

More than words: Using visual graphics for community-based health research

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ABSTRACT

With increased attention to knowledge translation and community engagement in the applied health research field, many researchers aim to find effective ways of engaging health policy and decision makers and community stakeholders. While visual graphics such as graphs, charts, figures and photographs are common in scientific research dissemination, they are less common as a communication tool in research. In this commentary, I illustrate how and why visual graphics were created and used to facilitate dialogue and communication throughout all phases of a community-based health research study with a rural Indigenous community, advancing community engagement and knowledge utilization of a research study. I suggest that it is essential that researchers consider the use of visual graphics to accurately communicate and translate important health research concepts and content in accessible forms for diverse research stakeholders and target audiences.

KEY WORDS: Knowledge translation; communication; principle-based ethics; art

La traduction du résumé se trouve à la fin de l'article.

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There is increased attention to knowledge translation (KT) and community engagement in the applied health research field for which visual graphics (hereafter “graphics”) can be highly effective at all stages of research and influential when engaging diverse stakeholders.^{1,2} The language of KT has been adopted, promoted and prioritized by government funding agencies and research institutions as a way of making research more visible, relevant and valuable.^{3–5} Despite the growing support for diverse KT strategies and activities, there is not a lot of emphasis or training on the foundational *how to's* for researchers on developing or using visual materials. Graphics such as graphs, charts, figures and photographs are commonly used in dissemination materials, however they are less frequently used as a communication tool in research. I argue that graphics are well positioned to meaningfully engage diverse stakeholders and improve communication throughout all research phases, regardless of research methods and methodologies.

A systematic review on the use of diagrams in data collection found that only half of the studies described details of how research participants engaged with diagrams.⁶ While verbal or written techniques are necessary, writing and speaking combined with graphics is arguably better.⁷ This commentary describes examples from a study to illustrate how graphics were used as a communication tool to improve transparency and engagement with diverse stakeholders.

A CASE STUDY

A study in eastern Canada mapped and examined the organization of institutional supports and services for children diagnosed with fetal alcohol spectrum disorder (FASD). Caregivers of children with an FASD diagnosis were the first informants to be interviewed; front-line workers directly involved with the child with FASD in

health, child welfare, education, corrections, social services and community organizations were the second group of informants; decision and policy makers were interviewed next; and finally, text-based documents that informed how institutional work was organized around an FASD diagnosis were examined. This study used institutional ethnography to document comprehensive and empirical evidence on institutional supports and systems connected to individuals living with FASD.

At the research development phase

In a meeting with community stakeholders about the idea of doing research on FASD supports and services, key research questions and potential research designs were identified. At this meeting, a drawing – similar to a life map – outlined the researcher’s background. This illustration clarified the researcher’s non-Indigenous background; educational and experiential milestones; context for the researcher’s interest in the research topic; and, connections and resources that would benefit the research and the community. The hand-drawn sketch purposefully included details about which community partners may have been

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uncomfortable asking but would want to know in assessing the compatibility of the researcher with community needs and priorities. The impetus for using a hand-drawn sketch (versus a computer-illustrated version) was to demonstrate the researcher's interest in a transparent relationship, without pretension. In addition, locating oneself when conducting research with Indigenous peoples is imperative and this sketch made the researcher's positionality explicit.

In addition to the researcher's biographical sketch, other graphics were used to illustrate a potential study design, research questions, timeline, researcher commitments, and potential community benefits. Figure 1 listed questions the study would seek to answer and the overall design of the study. The diagram was first shared with the community research advisory team and later with all research informants. Prior to the diagram's development, community stakeholders were primarily concerned with community benefits from the study and the amount of community resources needed to conduct the study. After the diagram was created, the same stakeholders offered to be more involved, make connections within the community, draw in other community members to be consulted throughout the

project, and suggest ways to strategically engage target audiences to champion recommendations from the study.

At the data collection phase

Research informants ranged from parents with low English literacy levels to government department directors and pediatricians. The diagram in Figure 1 was used to explain how their knowledge would inform the study, as part of the consent form process. Many research informants referred to the diagram when asking questions and making comments that affirmed their understanding of the study's aim and design.

Special considerations were made when developing graphics. For example, the researcher used concepts and language that readers were familiar with, considered how much information could comfortably be conveyed in a diagram, used colours that were easy on the eyes and translated well into grayscale images, used familiar software that allowed for immediate edits, and tested graphics on people outside of the study for constructive feedback. Graphic designers suggest that when selecting a genre for graphics (such as colour, style, font, formatting), one must think critically about what the selected genre may represent to the intended audience.^{8,9}

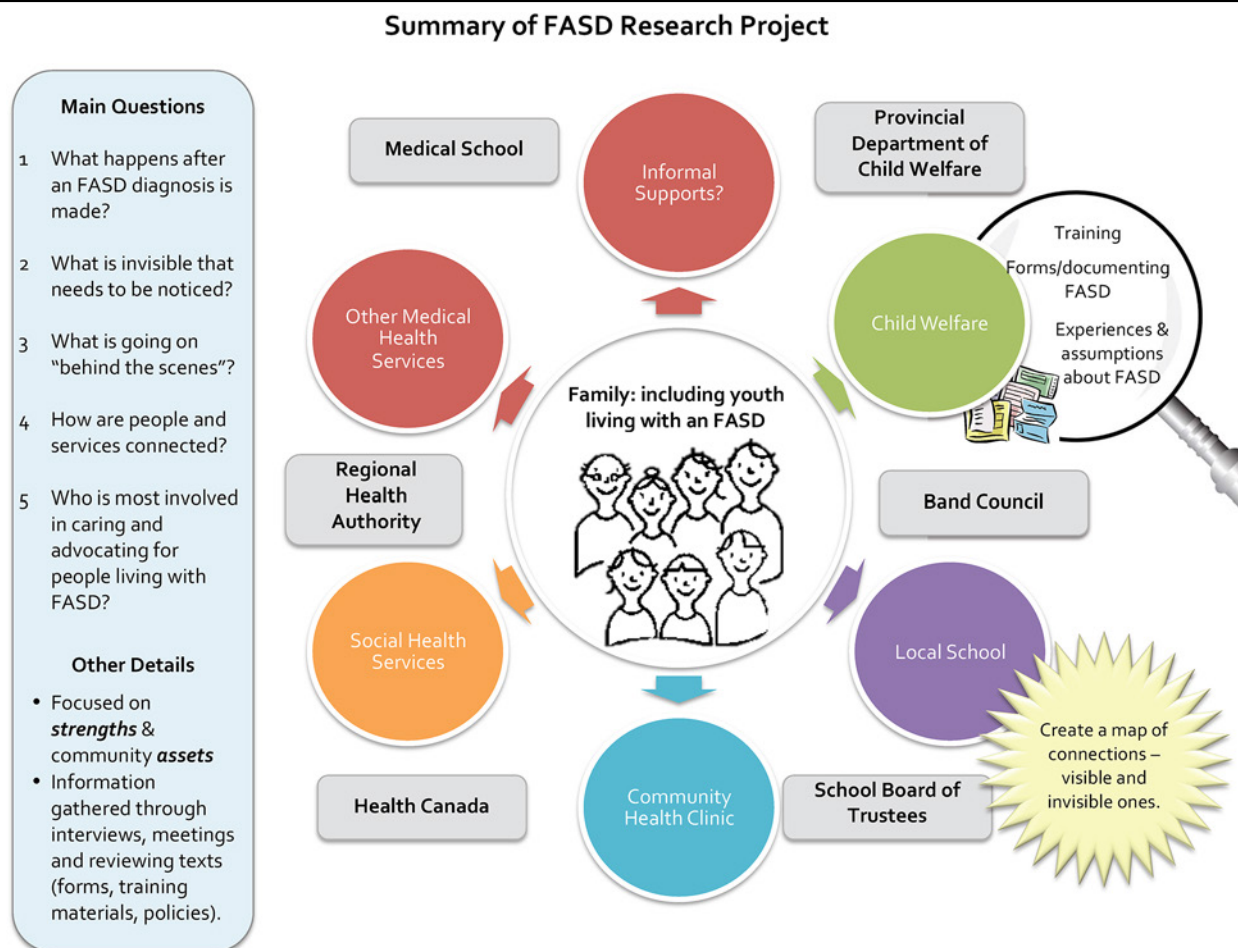


Figure 1. Conceptual description of the institutional ethnography study on FASD (fetal alcohol spectrum disorder) and main research questions. Note: Figure 1 has been slightly modified to remove information that would identify the community.

At the data analysis phase

At the data analysis stage, preliminary findings were shared and discussed with each research informant. Data analysis included 31 interview transcripts and 41 documents. Using an idea-mapping software, a map was created to draw links between people accessing supports/services and institutional employees and texts that guided the work of the employees (such as forms, assessments, and policy documents). The map was shared with research informants as a form of member checking and gathering additional information not shared in the initial interviews. Together, informants and the researcher added data and made amendments directly on the map, further discussing how work was organized. The map provided informants with a bird's eye view of institutions involved in the care of a child with FASD; the amount of work that was required of caregivers to navigate the system; the names of forms, assessments and policies that needed to be completed or followed; and the organization of institutional criteria for services and funding allocations.

The reasons for the decision to use idea-mapping software were multiple: a) it automatically colour-coded institutions, b) it offered professional-looking colour schemes and styles, and c) it could expand or collapse details for each institution. When informants reviewed the map, they were reminded of the study's scope and helped co-analyze the map, offered additional information that was missing, corrected the relevance of documents, commented on the volume of (other) institutional processes they were previously unaware of, and requested to see the final results when complete. One challenge that could not be overcome was showing temporal relations within and between institutions. Separate graphics were created to illustrate case-specific iterative and temporal processes. Oftentimes, the most challenging part of developing graphics was discerning how much information could fit in a single graphic and still be easy to navigate and understand.

At the dissemination phase

Research findings were translated into community presentations, reports and posters – all of which included graphics that required considerable amounts of time and energy to make the information concise, clear and accessible. One of the study's recommendations led to the creation of a community asset map (another graphic) that was later distributed to every household in the community. The community asset map was designed to be self-explanatory, easy to navigate, and practical. To accomplish this, we 1) identified the target audiences and intent of the map; 2) gathered all relevant information; 3) scanned and critiqued what others have done with similar types of information; 4) created a draft map and enlisted trusted colleagues to give candid feedback; and 5) consulted and hired a graphic designer to create the final version.

Creating a budget line for a graphic designer is important. A good graphic designer will take time to understand target audiences and condense complex information into accessible formats so as to not misrepresent or make epistemological assumptions about what counts as knowledge.¹⁰ For example, a common assumption is that numerical data are more compelling and important to include in research infographics than say, incorporating culturally meaningful imagery and contexts.

CONCLUSION

It is researchers' ethical responsibility to ensure that theories, conceptual frameworks and study designs are accessible to people involved and invested in their studies.^{11,12} Graphics can enhance communication between academic and non-academic stakeholders who do not share the same body of knowledge – levelling the playing field in ways that help facilitate informed dialogue.^{13,14} While the conceiving, creating and testing of graphics can be time consuming and cost more (if using a graphic designer) compared to writing text-based documents, most people will grasp, understand, retain and engage with graphic content faster than when reading text-only documents or only hearing verbal descriptions of a project.¹⁵ Researchers may be missing opportunities to improve communication tools that are further developed in other fields such as graphic design, marketing, and education. At the time of this study, there was a dearth of literature that highlighted the practicalities or importance of graphic and accessible language. I suggest more health researchers both use and publish how graphics were developed, used and evaluated.

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RÉSUMÉ

Avec l'attention croissante que l'on porte à l'application des connaissances et à la mobilisation communautaire dans le domaine de la recherche appliquée en santé, de nombreux chercheurs cherchent des moyens efficaces d'intéresser les responsables et les décideurs des politiques de santé et les acteurs communautaires. Bien que l'on utilise couramment des éléments graphiques de visualisation (graphes, diagrammes, figures et photographies) pour diffuser la recherche scientifique, on les utilise moins souvent comme outils de communication dans la recherche. Dans mon commentaire, j'explique comment et pourquoi des éléments graphiques de visualisation ont été créés et utilisés pour faciliter le dialogue et la

communication à toutes les étapes d'une étude de recherche en santé communautaire auprès d'une communauté rurale autochtone, ce qui a favorisé la mobilisation communautaire et l'utilisation des connaissances de l'étude. Je suggère qu'il est essentiel que les chercheurs songent à utiliser des éléments graphiques de visualisation pour communiquer avec précision, et pour appliquer d'importants concepts et contenus de recherche en santé sous des formes accessibles aux divers acteurs et aux publics cibles de la recherche.

MOTS CLÉS: application des connaissances; communication; éthique basée sur les principes; art