

The DEPICT model for participatory qualitative health promotion research analysis piloted in Canada, Zambia and South Africa

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SUMMARY

Health promotion researchers are increasingly conducting Community-Based Participatory Research in an effort to reduce health disparities. Despite efforts towards greater inclusion, research teams continue to regularly exclude diverse representation from data analysis efforts. The DEPICT model for collaborative qualitative analysis is a democratic approach to enhancing rigour through inclusion

of diverse stakeholders. It is broken down into six sequential steps. Strong leadership, coordination and facilitation skills are needed; however, the process is flexible enough to adapt to most environments and varying levels of expertise. Including diverse stakeholders on an analysis team can enrich data analysis and provide more nuanced understandings of complicated health problems.

Key words: qualitative research; collaborative; methods; community-based participatory research

Public health researchers interested in health promotion are increasingly conducting Community-Based Participatory Research in an effort to reduce health disparities (Jones and Wells, 2007; Flicker *et al.*, 2008a). They are inviting community members (those affected personally or professionally by the issues under study) to participate more centrally in 'all' aspects of the research process (Israel *et al.*, 2006). Yet, multiple in-depth evaluations show that community members are more likely to participate in research design, data collection and dissemination than in data analysis (Flicker *et al.*, 2008a,b; Khodyakov *et al.*, 2012).

Data analysis is widely perceived as a technical skill requiring particular expertise. It is assumed to be time-consuming, boring, tedious, and/or mysterious (Nind, 2011). Strong literacy or numeracy skills are expected. Consequently, community

members often willingly decline participation (Stoecker, 1999). Some are never invited. Others argue that diverting scarce community resources towards developing analysis skills may be inappropriate, particularly if academic partners are well positioned to assume these tasks (Cashman *et al.*, 2008). However, promoting more equitable research relationships that enhance rigour may require challenging these perceptions and providing opportunities for more meaningful participation (Macaulay *et al.*, 1999).

Lack of community involvement in data analysis excludes those with much to lose from key decisions made during data interpretation. Rather than adopt a deficit model (i.e. partners are too unskilled/immature/illiterate/busy), some researchers are devising accessible analysis opportunities to build on the skills, talents, and

knowledge of community members (Cashman *et al.*, 2008, Flicker, 2008, Jackson, 2008, Daley *et al.*, 2010; Nind, 2011). Recognizing that community members bring rich lay expertise, these pioneers of collaborative analysis are finding creative ways to make health research inclusive, participatory, rigorous and, often, more fun.

This article describes 'DEPICT', an approach to collaborative qualitative data analysis designed to involve individuals with varying levels of research proficiency. Team members may include patients, activists, community-based service providers, community members, students, clinicians and/or interdisciplinary researchers. The title acronym was chosen deliberately: to depict is an active verb, meaning to describe using words, which is a core activity within analysis for qualitative health researchers. DEPICT has six sequential steps, as outlined below and summarized in Table 1. While many of the steps or elements herein may be familiar to seasoned qualitative health researchers, what makes this model unique is its emphasis on participation, collaboration and transparency. We codified DEPICT over the last decade, drawing on experience from over a dozen health and HIV research partnerships. Table 2 describes six sample projects. Some of these projects were large, interdisciplinary, international endeavours; others were smaller local efforts. Their common thread is a strong social justice orientation that sought to find new health promotion possibilities by using more inclusive research practices.

As this article is concerned with data analysis and interpretation, we assume that data (e.g. focus groups, individual interviews, field notes, art pieces) have already been collected, transcribed and organized. We recognize that in most qualitative research projects analysis begins before this point. Important analytical decisions are made throughout the research design and data collection stages (Cresswell, 2007). Projects with a strong Community-Based Participatory Research orientation often include diverse stakeholders in these earlier steps (Minkler and Wallerstein, 2003; Daley *et al.*, 2010). In most cases described herein, trained moderators/interviewers were also part of the analysis team. We start here, because in our experience, this is where there is often a gap in involvement. We also expect that ethical clearances have been negotiated and team members are trained in handling confidential documents. (In Canada and the African contexts where we work, it is the

expectation of our universities that all those handling confidential research data be trained on appropriate data management. The form and content of the training are left up to individual research teams. We recognize that systems may be more formal in other research environments.)

THE DEPICT MODEL

Dynamic reading

DEPICT begins with each team member reading a subset of the transcripts. Reviewing many long transcripts can be onerous. A participatory framework divides the work. Someone familiar with the entire data set (e.g. one who conducted interviews or transcription) assigns three to five transcripts to each team member. Ideally, assignments correspond with professional or personal experience. Readers are encouraged to recall the research questions (e.g. post them nearby) and record important topics as they read. To generatively determine significance, team members are encouraged to draw on their lay, professional and academic perspectives. Many find it useful to use highlighters or make marginal notes. Passive reading is discouraged. Instead, readers are encouraged to dynamically engage with material by asking questions, identifying themes and linking ideas.

This step can be coordinated virtually and can begin as soon as several transcripts are ready. Reviews can be completed individually over a period of weeks. In settings with limited literacy skills, audio files can be shared. Alternatively, in the *Positive Youth Project*, team members took turns slowly reading transcripts to each other.

Engaged codebook development

The goal of this step is to develop a list of categories that can subsequently be used to organize, or code, the data. These categories will be based on ideas identified while reading the data (i.e. inductive), but can also include topics based on the research questions, literature or lived or professional experiences of team members (i.e. deductive) (Pope *et al.*, 2000). This step typically occurs in a meeting with team members in the room. However, in the *HIV Intervention Evaluation*, team members in Canada and South Africa collaborated on codebook development via Skype.

We facilitate this process by distributing sticky notes and asking team members to write down

Table 1: DEPICT steps, roles and guiding questions

DEPICT step	Coordination functions	Team member roles	Questions to ask
Dynamic reading	Collate, assign and distribute a subset of transcripts to each team member. Set deadlines and meeting times.	Review a subset of assigned transcripts. Record notes on important concepts.	What ideas seem to be important in these texts? (inductive)
Engaged codebook development	Assemble supplies (e.g. post-it notes, pens) and arrange for team meetings. Ensure skilled meeting facilitation. Ensure that a preliminary codebook is developed. Coordinate pilot testing and refining of codebook.	List important ideas for categorizing data. As a group, organize categories into clusters. Come to consensus around a preliminary codebook. Participate in pilot testing.	What is our agreed upon list of categories and sub-categories that we will use for our codebook? Do we have the right categories? Do we all understand what they mean and how to apply them? Do any require further refinement?
Participatory coding	Assign and distribute a subset of transcripts for coding to each team member. Set deadlines and meeting times. Provide training and support for novices. Coordinate a strategy for managing the data.	Review and code each assigned transcript. Return coding work to coordinator (in paper or electronic form).	Which sections of the transcript fit into which categories of our codebook?
Inclusive reviewing and summarizing of categories	Generate a list of quotes associated with each category. Assign team members a sub-set of categories to summarize. Distribute guiding worksheets for summarizing categories.	Work alone or in pairs to develop category summaries. Return work to the coordinator.	What are the main ideas? Where is there disagreement? What are some key quotes? Are there silences worth noting? What else is important to note that might help in the analysis of the larger project?
Collaborative analyzing	Arrange for one or more team meetings. Ensure skilled meeting facilitation. Select a note-taker in advance. Prior to meeting disseminate summaries for review. Ensure that consensus is reached and recorded on new understandings of the data.	Review summaries prior to meeting. Participate in a collaborative meeting to make sense of data. Graphically depict or create a figure that illustrates findings. Come to consensus on new understandings emerging from the data and what needs to be shared.	What does it all mean? What were our most important findings? What do we need to share and with whom? What questions do we still have? For critical analyses, what structural factors may help us understand why people chose to tell us the stories they shared (e.g. homophobia, neoliberalism).
Translating	Arrange for team meeting(s). Ensure skilled meeting facilitation Circulate meeting report with clear action items.	Develop a knowledge translation and exchange plan for sharing research results to all relevant stakeholders. Create a plan for equitably distributing this work.	Who needs to know what? How do they need to hear it? Who are the best messengers? How do we get the word out? Who on our team will be responsible for what and by when?

Table 2: Description of six studies that have used the DEPICT approach to data analysis^a

Study name	Objective	Data	Team members involved in DEPICT analysis
Picture This (McLelland <i>et al.</i> , 2012)	To investigate understandings of safer sex behaviours among queer and trans youth labelled with intellectual disabilities	In-depth interviews, focus groups and arts-based methods with 10 youth	3 university-based researchers from different disciplines 2 graduate students 1 coordinator 2 social workers from a community organization, all in Canada
HIV Intervention Evaluation (Nixon <i>et al.</i> , 2011)	To evaluate the impacts of a school-based HIV prevention programme on adolescents in a high HIV-prevalence setting in South Africa	Focus-group discussions in English and isiZulu with 105 participants, including students, parents, teachers and programme staff	3 university-based researchers from Canada 5 junior researchers or students from a research centre in South Africa
Positive Youth Project (Flicker <i>et al.</i> , 2004)	To explore options for better supporting young people living with HIV in Canada	In-depth interviews with 35 HIV-positive youth	1 graduate student 4 youth living with HIV 2 support workers 1 physician, all in Canada
Sepo Study (Wickenden <i>et al.</i> , under review)	To explore the health-equity experiences of people with disabilities in Zambia who have become HIV-positive	In-depth interviews with 21 people with disabilities in Zambia who had become HIV-positive and with 11 key informants working in the field of HIV and disability	5 university-based researchers in Canada 3 graduate students in Canada 1 university-based researcher in South Africa 2 activists from a community-based disabled people's organization in Zambia
The Poz-Brain Study (Gallagher <i>et al.</i> , 2012)	To use a disability framework to explore the experiences of women with HIV-associated neurocognitive challenges	In-depth interviews with 12 HIV-positive women	1 university-based rehabilitation researcher 5 Master's level physiotherapy students 1 psychiatrist 1 neuropsychologist, all in Canada
Taking Action! (Flicker <i>et al.</i> , 2012)	To explore how Aboriginal youth link structural inequalities with individual risk, HIV and Aboriginal culture(s)	Arts-based methods and in-depth interviews with 89 Aboriginal youth	5 university-based health and social science researchers 5 graduate students 6 Aboriginal youth leaders, all in Canada

^aDue to space limitations we have included only one reference for each study.

specific ideas that emerged during their transcript review (one idea per sheet). Team members post notes on a wall and cluster them collaboratively into categories (and, if appropriate, sub-categories). Each category (and sub-category) is named and defined. This can be done in a plenary format or smaller groups. The result is a preliminary codebook.

To pilot and refine the codebook, team members code several transcripts and then discuss how well the framework was able to capture the range of perspectives within the data set. The aim is to improve shared understanding, or stability, of each category. In the *Sepo Study*, transcripts were accessed online by team members in three countries who piloted the preliminary codebook independently. In comparing experiences, South African colleagues identified an important missing code (religion/faith) that was then added.

Participatory coding

In this step, the final codebook is circulated. Each team member is given responsibility for coding a subset of the transcripts, typically including those reviewed earlier (Ryan and Bernand, 2000). In lower literacy and/or lower-technology settings, pairs can review paper copies of transcripts, cut them up with scissors, and organize excerpts according to the codebook categories. This low-tech option, which is similar to Krueger's 'longtable' method, worked well with Indigenous youth involved in *Taking Action* (Morgan and Krueger, 1997; Krueger and Casey, 2009).

Alternatively, qualitative data management software (e.g. NVIVO) can be used. The *Positive Youth Project* had trained team members work on a shared file on a project computer on their own time. Alternatively, systems like NVIVO Server allow for concurrent multi-user access to synchronously code. In the *Poz-Brain* and *Sepo Studies*, coordinators were responsible for managing data in NVIVO, but exported line-numbered transcripts into Word for coding by all team members using a coding worksheet. Coordinators then inputted worksheet data into NVIVO. Decisions about whether, when and how to use software should be negotiated on a case-by-case basis that takes into account local technological and other literacy needs and resources.

To improve rigour, we have every transcript coded by at least two team members. More inclusive coding safeguards against important data

being omitted. Sharing the burden of coding means that large amounts of data can be managed efficiently. It also builds deeper familiarity, and a sense of ownership and engagement in the project, which can be challenging to foster in large research teams.

Inclusive reviewing and summarizing of categories

In this step, the coded data in each category are re-reviewed side by side to explore the diverse ways that the idea has been taken up by participants. We encourage dyads to look for convergent and divergent viewpoints, note surprising silences and choose emblematic quotes. We recommend pairing those with more and less experience for this activity (e.g. youth–adult or community member–scholar). This helps to mitigate power imbalances and gives people time to reflect, question, clarify and champion alternative perspectives.

Each duo develops a two-page summary for each code. This distillation renders a large quantity of data more accessible to the team. In the *HIV Intervention Evaluation*, this process illuminated competing viewpoints about whether the intervention was a 'success' or 'failure.' Drawing on the data, these disagreements were recorded and highlighted in the summaries.

Collaborative analyzing

Next, we move from descriptive to analytical. It is rarely pragmatic for everyone on a research team to review all raw coded data. Summaries can, however, be amalgamated into a draft descriptive report that can springboard informed collaborative discussions. In *Taking Action*, a draft report was generated by a sub-group and then used by the larger team as the basis for a generative analytic discussion. In *Poz-Brain*, summaries were discussed one by one.

This is the time for teams to convene and revisit the original project objectives, and ask: 'What did we learn?' This step requires adequate time for reflection (at least half a day) and the participation of as many team members as possible. We recommend posting the research questions to help ground deliberations. A helpful technique for developing conceptual clarity is creating a graphic that visually represents key findings (Jackson, 2008). A skilled facilitator and a note-taker are necessary.

In *Picture This*, we convened a four hour analysis meeting to identify our three most important sets of results, deliberate on their meanings, and contextualize our findings. Social scientists were particularly interested in findings related to HIV prevention; some of the service providers were concerned with the new ethical dimensions that the research uncovered. Both topics were the focus of discussion, with the ultimate result being separate academic outputs.

This stage can sometimes be contentious. In our experience, interpretations were rarely polarized by social location (e.g. academic vs. community). Rather, we understood heterogeneous differences in interpretation as a natural by-product of engaging multiple and diverse stakeholders in the interpretive process. While we often strived to arrive at consensus, it is important to recognize and make room for competing interpretations. Surfacing and exploring diverse viewpoints can lead to richer dialogue, and this added layer of complexity is often welcomed by journal editors and other readers.

Translating

The final DEPICT step is creating a dissemination plan. Different audiences might require unique products and messaging (Reardon *et al.*, 2006). In *Taking Action*, youth researchers created a compelling comic for peer outreach that used humour to highlight key results. With *Sepo*, we wrote several journal articles and two plain-language reports. Leveraging the personal and professional contacts of service providers on the team, results were also shared directly with key Zambian policy-makers and disabled people’s organizations. We also decided to

pursue further funding to design an intervention based on the findings.

It is important to set parameters regarding who will take the lead on various outputs. We usually try to generate two to three person teams to lead particular manuscript or report development (with different team members leading on different products).

BENEFITS ASSOCIATED WITH DEPICT

Table 3 summarizes benefits and challenges associated with DEPICT. The primary strength of DEPICT is that it democratizes and demystifies qualitative analysis. Articulating the process into concrete, feasible steps enables the participation of multiple stakeholders. DEPICT has worked well in diverse collaborations, including with colleagues and community partners in low-income countries as well as marginalized populations in Canada (e.g. youth living with HIV or one or more disabilities).

We attribute this success in part to the model’s flexibility. The multiple steps in the analysis process allow individuals to be as engaged as they desire according to interest and availability. There is a place for all members of a large team (regardless of experience) to have meaningful engagement. The process works well in person or virtually, enabling participation in any geographic location with Internet access or teleconference capability. DEPICT more equitably shares the workload burden and offers greater potential for productivity. More people are involved, and the wider range of expertise (academic and experiential) can lead to more creative interpretations of the data. As an example, debates on the *Taking Action* team about how to frame experiences of

Table 3: Benefits and challenges of DEPICT

Benefits	Challenges
Democratizes analysis to allow for participation of diverse local and global stakeholders	Skilled coordination necessary for all steps
Flexible to allow differential engagement according to interest, availability and geography	Expert facilitation necessary for several steps
Shares the burden of heavy workload	Requires principal investigator to share power and control
Greater potential for productivity among the team	Collaborative process may require skilled conflict management
Rigour enhanced through the explicit articulation of analytic steps	Issues of authorship on academic outputs can be contentious if not managed early and transparently
Deeper and more diverse readings of the data due to engagement of multiple forms of expertise	Requires capacity building, since it is a new approach
Facilitates ‘knowledge to action’	Ungrounded in a particular theoretical tradition
Applicable with a variety of theoretical orientations (e.g. interpretive, critical)	Finding appropriate resources to remunerate community stakeholders for their time

ongoing colonization led us to focus instead on more productive conversations about processes of de-colonization. The team approach requires teams to be explicit about the process of analysis. Justifying each analytic step with a group tends to enhance transparency and rigour.

The engagement of all team members in analysis typically improves investment in the findings and their dissemination. By promoting dialogue among potentially diverse project partners about the relevance of the results, DEPICT incorporates a knowledge-to-action approach, which is more likely to have real-world impact (Reardon *et al.*, 2006). For instance, our results have been used to establish new community programming and refine existing programming, spur advocacy campaigns and inform health policy. Many of those engaged in the process have also found the experience to be transformative. Several talked about leveraging the skills they learned through their participation in DEPICT analysis to apply for other opportunities. Several community partners decided to return to school for undergraduate or graduate degrees. Conversely, several of our graduate students went to work with the communities with whom they partnered once they completed their programs of study. Finally, DEPICT has utility within various theoretical paradigms. For example this approach can be used for interpretive studies (e.g. exploring experience of living with HIV) or using a particular theoretical lens (e.g. post-structural).

CHALLENGES ASSOCIATED WITH DEPICT

The success of DEPICT depends on excellent coordination and facilitation skills. Finding the 'right people' for these tasks is critical. Managing large, busy health research teams can be difficult, but is a prerequisite of this approach. Learning to share control can be difficult for study leads, particularly if members are used to being perceived as an expert. Participatory approaches ask that we not only allow but also promote alternative viewpoints. Commitment to a respectful, participatory process demands patience, investment in relationship and capacity building, and careful attention to process issues. When working in large groups in which everyone has invested heavily in data analysis, authorship for research outputs can be contentious. We recommend collaboratively crafting transparent authorship guidelines, including

ground rules for resolving potential conflicts. Despite multiple opportunities for sharing leadership, success depends heavily on having a champion who is committed to guiding the overall process. Finally, in our experience, it is important to ensure that all members of a research team are adequately remunerated for their time. This means that budgets need to be carefully developed to allow for adequate compensation for community members engaged in these time-consuming activities.

CONCLUSION

Democratizing research processes is viewed as a requirement for more meaningfully addressing health disparities, yet few guidelines exist for engaging diverse team members in data analysis. As Dennis Raphael argues, 'the idea that health promotion can be carried out without immediate community involvement is antithetical to basic principles of health promotion. Such involvement also makes it likely that results of such activities can be used to good effect (p364)' (Raphael, 2000). DEPICT responds to this challenge by describing an approach to collaborative, inclusive qualitative health research analysis. When considering implementation, teams should reflect on their size, skills, experience, literacy, access to technology and locations. Sharing power and interpretative control creates the potential for new risks, but also new possibilities. In our experience, the effort has been well worth the investment.

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