Design and Development of Two Digital Solutions for Promoting Harmonious Relationships: Buddy Up and Squeez

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Extended Abstract

Introduction

The Sanford Harmony Institute (SHI) is a new Institute at Arizona State University and this poster presents two important Works In Progress. The team leading SHI has created multiple hands-on and digitized solutions aimed at relationship-building and connectedness for children and the adults who care for them. Both apps were designed using best practices in learning engineering including: iterative design processes, co-designing with users (teachers and parents), and mixed methods (quantitative and qualitative) assessments on the efficacy of the tools (Goodell & Kolodner, 2023). This report shares the innovations and insights derived from one nested cycle within a broader, iterative learning engineering process (challenge-creation-implementation-investigation) for each digital tool during the creation phases of the projects (Craig et al., 2025; Totino & Kessler, 2024).

Tool 1: Buddy Up

Buddy Up is a mediated peer-pairing intervention that supports children's positive relationships with diverse others in a classroom. A previous, hard copy intervention was informed by Intergroup Contact Theory (Allport, 1954), which specifies the benefits of exposure to heterogeneous others. Past trials indicated the intervention was successful in its aims (Hanish et al., 2021, 2023). During the challenge phase of this project, teachers reported that it was difficult to track child pairings and to ensure that pairs were novel. This new digitized version automatically allows teachers to create groupings (usually pairs of 2) and randomly assigns children to the groupings while tracking who has been with whom over the course of one year.

Design

SHI partnered with graphic designers, teachers, and developers to iteratively refine the app. A new backend allows teachers to see the pairs created over the year and to easily reshuffle pairs. As a nested cycle in the creation phase, this app was user-tested in Spring 2025 with five teachers who had prior experience with the hard-copy version of Buddy Up.

Innovations and Insights

Two insights were unearthed. First, the protection of student data must be the foremost priority for researchers and designers, as it is for schools. A nicknaming convention was adopted to protect student names, servers are kept in the U.S., and student names are deleted after one year. Second, teachers' time on the app needed to be minimized. Adding a link to automatically import student names and creating nicknames was effective.

Tool 2: SQUEEZ

Squeez is a mobile app offering 21 short games and activities for parents to play with their young children aged 3-7 years old whenever life's moments could use some fun or distraction (e.g., doctor's offices, grocery lines, etc.). The app serves as a digitized resource tool providing tailored, easy-to-use activities that fit the moment, removing guesswork and encouraging playful learning in daily routines. The 21 games come in three categories based on the location (e.g., quiet space) and energy level of the child (e.g. calm, etc.) and aim to strengthen the caregiver-child relationship and help children develop self-regulation skills. It is unique in that it is delivered with a smartphone, but NOT intended to be played on a smartphone.

Design

SHI researchers, who are experts in child development and caregiver-child relationships, collaborated with game developers and programmers to develop the app from hard-copy prototypes and iteratively refine the app. A beta version of Squeez was evaluated for cultural and developmental appropriateness by 29 caregivers in Spring 2025.

Innovations and Insights

The design process included updating the Squeez mascot, and adding features such as Squizmos, which are simple tools that provide ways to enhance enjoyment of the activities. Each activity card consists of an activity description, available squizmos, "New ways to Play" extensions, and a communication prompt to encourage persistence with the challenging aspects of the activities. Findings from beta testing indicated that caregivers desired a way to identify games according to age-appropriateness and for the games and activities to be more effectively described by the three category names, thus age icons and new category names were created.

Discussion

Following integration with the Harmony Academy website at National University, SHI's dissemination partner in bringing innovations to scale, the Buddy Up app will be released to a small group of teachers to undergo another round of user testing. Further refinement will follow this limited release and testing before the app is made available to all users of the Harmony Academy website. As for Squeez, final usability testing was conducted in early 2026 to examine how the app was integrated into daily life. Data are currently being analyzed and the findings will inform final refinement before the Squeez app will be ready for wide-scale dissemination. These two tools are part of a larger suite of tools and apps that fulfill the SHI mandate to create content that will help children and those in their lives have more harmonious interactions and relationships.

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