Do Mock-Ups, Presentations of Evidence, and Q&As Help Participants Voice their Opinions During Focus Groups and Interviews About Supervised Injection Services?

David T. Kryszajtys¹*, Katherine Rudzinski¹, Soo Chan Carusone²,³, Adrian Guta⁴*, Kenneth King¹, and Carol Strike¹,⁵

Abstract

Controversial facilities (e.g., supervised injection services (SIS), methadone clinics, and social housing) may require feasibility studies that assess their acceptability among community stakeholders before their implementation. However, controversies about these facilities may make stakeholders ambivalent or hesitant to express opinions about them because various sources of information disagree about their harms and benefits. We responded to this challenge by creating and piloting the use of “grounding aids” or tools, objects, and methods used before qualitative data collection to provide research participants with an experience in which they can learn about how the controversial facility operates in practice. Before interviews and focus groups in a recent SIS feasibility study we conducted, participants were introduced to three of these grounding aids: a physical mock-up of an SIS, a presentation regarding evidence on SIS, and a Q&A with SIS staff. We then asked additional questions in the interviews and focus groups about participants’ experience with these grounding aids. With few exceptions, participants generally perceived the grounding aids to help them express their opinions without feeling that we were directing their opinions about SIS. Participants’ reasons for this included that the grounding aids helped them experience unfamiliar aspects of SIS visually and concretely, served as a cue for questions and as a reference for discussions, and personalized SIS and its operations. We also observed that they voiced less hesitancy overall regarding SIS than participants in our previous feasibility studies where we did not employ these grounding aids before data collection. Researchers planning to study perceptions of controversial facilities or other phenomena about which sources of information tend to disagree on may want to consider creating, evaluating, and using grounding aids to improve participant responsiveness.

Keywords

feasibility study, evaluation, mock-up, not in my backyard, focus group, supervised consumption, research participant, qualitative

Background

A controversial facility is a building, project, and/or technology that fills a need for residents in a community but is perceived to be associated with unaccounted costs to community members who are not the primary beneficiaries of the facility. Sometimes labeled as locally unwanted land uses (LULUs) and subject to not in my backyard (NIMBY) attitudes (i.e., attitudes characterized by opposition to the facility’s implementation), these facilities are often unwanted in...
the local community in which they are to be implemented (Schively, 2007). Examples of controversial facilities include methadone clinics, needle and syringe programs (NSPs) (Csiernik et al., 2017), social housing (Wassmer & Wahid, 2019), nuclear power plants (Woo et al., 2017), and 5G towers (Quinn, 2020), all of which have faced various degrees of opposition in the communities where implementation is considered. Due to the contested nature of controversial facilities, organizations may require feasibility studies before their implementation can begin. In Canada, for instance, supervised injection services (SISs) can receive an exemption under the Controlled Drugs and Substances Act to operate after meeting a number of conditions, one of which is that their implementation is supported by a feasibility study or other research (Canadian Bar Association - National Criminal Justice Section, 2014). Supervised injection services, also known as supervised consumption sites, overdose prevention services, and drug consumption rooms, offer a professionally supervised space where people can use pre-obtained drugs in a hygienic environment, access sterile injection equipment, and have rapid access to emergency overdose responses and referrals to various health and social services (Hedrich et al., 2010; Stone & Shirley-Beavan, 2018).

Feasibility studies can uncover community members’ aspirations for and concerns about implementation of a controversial facility and create opportunities for researchers, frontline workers, and decision-makers, to intentionally address these issues (Bowen et al., 2009). However, researchers may find feasibility studies challenging to conduct if participants are hesitant to provide opinions because they lack basic knowledge regarding the facility in question, have mixed views about it, or their knowledge is derived from sensationalized or conflicting sources of information, as is often the case with controversial facilities such as SIS (Atkinson et al., 2019; Cameron Wild et al., 2019; Happer & Philo, 2013; Strike et al., 2015).

Supervised injection service feasibility studies have tried to address the lack of knowledge and hesitancy to express opinions among stakeholders by providing verbal descriptions and/or pictures of SIS designs and functionality (Bardwell et al., 2017; Bayoumi et al., 2012; Butler et al., 2018; Harris et al., 2018; Hopkins et al., 2017; Laenen et al., 2018; León et al., 2018; Mitra et al., 2019; Wolfson-Stofko et al., 2018). However, in our experience with three SIS feasibility studies, participants who arrive with little knowledge about SIS are often hesitant to offer their opinions even after hearing verbal descriptions and seeing pictures of SIS. They have often asked focus group moderators and interviewers many questions about SIS operations, policies, and evidence. In the past, we were concerned that not answering participants’ questions might frustrate them but answering questions might sway their opinions or be perceived as an attempt to do so. These experiences led us to pilot test the use of “grounding aids,” or tools, objects, and methods, that provide research participants with knowledge and experience of the controversial facility to help improve their ability and willingness to offer their opinions. In a recent SIS feasibility study for a hospital, we introduced participants to three grounding aids, the focal point of which was a physical mock-up of an SIS, and we evaluated the pilot by asking their opinions about this experience. Our results, which may be applicable and useful in improving participant responsiveness in feasibility studies on controversial facilities in general, are presented in this article.

Use of Facility Mock-ups in Design and Research Projects

Mock-ups are full-scale physical or virtual models of designs for products or facilities that researchers and designers use for teaching, evaluation, and prototyping (Health Quality Council of Alberta, 2016). According to Peavey et al. (2012), physical mock-ups can be simple, detailed, or live and range from low to high cost, which varies based on the mock-up’s level of fidelity, interaction, and user immersion. A simple physical mock-up can include the use of tape on the floor, cardboard boxes, and foam walls, which can be moved with ease and at a zero or nominal cost. The downsides of simple mock-ups include low fidelity and low user immersion. Detailed physical mock-ups incorporate or involve the preliminary constructions of objects intended for implementation in the final design (e.g., a television monitor). Live mock-ups are fully functional and high-fidelity versions of designs that can easily convert into functional rooms in an existing facility (Watkins et al., 2010). Researchers have used live mock-ups as quasi-experiments to observe how a change in the design of a room affects certain outcomes while the room is in use by the intended users (e.g., does a television in the waiting room make patients less likely to leave?) (Watkins et al., 2008). Virtual mock-ups are designed using computer software and use screens or virtual reality (VR) headsets to allow participants to interact with a simulated space (Maldovan et al., 2006; Peavey et al., 2012).

Mock-ups have several benefits and challenges when used to inform design and implementation decisions (Peavey et al., 2012; Watkins et al., 2011). A mock-up may be effective in providing rapid user feedback, fostering user and stakeholder (e.g., client and staff) buy-in, and facilitating education and training (Bayramzadeh et al., 2018; Peavey et al., 2012; Watkins et al., 2008, 2011). The challenges of using a physical mock-up space may include cost of construction, material, and labor, length of time to construct, and transportation of users to the mock-up location, although this varies depending on the level of detail employed in the mock-up (i.e., simple, detailed, and live) (Peavey et al., 2012; Watkins et al., 2011). For example, detailed mock-ups are less flexible than simple mock-ups and can be costly and time-intensive to modify but are more immersive and more accurate representations of a final design (Peavey et al., 2012). In some cases, virtual mock-ups may be less expensive and quicker to create than physical mock-ups (e.g., a medical room with expensive equipment vs. a simple waiting room) (Peavey et al., 2012). Cost may also differ based on the type of virtual mock-up used (i.e., screen-based vs. VR headset).
Mock-ups have been used across a diverse array of disciplines (e.g., medicine, urban development, and education) to simulate facility and program components to provide an immersive experience for participants (Dupont et al., 2015; Soneral & Wyse, 2017; Youngblood et al., 2008). This approach has been used to quell community opposition to implementation of controversial facilities (Baker et al., 2019). For example, during community debates over a proposal for Insite, North America’s first SIS, nurses in Vancouver used a church room as a physical mock-up of the supervised consumption site to normalize the proposed services among residents and policymakers (Baker et al., 2019). Likewise, sociologist Gregory Scott designed The Safe Shape installation, a physical mock-up of how SISs operate as a traveling exhibit to spread awareness about the practice of harm reduction (Butler, 2017), with the belief that a physical walkthrough of a SIS space is more informative than verbal instruction alone (Enos, 2019). However, the evaluation of the use of physical mock-ups in SIS feasibility studies has not been reported in the literature.

**Methods**

**Objectives**

In this article, we will describe our use of a physical mock-up and two other grounding aids before data collection in a feasibility study of the acceptability of SIS among key stakeholders at an HIV specialty hospital considering implementation of SIS for its inpatient and day health program clients. The objectives of this pilot study were two-fold: (1) to explore participants’ experiences with grounding aids in relation to their perceived usefulness to help them express opinions about SIS and (2) to understand whether participants perceived the grounding aids as an attempt by the research team to sway their opinions about SIS.

**Research Design**

The utilization focused evaluation (UFE) approach rooted in social constructionism informed our research design (Patton, 2015). Patton (2015)”s UFE approach rests on the principle that evaluations should be judged by their utility and actual use. Our pilot study examined the perceived usefulness of grounding aids in helping participants form opinions about SIS within a context of an SIS feasibility study. Participants were able to experience the actual intended use of the grounding aids and evaluate their usefulness immediately. The social constructionism underpinnings of UFE informed our choice to investigate multiple stakeholder groups’ perceptions using qualitative methods with the expectation that social context may influence people’s experiences and perceptions of grounding aids and their usefulness (Berger & Luckmann, 1991; Patton, 2015).

**Setting**

Casey House is a hospital facility located in Toronto, Canada, with a 14-bed inpatient program that sees approximately 100 admissions per year and an outpatient day health program that sees an estimated 250 clients with HIV and at risk for or experiencing deteriorating health. Casey House is the primary distributor of harm reduction kits to clients and people who use drugs in the local community (Miskovic et al., 2018; Strike et al., 2014). The neighborhood surrounding Casey House has the highest number of emergency medical service overdose calls in Toronto (Toronto Public Health, 2018). Casey House was interested in exploring the feasibility of SIS within its facility. To do so, the feasibility study included a quantitative component (i.e., a survey of stakeholder opinions about SIS) and a qualitative component comprised of focus group discussions and one-on-one interviews with multiple hospital stakeholders. Qualitative data focused on attitudes toward implementation of SIS at the hospital. In this article, we report on a pilot study within the SIS feasibility study where we explored participants’ evaluation of the grounding aids we used before focus group discussions and one-on-one interviews.

**Sampling, Recruitment and Participants**

We recruited participants for a total of 10 focus groups divided by types of Casey House stakeholders. For two of these focus groups, we recruited Casey House clients who completed a feasibility survey and indicated a willingness to be contacted about further SIS-related research. Clients who took this survey (n = 92) were asked to answer a question about whether they were supportive or opposed/undecided about SIS implementation at Casey House. From the pool of survey respondents who also indicated interest in participating in a more in-depth discussion about a Casey House-based SIS (n = 61), we randomly sampled 10 clients who reported that they were supportive of SIS implementation and 10 clients who reported that they were opposed/undecided about SIS implementation (i.e., random stratified sampling). We invited these clients to two focus group discussions that each contained only participants who shared views on SIS implementation (Rudzinski et al., 2021). Our earlier work at Casey House (Strike et al., 2014; Switzer et al., 2015) guided us to divide the client focus groups by self-reported opinions about SIS to ensure an opportunity for all participants to voice their thoughts without creating intergroup conflict. For the eight other focus groups with all other stakeholders (i.e., clinical and non-clinical staff, volunteers, managers, and board members), we sent an email to all potentially eligible participants inviting them to participate in a focus group. These methods yielded a total of 70 participants divided across 10 focus group discussions as follows: Group 1: patients supportive of SIS (n = 9); Group 2: patients opposed/undecided about SIS (n = 5); Groups 3 and 4: board members (n = 17); Groups 5 and 6: managers (n = 11); Group 7: volunteers (n = 3); Group 8: day health program staff (n = 10); Group 9: inpatient clinical staff (n = 10); and Group 10: non-clinical staff (n = 5).
We also recruited current inpatient clients unable to attend a focus group discussion to participate in a one-on-one interview. A Casey House clinician approached all inpatients and asked if they were willing to hear about a research study. The research coordinator spoke with any interested inpatient about participating in an interview. A total of eight inpatients \((n = 8)\) who were restricted to their own rooms because of health reasons were interviewed on-site.

**Description of Grounding Aids and Procedures**

Given prior experience and concerns that participants may lack knowledge about SIS, we developed and used three grounding aids in our study:

1. A guided walkthrough of a full-scale physical mock-up of SIS.
2. Presentations about how SISs operate in Canada and internationally and of scientific evidence on SIS given by research staff.
3. A question and answer (Q&A) session which included a presentation on daily operations given by staff from a local SIS facility.

**Physical SIS mock-up.** A series of rooms were mocked up within the hospital with furnishings and equipment that resembled those typically found in SIS spaces (Figures 1–3). Prior to each focus group and using a script developed in collaboration with staff from existing SIS in Toronto, facilitators provided a guided walkthrough of the mock SIS for approximately 25 minutes long to mirror the typical flow of a client arriving and wanting to use SIS. First, we showed participants how upon arrival a potential client would be greeted and directed by reception staff into the SIS waiting room (Figure 1). Next, an SIS staff member (nurse/program staff/volunteer/peer) would invite the client into the assessment room (Figure 2), a confidential space to have a conversation with the client about their substance use, other needs, and how Casey House might provide support. Following the assessment, the client would be escorted into the injection room (Figure 3), where a nurse would supervise their injection. Next, we explained to participants that the client would be directed to a “chill-out” room to relax and where staff might discuss safer drug use and other programming, services, and referrals (e.g., housing, food, drug treatment, and medical services) before the client exits to use other on-site services or leaves Casey House. A mock-up for the chill-out room was not constructed, but we described to participants where such a room would be located in relation to the other rooms and how it would function. Inpatient clients restricted to their rooms were shown photos of the SIS mock-up (Figures 1–3) in the place of a visit to the physical mock-up space.
Presentations by research staff. After the walkthrough of the SIS mock-up, participants were shown photographs of, and listened to a presentation about, SIS operating in Canada and internationally. Next, we presented a summary (see Table 1) of the scientific literature about the known outcomes, common concerns, and the number and types of SIS operating in Canada and elsewhere. The presentation was designed in collaboration with a research assistant with lived experience. In addition, we designed the presentation in alignment with recommendations on how to explain science to lay audiences (Kim, 2020).

Question and answer with Toronto SIS workers. As a third grounding aid, staff members from a local Toronto SIS spoke about the operations at their site, including the number of visits per day, the perceived benefits to their clients, what information they gathered from clients, hours of operation, on-site overdose statistics, and clients’ self-reported needs. Participants were encouraged to ask questions throughout the information/education session.

Question Outline
After the Q&A, we conducted our feasibility study focus group discussion and concluded each with questions to evaluate participants’ experience of the grounding aids. Specifically, we asked:

1. How did you feel about the process that we used for this study, which included a walkthrough of the mock-up SIS rooms, a presentation about SIS operations and scientific evidence, a presentation by, and Q&A session with, a Toronto SIS worker?
   (a) Did you like this format?
   (b) What worked/what did not work?
   (c) Did the extra information help you form your opinions about SIS?

2. Did you feel that the research team tried to sway your opinion at all during the study? How so?

Interview and focus group discussions were audio-recorded, transcribed verbatim, verified for completeness, corrected, and uploaded into NVivo 12 (QSR International, 2020), a qualitative data management software.

Data Analysis
Qualitative data were analyzed deductively and inductively using the step-by-step thematic analysis approach described by Braun and Clarke (2006). First, members of the research team read and reread transcripts to familiarize themselves with the data. They then developed a set of initial codes by iteratively and inductively labeling interesting features of the data. The resultant codes were collated into major themes corresponding to the questions we asked the respondents about each grounding aid, which were reviewed and refined through team discussions. This article reports on those themes describing participants’ thoughts on their experience with each grounding aid and their perceptions of whether they influenced their opinion on SIS.

Table 1. Summary of Research Evidence on SIS.

| Benefits of SIS                                      | Common Concerns About SIS                      |
|------------------------------------------------------|------------------------------------------------|
| Reduce the number of drug overdoses and deaths       | Publicly discarded needles                    |
| Reduce risk factors leading to infectious diseases such as HIV and HCV | Crime (violence, dealing, and trafficking)     |
| Increase the use of detox and drug treatment services| Drug use in the local community                |
| Connect people with other health and social services | Cost-effectiveness                             |

Note. Source material from Kennedy et al. (2017), Kerr et al. (2017), and Potier et al. (2014).
Results

Based on participant responses regarding their experience with the grounding aids, we were able to identify participants’ thoughts on whether the grounding aids were useful in grounding their opinions, how the grounding aids helped them, and recommendations for improving the grounding aids. Below we organize the analyses by the thematic subheadings related to the specific grounding aids to which they pertain: participants’ thoughts on the physical SIS mock-up, presentations, and Q&A. The final section explores participants’ thoughts on whether they perceived the grounding aids as influencing their opinions about SIS.

Participants’ Thoughts on Physical SIS Mock-up

The SIS mock-up helped participants to visualize what SIS at Casey House could look like and how it could operate within a hospital setting, allowing participants to ask questions to further increase their knowledge of SIS. Some participants’ perceptions of SIS were based on their memory of a pop-up SIS that opened in a local park as a response to a rapid increase in fatal overdoses and perceived government inaction. This pop-up SIS, first based in tents and later in a mobile trailer, was the subject of many media reports (Browne, 2017; Lavoie, 2017; Rider, 2017). The mock-up SIS at Casey House assisted participants to envision how SIS might operate in a hospital setting, as one inpatient interview participant stated:

And so, I didn’t know what those [SIS] looked like and what it would look like in a hospital setting. Because when you look at the one [SIS] that was in Moss Park, and you’re like ‘Oh, it looks cool.’ And you’re like, ‘Is Casey House considered cool?’ (laugh) [Inpatient interview #5]

For participants who had no prior reference point for SIS, the mock-up improved their ability to visualize SIS and experience it in a concrete way, as a volunteer elaborated:

You know, going down and seeing that upfront, I’m a concrete person. I’m a visual person... when you show me something, and then you link it with those pictures there, that helps me a great deal, yeah. [Volunteer focus group]

For participants unaware that SISs typically include more than one room, the mock-up helped them experience the additional rooms in a concrete way. A non-clinical staff member noted, “I did not realize you had to have a chill space, an assessment space. Obviously, you need the safe injection space, ...they’re not part of my life, right?” [Non-clinical staff focus group] Interview participants who only saw pictures of the Casey House SIS mock-up reported that it helped them understand what SIS could look like in a smaller space and the processes by which a client would move through the service: “I did not know there was a whole waiting room/assessment, all that. So, I did not know those steps and... Oh, you get to talk to people... I needed that information.” [Interview #5] In addition to helping them visualize the space, the walkthrough of the rooms with SIS materials helped to cue questions they might not have otherwise asked and helped to clarify their understanding of SIS. Many also noted that the visual cues of the mock-up walkthrough gave them a context from which to speak during the focus groups.

In the day health program staff focus group, while participants felt that the mock-up SIS helped them visualize and understand SIS, several thoughts that visiting a functioning SIS site would help them get a better feel for these services than what the physical mock-up could provide:

Participant #1: I think maybe if we were able to get a tour of a functioning site - that might be better...Maybe it’s a little weird, if a whole group of people come, and there’s people injecting, obviously, but -

Interviewer: Yeah, they’d have to do it in the off hours.

Participant #1: Yeah. So, then there really wouldn’t be a benefit, I guess - Participant #2: ... I mean, maybe there will be, because you see kind of how it’s built and stuff like that, but...

Participant #1: Yeah, feel the space. [Day health program staff focus group]

To overcome privacy issues, another participant suggested, “if you could further involve us in what it would feel like in the space, through a video or a webcast or something like that, would be advantageous, for sure.” [Day health program staff focus group]

Participants’ Thoughts on Presentations by Research Staff

Most participants across all stakeholder groups thought that the presentations by research staff about SIS operations and the scientific evidence on outcomes were useful. For some, the presentations provided context for focus group discussions as one inpatient interview participant remarked, “I thought, it was very useful, because it got me ready, right, to what’s coming, what the interview was really going to [cover].” [Inpatient interview #6] Participants also noted that the data presented helped them to learn about the benefits of SIS and to become more confident in their opinions regarding SIS implementation. Volunteers said:

Participant #1: And having the benefits on the charts to say, you know, ‘This has been working in other areas.’ This is, we’re not breaking new ground here, you know, leading edge. So, you can say, ‘Well ... they’ve had good experiences there, so we can probably have it here.’ So if you’re trying to convince somebody else [using the presentation], a politician or whatever, then I think that, you know, the way you did it I think was pretty good.
Participants’ Thoughts on Q&A with SIS Staff

Most participants said that the Q&A with Toronto SIS workers, who spoke about the daily operations, benefits, and challenges of SIS, provided more personalized insight about SIS. Participants used adjectives such as “critical,” “helpful,” “enjoyable,” and “effective” to describe the Q&A sessions. For instance, a participant from a client focus group said:

Yeah. And, you know, I might not be an opiate user...but it shows us what the people, like the peers and the nurses would be like, [what] they’d be doing when it comes here, right. And that really personalized it and made it effective. Made me see how it could work for us. [Client focus group 2 – supportive of SIS]

Participants’ Thoughts on the Influence of Grounding Aids on their Opinions

Almost all the participants did not perceive the use of the grounding aids as an attempt to sway their opinion. Participants across almost all stakeholder groups used words and phrases such as “unbiased,” “just facts,” and “cut and dry” about the grounding aids. However, all participants in the client focus group who held pre-existing negative opinions or were undecided about SIS and one manager felt that the research team had tried to sway their opinion in favor of SIS partly through the use of grounding aids. These focus group participants said:

Participant #1: You guys already prepared the room; you prepared the –
Participant #2: - presenting, coming and giving an overview of the site. That is all preparedness, right?
Participant #3: Preparation. And it’s very obvious to me, when I sit down [Client focus group 1 – unsupportive/undecided of SIS]...some evidence about what’s so bad about SIS,” [Client focus group 1 – unsupportive/undecided of SIS] and a manager suggested:

I guess I wonder if there should be, or could have been, and I’m not really sure how, what that looks like, but to have then, the kind of ‘other view’, or the balance of it. So it did feel kind of evenly weighted, yeah. [Manager focus group 2]

Although believing that the research team used the grounding aids to sway their opinions to favor SIS implementation, these participants also said they “liked” the process and that the research staff “did it as you should.”

Discussion

Our findings show that participants across multiple Casey House stakeholder groups experienced the three grounding aids as useful tools that reduced their hesitancy to express opinions about SIS without feeling that their opinions were being directed by the research team. The grounding aids were deemed useful because each helped participants to visually and concretely experience aspects of SIS they were unfamiliar with; provided a reference point for questions and discussions about SIS; and helped personalize SIS operations. Participants also made several recommendations for how to improve the grounding aids, which included suggestions to bring the SIS mock-up experience closer to the reality of SIS operation (e.g., using a video of a functional site) and adding neighborhood-specific evidence and evidence against SIS implementation into the presentations of research.

We also observed that participants in this study were less hesitant to share their opinions than in our previous feasibility studies of SIS where we did not employ grounding aids before data collection (Strike & Watson, 2017; Strike et al., 2004, 2015). Likely several factors are implicated in this observation. First, it could be that the physical SIS mock-up, presentations, and Q&A with SIS staff helped, which is what our participants perceived to be the case. For the reasons our participants stated (e.g., the aids allowed them experience unfamiliar aspects of SIS visually and concretely), grounding aids may improve the quality, depth, and quantity of participant responses in such studies. In previous research, we found that participants were reluctant to answer questions about SIS because they were ambivalent about its impact and processes (Strike et al., 2015). Second, it could be that time and more media coverage of SIS since our previous research led to more informed participants. Survey data we published from the parent feasibility study this pilot study was housed in showed that some of these participants still lacked basic knowledge about SIS, but most did not (Rudzinski et al., 2021). However, the qualitative results of this pilot also indicate that participants perceived the grounding aids to help them clarify aspects of SIS that they were unfamiliar with, such as how an SIS would work in a hospital setting and that an SIS contains more
rooms than just the injection room. Third, the current study recruited a different target population from other studies completed by the senior author (CS), and it is hard to know if the method helped with participants’ hesitancy to express opinions or this group was just less hesitant from the start. From the perceptions of the participants themselves, however, the grounding aids did help in ways that they were able to identify.

Embodied cognition theory may provide a theoretical basis for the use of grounding aids to reduce participants’ hesitancy to provide opinions around SIS and other controversial facilities. Enactivism and embodied cognition research suggests that thinking and cognition are grounded in bodily actions (Gangopadhyay & Kiverstein, 2009; Kiverstein & Clark, 2009). This may help us to understand why some participants stated that the grounding aids enhanced their ability to participate in the focus group discussions. Out of this body of research comes several empirically backed ideas that may explain the appeal of using a simulated environment like a mock-up, including that cognition is situated and that cognitive work is off-loaded onto the environment. Situated cognition is said to take place in circumstances where the perceptual information related to the task at hand affects how an individual processes the situation in relation to the task. Executing a motor activity (e.g., moving an object or speaking) affects the environment in ways that are relevant to the task (Chiel & Beer, 1997; Clark, 1998; Scheier & Pfeifer, 1999; Steels & Brooks, 1995; Wilson, 2002). Examples of situated cognitive activities include driving, holding a conversation, or in the case of the current study, participating in a feasibility study. To off-load cognitive work onto the environment means that we use the environment to hold information and concepts for us rather than encode it in our memories (Wilson, 2002). An example of this is walking through a mock-up SIS and asking questions and using that experience later when asked during a focus group discussion.

At times when people are forced to use situated cognition to confront task demands (e.g., providing one’s opinion regarding controversial facilities), they can rely on one of two strategies. The first is to use preloaded representation obtained from previous learning to answer questions (Wilson, 2002). In the case of controversial facilities such as SIS, people may rely on their understanding of SIS as it is portrayed in the media in combination with their own knowledge/attitudes to answer general opinion questions. In the case of novel stimuli and tasks, a second strategy is to reduce the cognitive workload by using the environment. In our feasibility study, for instance, participants with no prior exposure to SIS or no exposure to SIS within a hospital context specifically could rely on the SIS mock-up to help them form their answers. Without these, their cognitive workload would arguably be larger and their learning and feeling of clarity around SIS diminished. Our participants noted, for instance, that the SIS mock-up provided visual cues which helped them ask questions that they would not have thought of otherwise. Their greater willingness to offer opinions about SIS compared with our earlier studies may have occurred as a result of the mock-up environment as a location from which to store information without having to encode it themselves; these opinions may not have been verbalized if participants had to rely on their memory to encode information about SIS from a written description or a picture of it, which is the common approach in feasibility studies.

Our findings showed that participants who had gone through the walkthrough of the physical SIS mock-up desired to further improve their sense of how SIS function in ways that are consistent with how embodied cognition theory conceptualizes “improvement” in learning. They suggested visiting an open SIS or watching a video of one in operation. Such alternatives could provide several advantages when compared to physical mock-ups, including an opportunity to assess the impact of an operating site on the surrounding community, to note the location of that site, to assess how necessary a new site might be based on location, and to compare the features and functions of the newly proposed site they will be evaluating to the one that they have visited or watched on a screen. Rather than having to assess the SIS space on their own using previous knowledge, these additional aids suggested by participants could act as a way to offload the cognitive work of comparison and assessment onto the environment and improve their ability and confidence to provide opinions.

Other methods to improve participants’ capacity for imagining a proposed space may be available from the options used in the evaluation and design of medical rooms, such as a live mock-up, which employs actors to stand in for staff and clients to act out the process of the program from start to finish (Watkins et al., 2010), or a virtual mock-up, which is a computer simulated version of a live mock-up which users interact with through a screen or VR headset (Dunston et al., 2010). Both types of mock-ups, if applied as grounding aids for studies evaluating controversial facilities, might provide participants an opportunity to visualize and learn how people will interact with a facility. By interacting with simulated versions of the facility tools, services, and staff themselves, participants may benefit from the improved understanding that would theoretically come from these embodied learning experiences.

Limitations

Although most participants provided a positive assessment of the grounding aids, some voiced concerns. Some linked the grounding aids to what they perceived as attempts by the research team to sway opinions in favor of SIS. With one exception (i.e., a participant in the manager focus group), negative opinion about the grounding aids was only voiced during the focus group with clients who were opposed to or undecided about SIS. We wondered if using grounding aids might be counter-productive for those with pre-existing, strongly held negative opinions about SIS because they
raised suspicion about the motives of the research team. It is important to note, however, that participants who had previously formed negative opinions about SIS did not change those opinions during the study. In fact, they viewed the use of the grounding aids as biased because they did not include evidence, which does not exist at this time, to confirm their negative attitudes toward SIS. As such, it is not clear whether the grounding aids were biasing participant responses or if they were challenging already developed opinions opposing SIS and educating those with incomplete or underdeveloped learning regarding these sites. One factor to consider is that the neighborhood effects of SIS, which participants who opposed SIS requested evidence for (i.e., the effect of SIS on crime, violence, and drug use in the surrounding neighborhood), are not well researched. The research that currently exists favors SIS implementation. As a caution, researchers who use grounding aids should consider that their use may be considered unbalanced or biased, if the research used sways heavily in support of the implementation of the controversial facility.

Researchers may also want to consider how the development or use of grounding aids may affect community partners in their study. For instance, we found that creating a physical mock-up of SIS in a busy HIV hospital put tension on hospital staff, who typically used the space for daily operations. We coordinated with staff and used the space in such a way that caused the least disturbance.

Conclusion
Notwithstanding these limitations, our analyses show that most participants appreciated the use of grounding aids and found them useful. Future studies evaluating controversial facilities may want to consider developing, using, and evaluating grounding aids such as physical mock-ups to reduce participant hesitancy toward expressing opinions about controversial facilities. Future research comparing experiences of participants who are exposed to grounding aids versus those who are not is needed to assess the impact of these tools more rigorously.

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ORCID iDs
David T. Kryszajtys https://orcid.org/0000-0002-6532-3084
Adrian Guta https://orcid.org/0000-0002-1380-2016

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