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Beyond the Screen: Designing a Safer Digital Childhood

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B.Des, SAGE University, Bhopal · Derived from the B.Des thesis Beyond the Screen: Designing a Safer Digital Childhood
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Abstract
Children's digital experiences offer opportunities for learning, creativity and play, but they also raise concerns about content suitability, supervision, routines and the balance between screen use and offline life. Most parental-control tools respond by restricting access: they block, filter or limit. This exploratory study asks a different question: how might a child-friendly digital environment support more intentional device use among children aged 2–12 while helping caregivers manage these concerns, rather than only restricting what children can do? We combined a narrative literature review, a caregiver questionnaire (28 submissions, of which four met parent/guardian eligibility after screening), one semi-structured caregiver interview, a review of four existing tools, and affinity-based thematic analysis. All four eligible respondents reported device use several times a day, all four reported device use during meals, all four were concerned about age-unsuitable content, and three of four said they found parental controls hard to understand or set up. Three of four reported using no specific management method. From these patterns we **identify key pain points and design opportunities** and describe **Kids World**, a concept for a child mode with a separate caregiver area. The sample is very small and not representative of Bhopal; the concept has not been usability-tested. The findings are therefore presented as design hypotheses and requirements for future evaluation, not as evidence of effectiveness.

Keywords: child-centred design, digital well-being, parental mediation, online safety, India, UX research, age-appropriate technology

1. Introduction

Smartphones, tablets, computers, televisions, educational apps, online videos and games are part of children's everyday lives. They can support learning, connection, entertainment and creation, yet children may also encounter unsuitable content, privacy risks and experiences that are hard to understand or control on their own. Parents and guardians shape children's habits by choosing content, setting rules, watching use and helping children move between activities, and they do this while managing work, household chores and family responsibilities.

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Existing tools such as device-level controls and child-focused platforms let families set limits, block apps, filter content or monitor use. These help families control *access*. They do not always create a wider setting that combines safety with learning, creativity, entertainment and healthy habits. This paper therefore treats the design problem as one of *building safe, thoughtful spaces for children, not only of blocking or watching*.

Research questions. The study's main question was: how can a child-friendly digital environment make technology use safer and more meaningful while helping children develop creativity, habits and engagement with the real world? Supporting questions concerned how caregivers describe everyday device use, what difficulties they face, how they choose and oversee content, what they find lacking in current tools, and what privacy, safety, usability and technical considerations a new concept must address.

Hypotheses (exploratory). H1: caregivers may experience challenges beyond screen-time management, including content suitability, supervision, online safety and transitions between activities. H2: some caregivers may find a child digital environment useful if it combines age-appropriate activities, routine guidance and transparent caregiver oversight. These are propositions to investigate, not established findings.

Contribution. The paper offers (a) a small, transparently reported caregiver data set from Bhopal and nearby cities, (b) a mapping of each observed pain point to a design opportunity to investigate, and (c) a concrete concept, Kids World, with a candid account of what remains unvalidated.

2. Background

This review was narrative, not systematic; no PRISMA screening was used. Sources were drawn from PubMed, journal and publisher sites, and reports and policy documents.

Context matters as much as duration. A review and meta-analysis of 100 studies with 176,742 participants found that associations between early-childhood screen use and outcomes varied by content, media type and co-use; for instance, co-use was associated with better cognitive outcomes, while age-inappropriate content was associated with psychosocial outcomes (Mallawaarachchi et al., 2024). These are associations and do not show that a given app causes a benefit or harm. A review of 153 studies likewise found results differing by media type and outcome (Teague et al., 2026).

Screen use is embedded in family life. Reviews of parenting factors link higher screen time in young children with parental modelling, screens at meals and screens used to occupy or calm a child (Pyne et al., 2025), and identify parent modelling, educational content and shared reading as family factors (Gomariz-Martínez et al., 2026). UNICEF Innocenti (2025) frames digital technology as both opportunity and risk, reporting no clear evidence that screen time alone harms health and warning that restricting access may limit digital-skill building.

Indian evidence is regional and cross-sectional. Studies of children aged 2–6 report average daily screen use of 2.7 hours in rural western India (Shah et al., 2019) and 2.14 hours in Kerala, where 45% of parents reported inconsistent supervision (John et al., 2021). A study of 3,624 parents across five states, including Madhya Pradesh, linked parental beliefs and practices to

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screen time (Bhutani et al., 2025); 49% of children in rural southern Karnataka exceeded a one-hour limit (Teja et al., 2025); and 39.6% of South Indian preschoolers had sleep problems associated with screens in bed and longer screen time (Venguidesvarane et al., 2025). None of these designs can establish causation or Bhopal-specific needs.

Privacy and AI companions. India's Digital Personal Data Protection Act (Government of India, 2023) and Rules (Ministry of Electronics and Information Technology, 2025a, 2025b) address children's data and parental consent, and any product involving children's accounts, histories or dashboards must be checked against them. A Common Sense Media (2025) assessment judged social AI companions as presenting unacceptable risks for under-18s; it concerns social companions specifically but motivates caution about any virtual-companion feature.

Existing tools. Google Family Link supports supervision of a child's Google Account, app access and screen-time limits (Google, n.d.-b). Apple Screen Time offers app and website restrictions, schedules and content restrictions through Family Sharing (Apple, n.d.). YouTube Kids provides age-based settings, blocking and an option to approve content manually, while stating that automated systems can make mistakes (Google, n.d.-c). SafeSearch filters Google Search results only (Google, n.d.-a). These tools exist and are useful; the open question is how well they fit caregivers' wider concerns across devices and services.

Gap. Prior work examines screen-use contexts, family habits, opportunities and risks. It does not show how caregivers in Bhopal describe children's use, what difficulties they face, or whether they would accept a child-friendly environment combining suitable activities, routine guidance and caregiver support. This is posed as a research question, not as a claim that existing products fail families.

3. Method

The study followed a human-centred design approach (International Organization for Standardization, 2019) with stages drawn from service design practice (Stickdorn et al., 2018): problem definition, literature review, instrument development, data collection, comparative tool review, synthesis, concept development, and prototype evaluation. Only the stages reported below were completed; **caregiver evaluation of the prototype was not completed**.

Questionnaire. A 24-item caregiver questionnaire covered eligibility and consent, household and child age group (2–5, 6–8, 9–12), devices, activities, timing of use, supervision, current safety practices and tools, concerns, difficulties, responses when a child does not want to stop, importance of learning, creativity, emotional well-being, safe exploration, physical activity and family interaction, and desired support. Wording was kept neutral and avoided presuming that device use is harmful; options included "Not sure," "Other" and "Prefer not to say."

Sampling. Convenience sampling with voluntary participation was used for caregivers of children aged 2–12, with a target of roughly 50–100 responses for first insights only.

Interview. A semi-structured interview guide (family routine; reasons and everyday behaviour; supervision and safety; challenges, emotions and family dynamics; needs and

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opportunities) was used. One caregiver interview is analysed here. The transcript records neither city nor child age.

Analysis. Closed-ended answers were summarised descriptively with counts and denominators. The interview and open-ended comments were sorted by the researcher into affinity clusters using thematic analysis (Braun & Clarke, 2006). An empathy map, a provisional research archetype (cf. Pruitt & Adlin, 2006) and a current-state journey map were derived from these data.

Ethics and data handling. Participation was voluntary and limited to adults. No children's names or unnecessary personal details were collected. Responses from people who did not consent were excluded from results. Identifying details are replaced by codes and quotations anonymised, following the institution's procedures and the applicable data-protection rules.

4. Findings

4.1 Sample and screening

The survey export contained 28 submissions dated 28–29 October 2026. Five did not consent and were excluded. Of the 23 consenting, 11 answered "Yes" to the screening question (which, as worded, merged parent/guardian status with having children around), but only four relationship answers confirmed eligibility (three "other legal guardian," one "mother"). Six chose "prefer not to say" and one chose "teacher"; these seven were excluded because eligibility was unclear.

Screening item	Result
Total submissions	28
Excluded: consent not given	5
Submissions with consent	23
Answered "Yes" to Q1	11
Confirmed parent/guardian respondents analysed	4
Child age group 2–5 / 6–8 / 9–12	1 / 1 / 2
Location: Bhopal / Indore / Mumbai	2 / 1 / 1

Because only two of four analysed respondents live in Bhopal, **the sample cannot be described as a Bhopal sample.** All percentages below are of n = 4 and are reported as counts.

4.2 Device use and routines

All respondents (4/4) reported device use several times a day. Reported daily time was spread evenly across four grouped bands (under 30 minutes, 1–2 hours, 2–4 hours, over 4 hours, one respondent each), so no average can be calculated. All four reported videos or cartoons; three reported games; two reported music or stories; two reported educational apps. All four reported use **during meals**, and three each reported use as part of a bedtime routine, when adults are

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busy, when travelling or waiting, and at other times. One reported use for learning or school-related activities.

4.3 Supervision, concerns and difficulties

Two of four always supervise, one rarely, one never. Three of four use no specific management method; one sets time limits. One had used Google Family Link; because the question allowed multiple selections, "None" and "Not sure" overlapped. All four ask the child to stop when the child does not want to.

All four were concerned about **age-unsuitable content**, and three each about advertisements or recommendations, privacy or personal information, in-app purchases, and contact with unfamiliar people. Two reported difficulty stopping an activity and one reported use that was too hard to control. All four named finding age-appropriate content as a difficulty; three each named managing device time, keeping track of activity, understanding parental controls and finding alternatives to screens.

4.4 Importance ratings and concept interest

Creativity was rated slightly important by three and moderately important by one. For emotional well-being, safe and age-appropriate exploration, physical activity and real-world play, and family interaction, three respondents each chose "Not at all important" and one "Moderately important." All four selected "Very interested" in the described concept. This reflects stated interest in a *description* of the tool; the question bundled several attractive features, so it cannot show which feature drove interest, nor usability or adoption.

4.5 Interview

The interviewed caregiver described device use around meals and after a nap, spanning television, short-form videos, games and cartoons. They reported limited time to supervise consistently, difficulty getting the child to stop, concern that the child might see private family images in a device gallery (reported here in anonymised, non-explicit terms), and feelings of helplessness and disappointment when stopping was difficult. They expressed interest in an age-appropriate experience and easier management, and mentioned outdoor play and interaction with people as alternatives. This is one account and says nothing about prevalence.

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4.6 Thematic clusters

Provisional cluster	Evidence in this study
Digital use is part of everyday routines	4/4 several times daily; 4/4 at meals; interview: meals and after a nap
Supervision and management are difficult	2/4 rarely or never supervise; 3/4 find controls hard to understand; interview: limited time
Content suitability is prominent	4/4 concerned about unsuitable content and about finding suitable content
Stopping use is hard	2/4 survey; interview describes child distress
Interest in a child-focused environment	4/4 "Very interested"; interview interest in age-appropriate experience

One tension is notable: survey respondents rated physical activity and real-world play as mostly "Not at all important," whereas the interviewee raised outdoor play as an alternative. With such small numbers this is a question for further study, not a conclusion.

5. Pain Points, Design Opportunities and the Kids World Concept

Four patterns recur in the data: use occurs inside everyday routines such as meals and bedtime; caregivers find parental controls hard to understand or set up; finding age-suitable content is a shared difficulty; and stopping use is hard. The table maps each pain point to a design opportunity to investigate. These opportunities are hypotheses for design and evaluation, not proof that the proposed features will solve the reported problems.

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Pain point indicated by the data	Design opportunity to investigate
Finding content that is suitable for a child's age	Clearer content labels and age-aware discovery, evaluated with caregivers
Difficulty understanding or setting up parental controls	Simpler explanations and settings; assess setup effort and comprehension
Use occurring during meals or when adults are busy	Consider family routines and caregiver constraints in the design, rather than assuming continuous supervision
Difficulty stopping device use	Explore caregiver-controlled transition prompts and optional activity suggestions
Privacy and other online concerns	Minimise data collection and make settings and information transparent
Interest in offline activities, alongside mixed importance ratings	Keep offline suggestions optional and investigate what families actually find relevant

The design should not assume that one interface or set of activities is suitable for every child in the 2–12 age range.

5.1 Kids World concept

Kids World is a concept for a child mode or launcher on supporting devices, not a replacement for Android or iOS. Feasibility depends on operating-system permissions, device compatibility and platform policies. The child-facing home groups activities into **Learn, Play, Create, Watch, Move** and **My Day**; a separate PIN-protected caregiver area provides settings, device zones and a dashboard. Concept screens cover caregiver setup and permissions, a one-tap switch into child mode, an entry screen, a home page, activity screens, a daily-plan view, device settings (including a request for extra time that the caregiver can approve or decline), a parent dashboard with an optional data-and-privacy section, and responsive layouts for tablet, laptop and TV.

Two features need particular caution. First, an optional virtual companion ("buddy") appears in the concept; given the risks identified for social AI companions (Common Sense Media, 2025), it should be included only if research supports its relevance and safeguards for age suitability, privacy, content boundaries and reliability can be established, and it must not be framed as replacing caregivers or providing therapy. Second, activity summaries risk over-collecting data; they should be limited to what caregivers need.

The concept does not claim to improve brain development, guarantee safety, provide clinical care or replace a parent or guardian.

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Figures 1–6 show the Kids World concept mock-ups (thesis Figures 4.6–4.11). They are concept screens that have not yet been validated through usability testing.

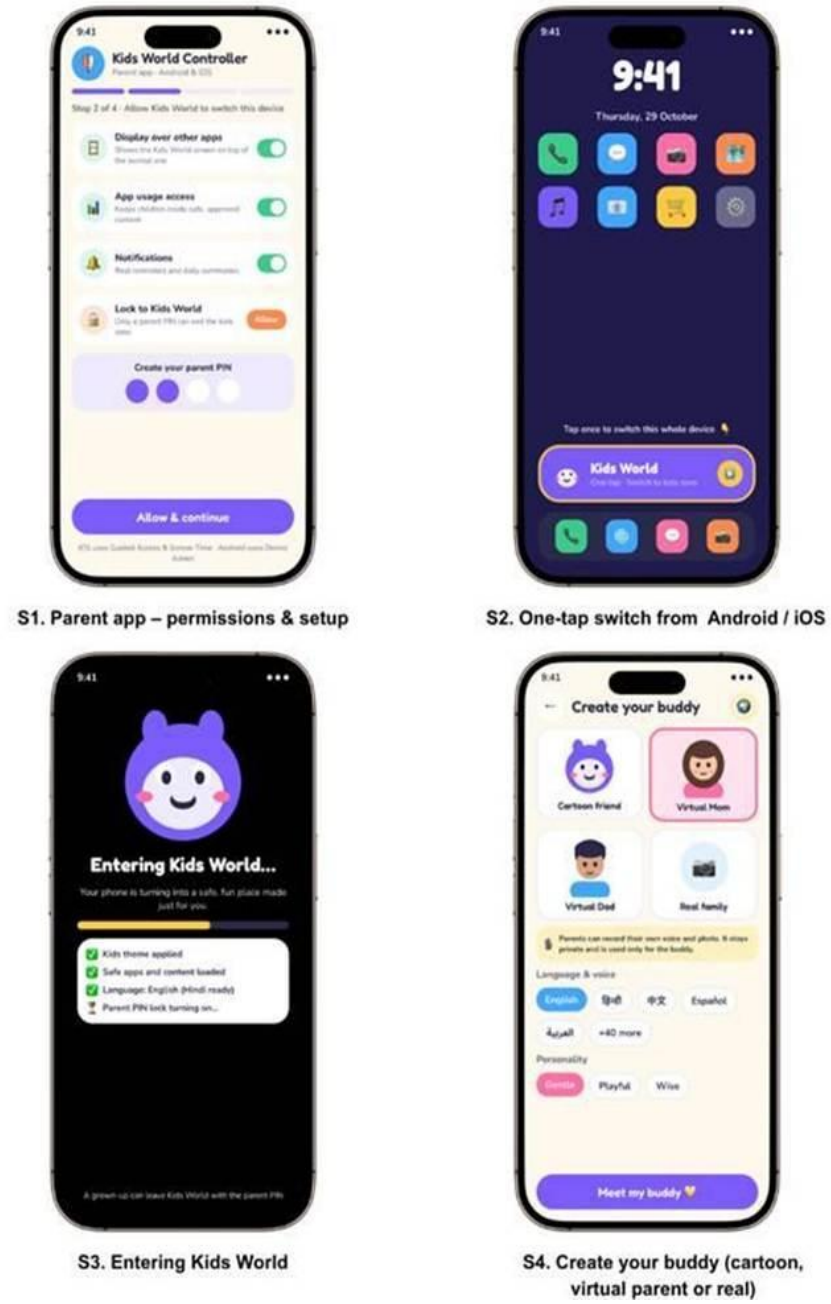


Figure 1. Switch, control and safety flow: S1 parent app permissions and setup, S2 one-tap switch from Android/iOS, S3 entering Kids World, S4 create your buddy.

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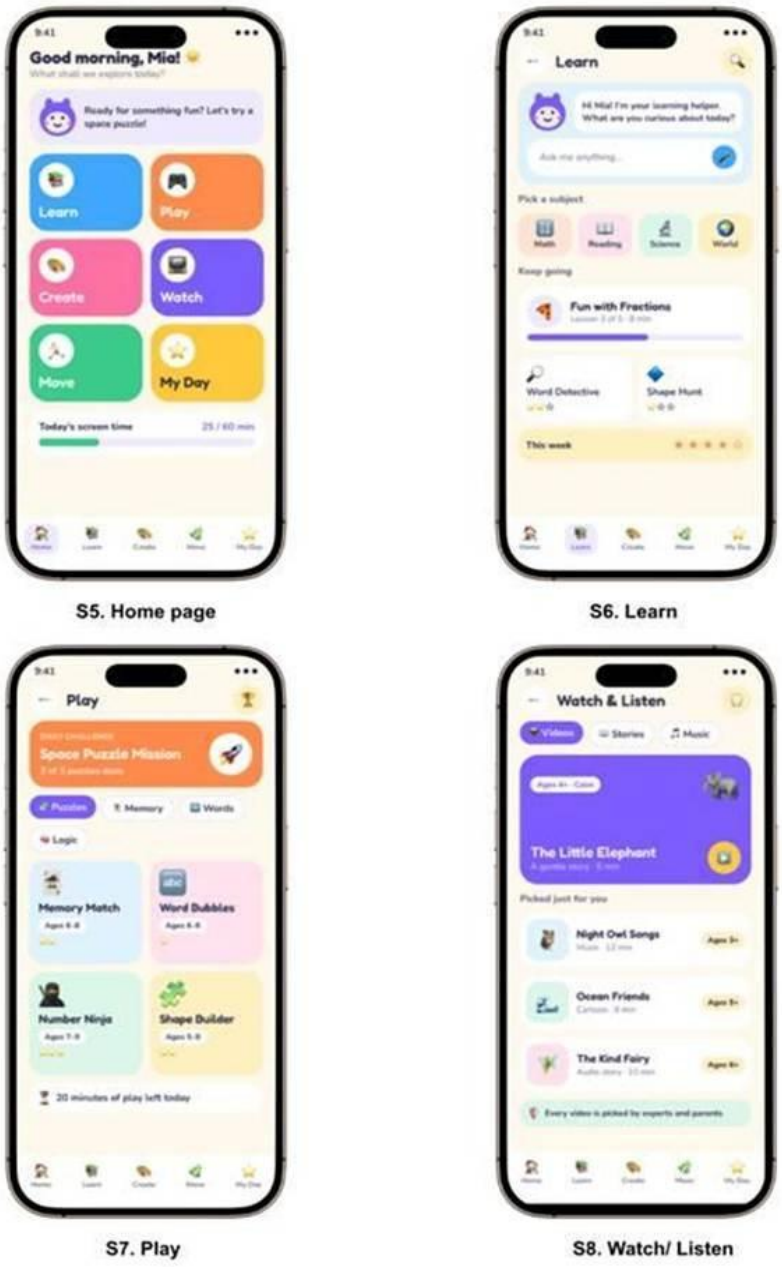


Figure 2. Child-facing screens: S5 home page, S6 Learn, S7 Play, S8 Watch/Listen.

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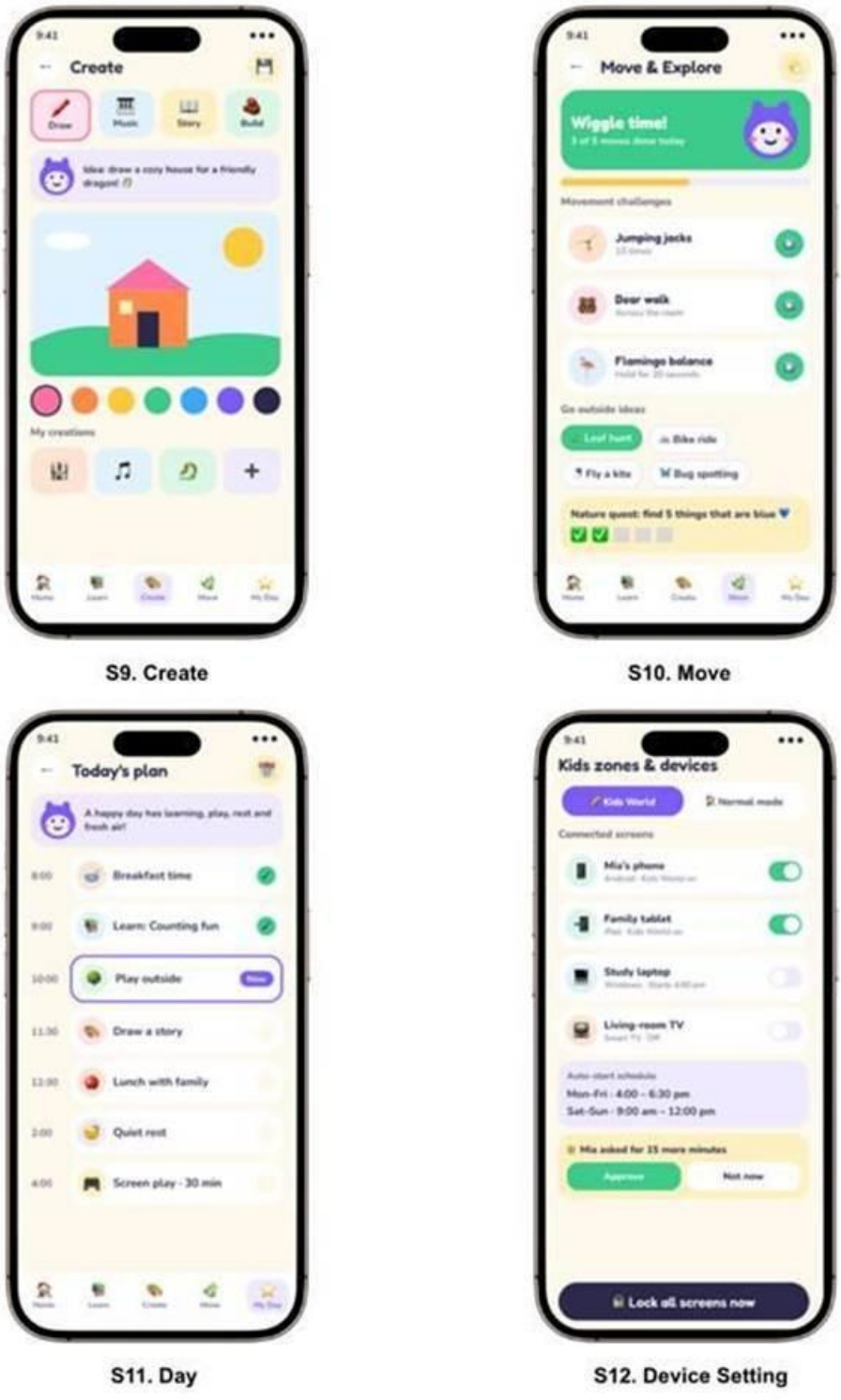


Figure 3. Child-facing and caregiver screens: S9 Create, S10 Move, S11 Day, S12 Device Setting.

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S13. Parent Dashboard

Figure 4. S13 Parent Dashboard (phone) and the tablet home screen.

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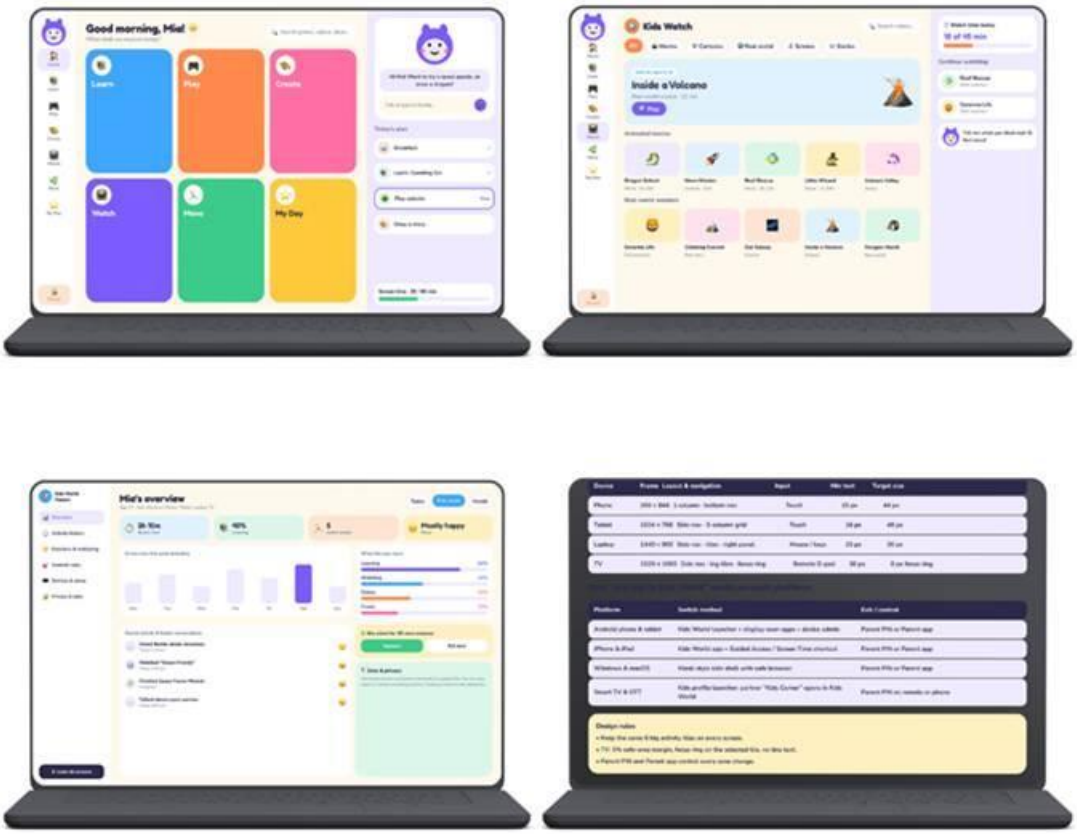


Figure 5. Responsive layout across tablet, laptop and TV.

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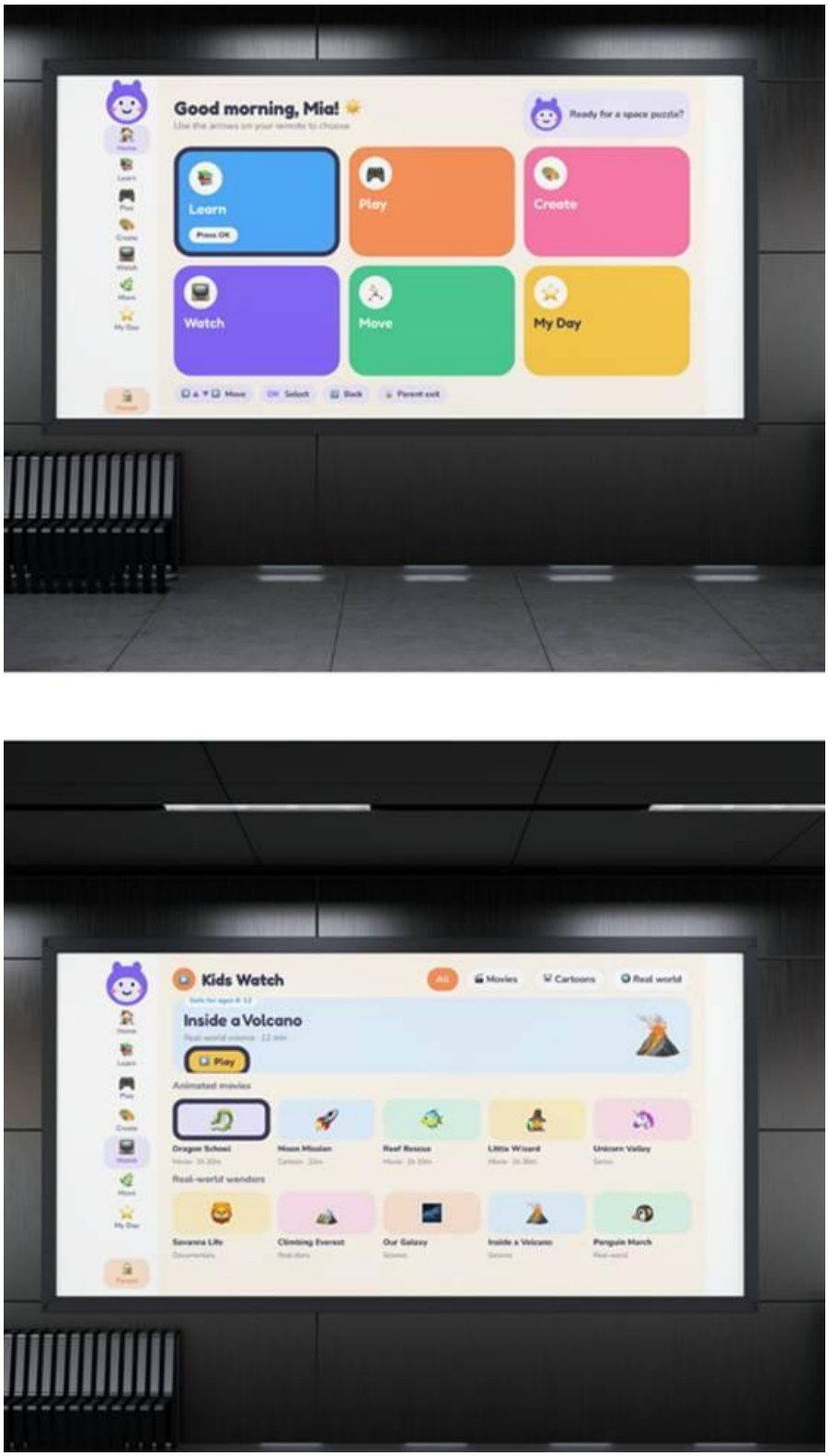


Figure 6. TV layout: home screen and Kids Watch.

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6. Discussion

The small data set is consistent with the literature's emphasis on context, family routines and caregiver involvement over duration alone (Mallawaarachchi et al., 2024; Pyne et al., 2025). The pattern of use at meals and when adults are busy mirrors parenting factors identified in reviews, and is best read as a description of family constraints, not as a judgement on parents. H1 receives preliminary, non-generalizable support: caregivers' difficulties extended to content suitability, supervision, privacy and transitions. H2 is only partly addressed: stated interest was high, but no prototype was evaluated.

For designers, the main contribution is a transparent link from each caregiver-reported difficulty to a design opportunity to investigate, together with the evidence behind it and the check still needed.

7. Limitations

- **Very small sample.** Only four of 28 submissions were confirmed parent/guardian respondents, and not all lived in Bhopal. Findings cannot be generalized to Bhopal or elsewhere.
- **Questionnaire design.** The first question merged parent/guardian status with having children around, which admitted ineligible respondents; the importance-rating results should be checked against the instrument before firm conclusions are drawn.
- **Single interview** with no recorded city or child age.
- **Self-report and convenience sampling.**
- **Wide age band (2–12)** spanning different developmental stages.
- **Narrative literature review**, not systematic.
- **Concept untested.** Screens are mock-ups; usability, accessibility, privacy protection, technical feasibility and age suitability remain unevaluated, and no claims about effectiveness are made.

8. Conclusion and Future Work

In this exploratory study, caregivers described device use woven through meals, bedtimes and busy moments, with concern about content suitability and difficulty understanding and managing controls. The Kids World concept offers a design direction that treats digital safety alongside learning, creativity, caregiver guidance and real-world activity. Next steps are to recruit a larger and more geographically specific caregiver group, conduct further interviews, revise the questionnaire's screening, test the concept with caregivers first (and with children only under ethics approval, guardian consent and age-appropriate assent), and evaluate usability, accessibility, privacy and technical feasibility. Any claim about developmental or safety effects would require a separate study.

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