Who are the People in my Life? Towards Tangible Eco-Maps

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Abstract

Eco-Maps, diagrammatic assessments of family relationships, are used by social workers in individual and family contact to understand the subjective experiences of both supportive and disruptive family, friendship, and community relationships. In this paper we present the first phase of the development of the *People in my Life* app. We have developed a tangible version of Eco-Maps to unlock the potential of eco-maps in the digital domain and to enhance social work practice with children and young people. The central idea is to develop an improved, technology-based means to assess relationships that supports and enhances social work practice and foregrounds children and young people's experiences. In particular, the project has three aims: (a) to collaboratively develop with social workers an application for creating eco-maps using touch-screens with tangible objects, (b) to test its usability with children, in the first instance, and (c) to provide a first exploration of the psychometric properties of parameters captured by the app.

Author Keywords

Tangible Interaction; TUI; Tablet Application; Social Work; Eco-Maps; Closeness.

ACM Classification Keywords

H.5.2. Information interfaces and presentation (e.g., HCI): User Interfaces;

Introduction & Motivation

Once social workers are sent to a home to evaluate whether or not there is a potential risk for a child, they only have little time to assess the situation. One important technique social workers use to engage in a discussion with the child are eco-maps [5]. While leading an engaged discussion, the child and the social worker lay out the social connections within the family and the community in a paper-based diagram. Such paper documents then serve as a basis for a report and advise.

One drawback of this approach is that after the interview, only a static document remains, meaning that the dynamic nature of the generative process and any assessment of family relationships over time is lost almost entirely. Another angle for improvement pertains to fostering the child's engagement during the procedure, which is vital both for learning about the child's perspective, and for building a relationship between child and social worker. Another goal for the app was therefore to create an engaging and fun tool for eco-mapping procedures with children.

The *People in My Life* Application

Therefore, we present in this paper a novel technology-based, mobile instrument for assessing interpersonal relationships between family and community members as shown in the concept figure 1. With our first prototype (as can be seen in figure 2) of our app called *People in My Life* we propose to capitalize on interactive

Figure 1: *People in My Life* app concept.

tangibles to overcome this problem and exploit the benefits of tangible interaction [3,4]. Similar apps were developed in the area of Ubicomp, e.g. Hancock et al. developed a tabletop app to support *sandtray therapy* [1] or Hoey [2] focused on adaptive technologies for assistance in healthcare in general. Within our app the social workers encourage children to use the interactive figurines on a tablet to play out their relationships to important people in their life. These figurines are identified and tracked by their footprint, and get assigned different roles during the discussion, such as the *friend*, the *father*, or the *dog*. Any movement and changes in their relative position on the tablet is recorded during the session and reviewed for further analysis after the session. Furthermore, several metrics such as relative distance, overall movement, etc., are calculated on the fly. A short mockup video[1] is showing this process.
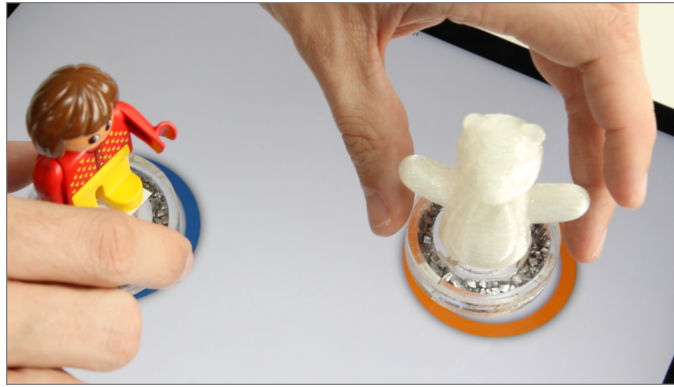
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[1] https://www.youtube.com/watch?v=QS2kbKOKR5A

Figure 2: A child and a social worker interacting with the *People in My Life* app.

Co-Design of the App

The first version of the *People in My Life* app was informed by a co-design workshop with social workers at the University of Sussex in February 2016. The workshop provided us with rich feedback that has formed the project both conceptually and with respect to practical issues regarding the implementation of the app. In particular, in the workshop we found that first, the drawn eco-map itself is an important piece of information, but that it is also a mediator for opening the discussion and facilitating relationship-building between the child and social worker. Social workers use different objects like pebbles or figurines to engage the child in interaction. Second, the interpretation of the eco-map is not part of a strict framework, but is performed based on the experience of the social worker. To support this interpretation, we will calculate measures like cumulative movement of a figurine during the session. Third, the scenes which are discussed to create the eco-map can be manifold, e.g.,

at home, at school, etc. The app should should thus be either generic, or provide very concrete scenarios. The latter option might influence the results as the proposed scene might conflict with reality.

Implementation

After the initial workshop the *People in My Life* app was developed in Swift for iOS and currently runs on an iPad Pro. The figurines are tracked with capacitive markers similar to the method proposed by Voelker [7]. The markers generate a unique pattern of touches that is recognized by the screen. Using these patterns, we can reliably identify up multiple figurines and thus assign them different dedicated roles for a session. Once a tangible is first placed onto the tablet, the experimenter assigns a specific color and a name to it. In a first version, as seen in the video and in figure 2, we used a rebuild of the PUCs as described by Voelker [7] and off-the-shelf figurines. In the second iteration we replaced this by simply attaching conducting foam under our own designed figurines that are more neutral than the off-the-shelf figurines and allow the children to better assign different roles to them (see figure 3).

Measures

In the next phase of the development we want to correlate the metrics that can be recorded with the app (such as relative distance, overall movement) with established psychometrics (such as psychosocial adjustment and interpersonal closeness). In the future, this may help to discover critical situations faster.

Figure 3: Second version of the figurines with conductive foam markers below.

The potential of the app to reflect both spatial distance and dynamic movement may particularly support understanding regarding two axes of social relationships: closeness-distance and supportive-disruptive. These axes may provide a parsimonious but valid proxy for a range of relevant resources that are available in a social system. For example, differences in closeness/distance between family members may indicate who is likely to provide reliable support for a child. In planning interventions, social workers could thus use felt closeness to identify effective allies, or they could focus on supporting crucial relationships that seem to lack closeness.

Discussion & Future

We have presented the first phase of the development of our app *People in My Life* to evaluate the subjective perceptions of closeness to family and community members, for social work practice. We shared insights from our co-design process and our measures. We are in the process of rolling out the application and testing it with social workers. During the poster session at Ubicomp we aim to gather additional feedback on the app and will also showcase our current prototype alongside the poster.

Acknowledgements

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