 Tools for Participatory Development: Appraisal, Planning, Follow-up and Evaluation*. San Jose: Inter-American Institute for Cooperation on Agriculture.

Gervais, M., and L. Rivard. 2013. "'SMART' photovoice Agricultural Consultation: Increasing Rwandan Women Farmers' Active Participation in Development." *Development in Practice* 23 (4): 496–510. doi:10.1080/09614524.2013.790942

Green, P. G., and A. Haines. 2012. *Asset Building and Community Development*. Los Angeles: Sage.

Guillemin, M., and S. Drew. 2010. "Questions of Process in Participant-Generated Visual Methodologies." *Visual Studies* 25 (2): 175–188. doi:10.1080/1472586X.2010.502676

Hall, S. 1997. *Representation: Cultural Representations and Signifying Practices*. London: Sage.

Marion, J. S., and J. W. Crowder. 2013. *Visual Research: A Concise Introduction to Thinking Visually*. London: Bloomsbury.

Mitchell, C. 2008. "Getting the Picture and Changing the Picture: Visual Methodologies and Educational Research in South Africa." *South African Journal of Education* 28 (4): 365–383.

Pain, H. 2012. "A Literature Review to Evaluate the Choice and Use of Visual Methods." *International Journal of Qualitative Methods* 11 (4): 3003–3319.

Pamphilon, B., K. Mikhailovich, and B. Chambers. 2014. "Training by Papua New Guinea women for Papua New Guinea Women: Lessons from the Development of a Co-constructed Course for Women Smallholder Farmers." *International Journal of Lifelong Education* 33 (6): 721–736. http://dx.doi.org/10.1080/02601370.2014.952358.

Pink, S. A. 2007. *Doing Visual Ethnography*. London: Sage.

Stokes, S. 2002. "Visual Literacy in Teaching and Learning: A Literature Perspective." *Journal for the Integration of Technology in Education* 1 (1): 10–19.

Sturken, M., and L. Cartwright. 2001. *Practices of Looking: An Introduction to Visual Culture*. Oxford: Oxford University Press.

Theron, L., C. Mitchell, A. Smith, and J. Stuart. 2013. Picturing Research: Drawing as visual methodology. Sense: Rotterdam.

UNDP (United Nations Development Program). 2014. "Papua New Guinea National Human Development report." Accessed June 1, 2015. http://hdr.undp.org/en/content/papua-new-guinea-national-human-development-report-2014

Vaughan, C. M. 2011. "A Picture of Health: Participation, Photovoice and Preventing HIV among Papua New Guinean Youth." PhD diss., London School of Economics and Political Science.

Wang, C., and M. A. Burris. 1997. "Photovoice: Concept, Methodology, and Use for Participatory Needs Assessment." *Health Education and Behavior* 24 (3): 369–387. doi: 10.1177/109019819702400309

Yang, K. 2013. "Participatory Photography: Can it Help Adult Learners Develop Agency?" *International Journal of Lifelong Education* 33 (2): 233–249. doi:10.1080/02601370.2013.852143