

Taking Part: Role-play in the Design of Therapeutic Systems

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ABSTRACT

Gaining an understanding of user needs is a central component of HCI design approaches such as user-centred design and participatory design. In some settings, such as mental health care, access to end-users is often constrained. This is a particular difficulty given that the experience of those with mental illness can be difficult for researchers to understand, and is further complicated by its associated stigma. In addition, the therapeutic setting is outside the common experience of most people and protected from outside intrusion. Although role-play has been used in varied ways in HCI, rarely has it been defined with sufficient clarity to enable others to deploy it in a nuanced manner. We argue that role-play is particularly suited for use in mental healthcare settings and, when used judiciously, can address some of the difficulties associated with working in this setting. This paper details a range of role-play formats appropriated from therapeutic role-play, drawing upon the HCI and mental health literature, therapist input and our experience of using role-play for a number of purposes at different stages of the development process. We consider how and why role-play can be used to generate empathy, gain understanding of therapy, provide feedback on designs before clinical use and help train therapists in using technology in the treatment room.

Author Keywords

Mental health; role-play; therapy; healthcare; design

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H.5.2 [Information Interfaces and Presentation]: User Interfaces – Evaluation / Methodology, Prototyping, User-Centred Design

INTRODUCTION

A central goal of many activities in design is to understand the user, and some would argue to empathise with the user

[27]. Role-play is one of several techniques used in HCI to involve the user in the design process. It can be used by researchers to explore interaction scenarios, and attempt to put themselves “*in the shoes*” of the user. The goal in both cases is to bring a user *perspective* into the design process.

Taking a user-centred approach in mental health care settings presents several challenges [9]. Treatment takes place in a protected setting and involves a person discussing their problems with a therapist in order to achieve “*inner comfort, outer competence*” [6]. Researchers typically face limitations on the participation of patients and therapists. At the same time, the sensitivity of the setting requires researchers to ensure that systems are suitably refined before clinical deployment. In the face of such restrictions, a particular challenge for the researcher is gaining insight into the end-users’ experience and how it is affected by their illness. A further complication arises when therapists lack confidence using and introducing new technology to their patients, and neither their training nor workspace has taken into consideration the use of technology to support their work.

As a technique with an extensive history in both HCI and mental health, role-play is a promising candidate for addressing gaps in design knowledge arising from constrained access to end users, and potential lack of researcher intuition regarding their internal mental processes. Role-play is a highly developed technique with multiple formats and purposes in Psychotherapy. Therapists are particularly comfortable with role-playing; most will have used it in their training, and many in their work with patients. As a result it may be a suitable technique for engaging therapists in evaluations, giving researchers insights into the experience of clinical work, providing contextual training and establishing protocols to be used with new technology.

Although ‘role-play’ can refer to a wide range of techniques, all role-plays share an “as if” or “make believe” quality; participants assume characters and participate in simulated situations. We define role-play here as a range of techniques which deliberately create an approximation of real life in controlled conditions [28]. We

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will refer to role-play in mental health as therapeutic role-play.

In this paper, we examine a series of role-play formats used in therapeutic role-play and consider their use in the design of therapeutic technologies. Our observations are informed by the mental health literature, the experience of mental health practitioners using therapeutic role-play (captured via discussion and survey), observation and author participation in therapeutic role-plays, and finally the use of role-play as part of the design of three therapeutic systems. While we ground our discussion in the mental health domain, the formats, guidelines and rationale presented may be relevant to a range of domains sharing some characteristics of this setting, particularly those involving medical professionals and patients.

ROLE-PLAY IN HCI

When looking at the literature on the use of role-play in HCI, we can see a distinction between the use of role-play as a general technique in HCI and an emerging body of work where role-play and similar techniques have been used due to limitations accessing end users or the target environment.

General Use of Role-play in HCI

Role-play and improvisation techniques have been used at different stages of the design process. It has been used most often during the early phases of design, for example to help with idea generation [1, 15], to test out design ideas [21, 24] and to identify users' needs [5, 8].

Medler and Magerko have recently made a helpful distinction between the use of improvisational and role-playing techniques in design; the former more adept at generating ideas, the latter at focusing on specific and practical design areas such as evaluating prototypes [19]. They make a distinction in terms of constraints: the open nature of improv scenarios, makes it more appropriate for creative design tasks; role-play with its greater constraints makes it more focused, and hence more suitable for evaluations. Therapeutic role-play encompasses both varieties (i.e. both role-play and improvisation formats).

Within HCI, role-play is also a well-established technique to develop an understanding of users' needs, values and experiences. Burns et al. report that role-play can engage researchers more effectively with the design space, helping them "*imagine better...to empathise better*" [5]. Brandt and Grunnet have used role-playing to create a dialogue between researchers and users about ideas [3].

Experience prototyping is a form of role-play used to simulate experiences that are outside a designer's experience. For example, Buchenau and Suri had team members wear pagers to approximate what it would feel like to have a pacemaker. They report that this technique helped them feel greater empathy "with both those who will be affected by their decisions, and the experiences users may face"[4].

Role-play in Constrained Settings

Researchers have developed techniques for use in settings where working directly with end-users is problematic. Boyd-Graber et al. describe involving speech-language pathologists as proxies in place of aphasic individuals, because of the communication difficulties associated with the disorder and the high variability of symptoms [2]. Although they do not describe their approach as role-play, it has a similar "as if" quality; experts completed system tasks as a group "*imagining the difficulties an individual with aphasia might have*". They also found that tacit information emerged in unstructured discussions between practitioners that were not part of formal evaluations.

Hancock et al. used role-play with therapists to gain feedback on their design of a tabletop system to support sandplay therapy with children [11]. Their use took place near the end of the design cycle and involved two therapists and three researchers. Their goal was primarily to assess whether the system effectively supported therapy but they also hoped to improve the design. Although this "mock therapy" session provided the authors with useful feedback about the digital prototype as well as insights into therapeutic practice, the specific impact role-play may have had or the rationale for its use is unclear.

Pykhtina et al. have also used "mock therapy" sessions prior to real world evaluation to assess the clinical suitability of an interactive tabletop system for use with children in play therapy [23]. While the format of the role-play sessions is not discussed, the authors report that these sessions were effective as they helped generate useful feedback for the researchers.

We have seen that role-play has been used to different ends in HCI, including generating ideas and eliciting information from domain experts. We argue that this use has been limited in the following ways: (1) the formats have not generally been defined in enough detail to allow other researchers to replicate them or help make informed decisions about their own choice of format, (2) the rationale for using role-play is rarely expressed and (3) consideration of why role-play may have been effective is not included. Initial evidence suggests that role-play may be useful as a technique to address challenges present in clinical settings but there is a need to establish why this might be the case, and to identify the mechanisms present in role-play that enable this so that researchers can make more informed decisions regarding their use of role-play in research.

THERAPEUTIC ROLE-PLAY

Most role-play techniques that have been used in HCI to date derive from theatre and while the use of role-play in therapy originated from this same tradition, it has developed into a set of techniques with different goals that are now well-established and widely used in Psychotherapy. This section will draw on the use of therapeutic role-play in Psychotherapy because of its direct relevance to our work in this domain. Therapeutic role-play has been defined by

Corsini as “a simulation of an environment which allows participants to ‘play’ out a scenario”[16]; Corsini further clarifies this as the practice where “people act out imaginary situations for purposes directed to self-understanding, improvement of skills, analyses of behaviour” or to demonstrate behaviour [6].

Role-play Survey

To obtain some direct input on the use of role-play by therapists we carried out a small but probing survey to explore their experience with role-play (N=15). Participants were recruited via email invitations sent to 3 clinics. Participants had an average of 11 years clinical experience (sd 6.8). Participants reported feeling comfortable with role-play (mean 2.07 sd 1.03 where 1= very comfortable and 5 = very uncomfortable). Additional results from this survey are reported in context throughout the rest of the paper.

Background

Therapeutic role-play was devised by Jacob Moreno in the 1930s [20]. Moreno’s approach was influenced by techniques used in theatre. He defined three main roles. The Director, usually played by the therapist, makes the decisions about who participates in the role-play, the scenario to use and when to stop. The Protagonist is the person, usually the patient, on whom the role-play focuses. The person acting against him is the Assistant or Antagonist; this can be the therapist, another patient or someone else. In some forms there is a fourth role, the Spectator, who does not participate directly in the role-play but may do so in the subsequent discussion.

When therapeutic role-play focuses on one patient’s problems it is called ‘Psychodrama’ – and involves someone, often but not always the patient, playing the patient’s role. When the action is centred on a group’s problems it is referred to as ‘Sociodrama’.

Theory of Therapeutic Role-play

According to Corsini, the value of role-play when it is effective depends on three factors. The first, **simultaneity**, is a unique characteristic of role-play in therapy. Other therapeutic approaches (e.g. Cognitive-Behavioural Therapy) and techniques (e.g. face-to-face discussion) might focus mostly on one of the following aspects: the way a patient is thinking about a situation, how they behave in a certain context or how they feel about someone. Role-play is a holistic technique that combines all three (thinking, feeling and doing) in the one activity. The result, when it works, is a closer approximation of reality than other approaches offer [6].

The second theoretical factor is **spontaneity** and refers to participants’ self-generated behaviour in the scene. In therapeutic role-plays, the participants have to act and react on the spot.

The final factor is **veridicality** – how closely the role-play resembles subjective reality. The goal is to create a

psychologically realistic experience for the participant. For maximum effect, it is recommended that both the roles accurately reflect the actual people’s personalities, and, in order to help participants establish the “as if” quality to the play, that external details – props, and settings – be as close the real setting as possible.

Where much of the focus of therapeutic role-play might be to gain **insight** about a patient’s thoughts, behaviour and feelings, achieving **empathy** is also an important aspect of role-play. This may help the participant gain understanding of other perspectives and **outsight** – a more intellectual understanding of the motives of other, and even **idiopanima** – understanding how other people see you.

Therapist Training

Role-play is used in therapist training mainly to develop and practice therapist skills [28]. Most trainee therapists are required to practice role-playing therapeutic sessions [16] and it is used extensively as a pedagogical tool. All participants in our survey reported participating in role-plays as part of their training and 87% in their work. While not used everyday (mean 2.27, sd .88 where 1 = very seldom and 5 = very often), 74% of respondents reported using role-play in the past year. One recently qualified Counselling Psychologist commented: “by the end of your training, most people are sick of them because they have been doing them so much over 2 years. Either way they’re very good at bringing up issues you wouldn’t foresee. More engaging than a presentation - most in our training course were drummed up on the spot. We’d practice actual patient scenarios, or your own personal issues that you are comfortable bringing to the scenario.”

Uses of Therapeutic Role-play with Patients

Moreno devised therapeutic role-play as a way to create an “imaginary reality” in order to objectify experience. The technique is used in treatment for many purposes including: (1) as tool for diagnosis; understanding a patient “by watching him act out in a spontaneous manner a near-veridical situation”, (2) to model ideal behaviour and allow patients to practice skills in a safe environment, (3) to help patient’s achieve catharsis by reenacting painful experiences, (4) to gain insight into one’s behaviour, and (5) as another channel for therapy when a patient is resistant to talking about their problems [6].

Therapeutic role-play can be the central method of treatment as it is in Psycho- or Socio-drama or it can be used as an auxiliary technique. Since it is a technique independent of therapeutic orientation, therapists of any theoretical orientation use it to support their practice. For example, some Cognitive Behavioural Therapy approaches recommend using role-plays with children to treat acute anxiety problems [14]. This entails the patient and therapist enacting a feared situation. In other cases the therapist plays the role of a person with whom the patient has difficulty expressing their feelings [26]. The role-play is repeated, with therapist guidance, until the desired outcome is

achieved. There has also been extensive use of role-play in social skills and assertiveness training.

In summary, and as expressed by one participant in our survey, role-play is suitable to: *“demonstrate different scenarios, highlight and practice new behaviours, see something from another person's point of view, gain experience and confidence and to practice dealing with a particular situation in a safe environment.”*

Therapeutic Role-play Techniques

The therapist has a wide range of role-play formats to choose from, each aimed at meeting a specific need or achieving a particular therapeutic goal (see **Table 1**). These formats can be categorized based on the number of participants: solo, dyad, triad and group.

Straight Role-playing or Psychodrama

The most common format involves two participants (dyads), with the patient (A) playing himself and the therapist (C) taking the part of someone from the patient’s life (B). There are many variants on this basic format. For example in couple therapy, a husband and wife might play their respective roles and the therapist would observe. The **Role Reversal** technique involves the patient playing the antagonist’s viewpoint, allowing him to observe “himself” as played by the therapist: “Role reversal helps the patient to see himself as others see him and also gives possibilities for empathizing with someone else”[6]. This technique can also be used to provide the therapist with a depiction, albeit from the patient’s viewpoint, of a person in their life, so that they can use this information to play the character in subsequent role-plays. The **Alter Ego** technique can be used in group therapy to give the patient insight into how others might be thinking or feeling. It uses the same structure as basic Psychodrama but in addition another participant voices the thoughts and feelings of the antagonist in response to the hero’s actions.

Triad

According to one of the participants in our survey *“the most popular [role-play in therapist training] is the 'triad' where there are two in the role-play and one observer- for example one enacts the patient, one the counsellor, and one observes the interaction. Afterwards each reports their experience, and where possible roles are switched each time so each member gets a turn in each role.”* This technique is used quite frequently outside of therapy for general interpersonal skills training. The general aim is to play out a scenario in order to either practice newly learned strategies or to raise issues which can then be dealt with by the facilitator. The triad has the advantage that the trainee therapist can practice, and receive feedback on their performance in a safe environment, while also gaining additional perspective from the patient role, and contribute as an active and engaged observer.

Goldfish Bowl

This format gains its name from the setup in which 2 participants sit facing each other in the center of the room surrounded by other participants who actively observe the role-play. It is mostly used in therapist training and involves a facilitator who guides the role-play, a participant selected in the role of interviewer and another as protagonist. To begin the interviewer describes the role-play scenario and then starts questioning the protagonist. The facilitator can stop the role-play at certain points *“either around a moment of impasse, or at a moment when a new line of questioning should be pursued, or when the interview feels stuck or in need of consultation.”*[16]. The observers act as a consulting team, commenting on the role-play generally, as well as the interviewer’s behaviour; they also make suggestions for further strategies to try and hypotheses to guide this inquiry. At some point the facilitator stops the role-play and guides a discussion to increase understanding and construct a more nuanced interpretation of the situation. This format has advantages in a pedagogical setting, leveraging expert guidance, and allowing a large group to participate in discussion, contributing a range of perspectives.

Technique	Description
Mirror Technique <i>insight</i>	Typically used after a Psychodrama, the patient looks as into a mirror while an assistant (D) plays her role (A) and the therapist (C) plays antagonist (B).
Doubling <i>insight</i>	The patient (A) sits back-to-back with an assistant (B). The patient is asked to talk about her problems out loud and B voices her thoughts as her alter ego.
“Behind your back” Technique <i>idiopanima</i>	In group therapy, the patient (A) discusses problem for 10-30 minutes, A then goes behind a screen, and each member is urged to make a comment about the “absent member”, then return for discussion.
Auxiliary Chair Technique <i>insight</i>	Chairs are substituted for the patient and/or characters from the patient’s life or to externalize the patient’s psyche. This technique is useful for shy patients.
Black-out Technique <i>catharsis</i>	The room is darkened, but the patient acts as if in full daylight. The goal is for the patient to go through a painful experience unobserved in privacy, in order to achieve catharsis.
Soliloquy Technique <i>catharsis</i>	The subject turns to one side and expresses her thoughts and feelings in a voice different than she normally uses.

Table 1 Therapeutic Role-play Techniques

ROLE-PLAY CASE STUDIES

As described in the previous section, therapeutic role-play has been refined into a wide range of techniques to aid therapeutic work and overcome challenges similar to those faced in HCI research (i.e. access, empathy). As few researchers have experience of clinical settings, role-play provides one potential avenue for addressing these challenges. In this section we present three case studies, describing our use of different role-play techniques in the design of three therapeutic systems to support Psychotherapy.

Understanding the Clinical Setting and Users

Role-play was used in the design of a system to support patients tracking symptoms [17]. Symptom charting involves recording thoughts, behaviours and feelings on a regular basis and is an important component of Cognitive Behavioural Therapy.

A form of Psychodrama was deployed in this instance to inform the design of a new diary system based on an existing paper-based form, the Thought Record. The goal was to gain a grounded understanding of the current methods used to track symptoms, to experience what it might be “in therapy” and to gain a more general insight into the therapist’s therapeutic approach and way of working.

Two role-play sessions took place in a student counseling service at an Irish University. The sessions were broken down into 3 areas of focus both to increase efficiency (require less of a busy therapist’s time) and to target areas of interest. They included: 1) meeting the therapist for the first time and taking a psychological history, 2) explaining how to complete the Thought Record exercise and 3) going through a completed Thought Record sheet. The sessions took place on two separate days, a week apart to mirror the usual frequency of therapy sessions and allow the researcher to complete therapeutic “homework” activities between meetings. The researcher met in advance with the therapist to organize the role-play and discuss common therapeutic activities and common patient problems. A patient role sheet and basic scenario was created by the researcher based on this discussion. The researcher played the role of patient, the therapist played herself. Both sessions were videotaped.

In the interest of keeping the role-plays close to real therapeutic practice (*veridicality*), both began before entering the therapist’s treatment room. The researcher, as the ‘patient’, came into clinic’s lobby and checked in at reception and took a seat in the waiting room. On his first visit he completed a background information form given to every patient while he waited. The therapist came out and brought the “patient” to the therapy room and the role-play proper began. Each role-play lasted approximately 30 minutes with 5-10 minutes for discussion at the end.

The first role-play focused on discussing the patient’s current emotional state and previous history and explaining

how to do symptom tracking. Even though the researcher knew the therapist well, he felt nervous at the outset and throughout this first session. Only part of this nervousness was acted. The main reason was due to having to speak at length about personal problems and being unfamiliar with the setting:

Patient (P): How long will this last?

Therapist(T): Usually about 50 minutes.

P: Alright, that’s ok

T: Nearly an hour for your first session, do you need to be anywhere else?

P: I’m just very busy

T: Would it be good to shorten the session?

P: I’m just not sure what to expect

T: Ok, well let’s get started with a few questions (*goes into background questions*)

During the week between sessions, the researcher completed the chart each day (as a patient would). This activity helped increase an understanding of the internal mental processes that were the focus of therapy and also the practicalities of paper charting such as the difficulty bringing the paper sheets around on your person, finding a solid surface to write on and maintaining privacy while doing so. Many of these issues are covered in the literature but this role-play provided first-hand experience of symptom charting.

The second role-play focused entirely on the Thought Record form that the researcher had completed. The therapist went through each entry systematically using the material to drill down into a discussion of the ‘patient’s’ feelings and beliefs, challenging some and prompting the ‘patient’ to suggest alternative views. The therapist also used this activity to reaffirm that the “patient” understood how to complete the form and clarified areas that were unclear to the ‘patient’. The paper form provided a shared focus for most of the session, in itself an interesting aspect of the experience.

At the end of each role-play the therapist completed a brief questionnaire on the validity of the sessions. She strongly agreed that she felt comfortable during the role-play, that the patient role was realistic. She agreed that the role-play resembled her actual practice and that she was comfortable with the video recording.

In the debriefing interviews directly following the role-plays, the therapist mentioned a term used in her work, *negative automatic thoughts* - thoughts that can contribute to emotional problems - and mentioned that there were a series of questions that therapists could use to bring a patient to a different perspective on these thoughts. To demonstrate this concept, unprompted she switched in to a role-play:

Therapist: What’s the problem

P: I’m finding it extremely difficult, I feel completely overwhelmed

T: Why do you feel that way?

P: I have so much work due in a short space of time, I have 3 essays due... I just can't imagine getting through all the work...

This use of discussion coupled with spontaneous role-play was an efficient way to more vividly illustrate a point of discussion.

Role-play for Empathy and Understanding

One of the chief difficulties in designing for clinical settings is gaining an understanding of the patients' viewpoint and what it is like to be 'in therapy'. Gallagher and Hargie compared role-play counseling sessions with real sessions and found that role-plays were valid in respect to therapists' verbal and physical behaviour [10]. In clinical uses, therapeutic role-play is useful to the therapist because it can result in "a more realistic picture of what actually happened" to "see and hear how a person really operates rather than getting information through narration" [6]. One respondent to our survey reported "*asking the client to walk me through a situation 'as if' it is happening now, to get an insight into the lived experience and the physical, emotional and cognitive process associated (with it).*"

In this instance, role-play helped the researcher to ask questions related to concrete work experiences that may have been difficult to identify through discussion alone. By placing the therapist in a realistic scenario in their clinical setting, there was a chance to elicit tacit information and reach a more accurate understanding of therapeutic practice, something that can be difficult to obtain through other methods. This plays to the strength of role-play in requiring participants to think, feel and act all at once (simultaneity).

To achieve this, it was important that the role-plays resembled actual practice; the session took place in the therapist's treatment room and the patient's role was an amalgamation of actual cases and the researcher's personal experience. *Particularization*, this use of specific detail in the role-play and *personalization*, the use of personally relevant material, are two guidelines for realistic (veridical) and effective role-plays [28]. While the setting and role sheet was detailed and specific, the scenario itself was quite open - neither participant was given specific targets or goals. Hence we suggest that researchers wanting to gain an understanding of therapy should devise open scenarios that take place in clinical settings with role cards based on actual patient cases.

Participating in the role-plays helped the researcher get a feel for the flow of therapy by experiencing the back and forth discussion around a problem, observing the therapist's patterns of dialogue, asking questions ("in what way has your life changed?") rephrasing a patient's statement to indicate comprehension ("So you were feeling worried about this?"), statements of empathy to build trust ("*that must be difficult for you*"), summing-up a problem to help the patient gain understanding ("it sounds like...", "would it be fair to say..."), sometimes offering another view or

prompting the patient to find another reason for a belief ("*can you think of another reason why..*").

These sessions also helped the researcher gain a deeper understanding of the therapeutic space. When trying to understand a design space, some Participatory Design approaches suggest interviewing the end-user in their workspace so they have materials to hand. In-situ role-play takes this one step further by prompting them to use these materials as they would in their clinical practice. For example, in these role-plays the therapist made use of a notepad extensively to take notes, and the completed form was used in the second session as a shared focal point to focus discussion and agree on what action to take. These sessions also helped the researcher understand the reason this space prioritizes comfort and maintenance of (a sense of) personal space, and how any technology introduced into this setting would need to respect these requirements.

In summary, these role-plays led to insights into many low level details that would be difficult to otherwise experience or understand through discussion including the difficulty making eye contact with someone you do not commonly share personal problems with, a first person view of how the paper charts are introduced and used by a therapist and the general feeling of being in therapy.

Debugging a Therapeutic Storytelling System

Role-playing formed an important part of the prototyping and formative evaluations stages of the design of a therapeutic storytelling system [18] that supported children collecting multimedia content on their phones and then structuring this content in therapy into a personally meaningful narrative.

When an early working software version of the system was ready, a workshop was organized for six participating therapists, none of whom knew each other. This was facilitated by the researcher and lasted a half a day.

The session began with a presentation of the system to the therapists. Then the six therapists, in pairs, took part in a role-play each in front of a desktop computer. Each 'patient' character was given a brief role card. Participants in the therapist role-played themselves and practiced introducing the tool to the 'patient' and registering a patient account. The 'patient' tried to send a sample first entry from their mobile (Four therapists used their own phones, two were provided with phones). Each pair then created a story using this content and other sample content pre-loaded into the system. This gave participants the opportunity to explore the interface. On completion, participants switched roles and began again.

During this session, the researcher was able to move from pair to pair observing the role-plays in action. It was possible to observe the therapists' first impressions of the software and their use of it while completing a basic task. After these role-plays, the group got back together and discussed their impressions of the tool and potential

difficulties they would envision using it with a patient. This led to the creation of a series of protocols for the use and introduction of the system in clinical practice.

Role-playing, observation and the subsequent discussions were helpful in identifying the need for short-term and long-term future developments. Changes identified at this stage involved some layout adjustments and the re-design of icons that therapists found unclear. The process of registering a patient was streamlined, as was the initial starting page of the desktop tool. Role-playing in particular was a good measure of how the system at that point suited existing practice.

The use of role-play helped anchor the subsequent discussion in practical issues. For example, the original system allowed patients to send and upload text, pictures and videos from their mobile phones and to create free-form stories in the clinic. Most therapists reported being unsure in the role-plays how to structure this task. To address this, therapeutic plans, based on existing therapeutic paper-based activities, were subsequently added which therapists could select in the system and then use as a template to create a therapeutic structure.

Another example related to a discussion that emerged from one therapist's concerns that a patient using the system might record a video of a violent domestic argument and then shows it to her therapist, causing considerable problems. It was agreed by the group that this was not an unacceptable risk and could be managed in several ways by: (1) careful consideration of which patient to use the system with, (2) a clear introduction to the patient on how to use it outside the clinic and (3) the use of an SMS 'mission' sent to the patient's mobile phone to focus their multimedia collection around a specific task.

Role-play for Debugging & Critiquing

One of the uses of role-play is to provide frank and non-subjective criticism of a person or a behaviour in a safe environment. In this case study, role-play gave therapists the opportunity to critique a system in a safe manner.

Participants tend to be more assertive in role-plays than in other experimental settings: *"it is as if individuals feel more free to act stronger in situations of no real consequence than when their behaviour has consequence"* [28]. One advantage of this is that therapists tend to feel more empowered to critique a system as part of a role-play. Simsarian has described a similar use of role-play in product design, "working out, and working through, details of possible scenarios before delivery or implementation" [25]. Our use of role-play led to therapists identifying functionality that needed to be changed or introduced. It helped provide feedback on targeted aspects of the system such as how to introduce it or how to incorporate multimedia content into therapeutically meaningful content.

In mental healthcare settings experimenting with clinical systems with patients may be dangerous to the patient or

may adversely affect the therapist's focus. From an ethical perspective, the 'first do no harm' rule of treatment prohibits the use of any treatment that may cause harm to the patient. Hence, researchers need to find safe methods for allowing experimentation. Role-play provides an effective approximation of a clinical setting to allow more experimentation and pre-clinical evaluations.

Fitting a Therapeutic System into Work Practice

Role-play was used as part of the design of a system to support children in therapy recording their moods on their mobile phones and displaying them in the clinic to their therapists [17]. Our goal was to introduce therapists to the system in advance of using it with patients. This role-play involved seven therapists, from various therapeutic backgrounds, who were interested in using the system. A modified version of the fish bowl technique was used because our goal was to have spectators observe and comment on each role-play.

The session took place in a clinic in one of the participating therapists' treatment rooms and was facilitated by the researcher. Participants were given role-cards that included basic character information. Therapist role descriptions provided objectives to complete with the patient. The patient role covered background details including age, gender, personal profile and current mood. The role-play began with the patient arriving at a session.

The person in the therapist role introduced the tool to the patient and went through the process of installing the software. Once an initial mood was recorded on the patient's phone, the therapist asked the patient if they wished to show them their diary on the clinic computer. The spectators surrounded the role-players who sat at two chairs in front of a computer. They commented and asked questions spontaneously throughout and after each role-play there were brief open-ended discussions. Each therapist had the opportunity to play each role once.

Role-play was useful here both for introducing a novel symptom tracking system to therapists and to build up their confidence using it. The researcher benefited from being able to observe multiple spontaneous attempts to introduce and use the tool in a therapeutic session. These sessions were helpful in assessing whether the system could be successfully introduced by therapists to their patients without assistance. Some common problems were identified. For example, installing the mobile app directly onto a mobile phone proved problematic for several participants. To address this, a new element was subsequently added that enabled therapists to send an SMS link directly to the patient's phone. Role-playing with a working prototype also allowed therapists to focus on low-level technical details and to learn from each other. When one therapist clicked on the browser icon to get online, one observer interrupted: *'Where did you find that?'*

In this instance, role-plays were useful in allowing therapists to develop their techniques for incorporating the system into their work practice, and to build up confidence using it in a clinical setting. This helped the researcher to identify protocols for the clinical use of the system. These protocols were incorporated into a refined role-play scenario oriented towards training, used subsequently in several in-situ role-plays in other clinics.

Role-play in Training

Role-play has been used extensively to train a range of medical and mental health professionals. One randomized controlled trial found that practicing technical skills by role-play, as opposed to learning technical skills without role-play, resulted in a more realistic training scenario and significantly better doctor-patient communication skills in students [22]. For most therapists their face-to-face work rarely involves technology. In our experience, role-play can be used to train therapists, not just in how to use a new technology but also to help them understand how they might integrate a new tool into their existing practice.

A therapeutic space is normally a safe space, away from the world; interruption is extremely unlikely: *“a role play space within such a context shares, indeed accentuates, this initial framework.”* [28]. Therapists reported that participating in the role-plays helped them build up their confidence using the system. Therapeutic role-play is often used to rehearse behaviours with patients in a safe environment that the patient might find otherwise challenging. In this case study, role-play functioned in a similar way helping therapists build up their confidence around technology in this safe, yet realistic, space. In particular, the use of the fish bowl technique helped create an atmosphere where therapists could ask ‘stupid’ questions, and broach their concerns. Thus role-play was an effective indirect method of training therapists how to use a system, as well as giving them a channel to ask questions. In the role of spectator, therapists were comfortable commenting and critiquing various techniques for introducing the system.

DISCUSSION

We set out in this paper to explore how therapeutic role-play might address some of the challenges HCI researchers face when working in this domain. We have described how we adapted therapeutic role-plays for use in the design of three clinical support systems. We believe role-play’s strength is to provide a multi-dimensional understanding of the space and all stakeholders in this space. Role-play was helpful in: 1) gaining an understanding of the clinical setting, 2) helping build empathy, 3) broaden understanding of the therapeutic process, 4) help debug and improve a prototype, and 5) train therapists how to use the system in their practice.

Beyond allowing researchers to understand therapeutic practice, role-play can help them to develop an appreciation of the range of issues, emotions and situations faced by both patients and therapists. It is generally extremely

difficult to obtain ethical clearance to observe therapeutic sessions and direct dialogue with patients is limited. This can make it difficult for researchers to understand the dynamics of what actually happens during therapy. Accessing this everyday reality is one thing that role-play can do well [28].

Design Stage	Justification / Purpose
Understanding Design Space	Gain understanding of users and setting.
Idea Generation	Develop and test novel concepts in simulated scenario and/or setting.
Debugging	Identifying potential issues with system in advance of clinical use.
Training	Develop protocols for introducing technology Increase therapist confidence with technology

Table 1 Role-play in Healthcare Systems Design.

Role-play is by no means the only method for gaining an understanding of a domain or involving end-users in the design process. Engaging patients and therapists in the design process in an area as sensitive as mental health is an important step. However, role-play can compliment other user-centred techniques and help address many of the unique challenges that researchers face in this domain, often in ways that other methods cannot.

In our experience, Psychodrama is good for close (and sensitive) work with a therapist and in our experience is helpful be early on in the design process when gaining an understanding of the setting and testing design ideas. The triad method is useful with large groups with reasonably stable technologies to get feedback on the system, to allow the researcher to observe interactions, and to lead on to broader discussions. The fish bowl technique was useful closer to clinical deployment to allow therapists to practice and observe others practicing using the system. In both the triad and fish bowl role-plays, the facilitator may pause the scenario in order to discuss issues arising. While in a pedagogical context this would likely revolve around teaching points, in a design context, this can be used for discussion of new ways to use the system, ways it could better support therapeutic practice, or shaping the direction of the role-play scenario towards more productive areas.

Other Applications of Role-play

One lesson to be taken from therapeutic role-play is that this is a flexible technique that researchers should use creatively to support work in this area. One possible novel use may be in changing therapist perspectives on the use of technology in the clinic. Role-play has been shown to facilitate attitudinal changes more effectively than educational information [13]. Pykhtina et al. experienced considerable resistance from play therapists to the introduction of technology, yet the therapists who participated in role-plays *“did not believe that the technology interfered with the relationship between child*

and therapist”[2]. In our experience, therapists have expressed concern about the use of technology in therapy, but we believe these concerns can be made more specific or overcome through role-plays, which can ground these concerns in day-to-day practice.

In our work we have used performed role-plays that are acted out. However some therapeutic role-plays like the Alter Ego technique give voice to psychological processes in a similar way to the Think Aloud technique in HCI. This approach might be adapted to help researchers gain an understanding of patients’ psychological experience - a form of *Psychological Experience Prototyping*. For example, the therapist could step the researcher through an imagined cognitive process of a patient with depression in order to experience how this illness affects thoughts, feelings and desires, something we could relate to a phenomenological design perspective.

ROLE-PLAY CONSIDERATIONS

One of the deficits identified in previous uses of role-play in HCI was that there was lack of clarity on the rationale for using role-play and insufficient detail for others to appreciate the merits of different approaches. The following guidelines are presented to help the researcher address and consider practical issues associated with using role-plays. The aim is not provide step-by-step instructions. It can be hard to coordinate groups of clinical practitioners and the number of participants and time available can be subject to change at the last moment, and so a key strength of role-play is that it can be flexible and easy to deploy.

Devising Scenarios and Role Cards

Client
You are 14. You have problems sleeping which is affecting the way you feel about everything. Your father also has problems sleeping and keeps a mood diary. You don't like having to go to therapy but are prepared to give it a go.

Client
You are 12. You have been feeling depressed since you heard your grandfather was dying. You haven't been sleeping. This is your first session with a therapist and you are quite nervous. You are fearful that you will find it difficult to talk to a stranger about your problems.

Table 2 Sample Role Cards

In mental health, individuals with a high level of expertise typically devise role-plays. A therapist leads an anxious patient, or a senior clinician teaches a group of therapists a new skill. In most uses of role-play in the HCI literature on therapeutic applications this is not the case. Very general or unrepresentative scenarios may not resonate with participants. There is a considerable risk that scenarios devised solely by a researcher might be undermined by restricted awareness of the domain. To generate more authentic scenarios, consult clinicians and the domain literature when devising roles and scenario.

Open for Exploration, Closed for Rehearsal

Role-plays can be improvised (open) or scripted (closed) or somewhere in between. This decision should be guided by

whether the goal of the role-play is primarily exploration or to play out a fixed scene (e.g. practice a skill). We recommend researchers use open role-plays for realism and closed for training or debugging specific parts of system. While our first case study had a detailed scenario, the role-play was largely open and could be explored by both participants. Once we had identified a commonly agreed method for introducing the software, then our role-plays became more closed and didactic, providing therapists with the opportunity to practice an important skill and build up their confidence in an environment that approximated the clinical setting.

Keep Close to Reality

The closer the play is to actual practice the better for understanding, empathy, debugging etc. Where role-play is used illustratively in discussions with therapists, veridicality is less important. Longer role-plays allow for a greater degree of engagement and closer approximation to reality, allowing complexity to develop [28].

Let the Therapist Act

According to [7], role-plays are more accurate when participants play themselves since this approach does not require them to *imagine* what another person might do in the situation. However this fidelity can be approximated by careful preparation of scenarios and role cards. In our role-plays participants played themselves or a devised patient character. On the other hand, therapists are more experienced adopting unfamiliar roles. In case study 1, the goal was not for the researcher to perfectly inhabit the role of a patient but rather to take on another’s role to gain insight into the experience of therapy. The therapist played herself to give the researcher an idea of how therapists operate but also to allow the researcher to draw on tacit knowledge that can be difficult to otherwise access. In the other role-plays, the therapist played themselves in order to practice skills, to try to respond to new situations *as they normally would*, and to critique the systems.

Use Unfamiliar Elements to Innovate

Does the role-play take place in a setting or around a scene that participants are familiar with? We have seen that role-plays based on the familiar (particular and personal) tend toward more realistic role-plays. For example, using a therapists’ consultation room helps ground the scenario, and the environment is easily referenced – materials and equipment are on hand. At other times, an unfamiliar element (the technology) might be introduced to a familiar setting in order to play how to adapt to its introduction. This approach may have application earlier in the design process to identify novel ideas, as seen in other uses of role-play such as work by Iacucci where participants used a ‘magic object’ to identify novel design concepts [12].

CONCLUSION

In this paper we have identified ways in which role-play can be usefully employed in therapeutic settings. While some issues will only emerge in clinical practice, role-play

provides a useful and flexible technique that can contribute to design along multiple dimensions. We have illustrated how it may be deployed in therapy to: identify protocols for introducing the system to patients, understand the setting and work practices, empathise with the end-user, develop protocols for clinical use, increase therapists' confidence with technology and provide a safe environment for therapists to make mistakes and ask questions. We have outlined a number of considerations to guide researchers in their use of role-play and provided practical guidelines for devising and conducting effective role-plays. While mental health is an important area in its own right, with depression alone affecting over 120 million people, these guidelines may be applicable in other domains facing similar constraints, particularly those involving medical professionals and caregivers.

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