Children and Their Digital Monies: Expert Perspectives and HCI Opportunities

Caroline McKinley, Valentina Andries, Susan Lechelt, Chris Elsden
Institute for Design Informatics
University of Edinburgh
{v1cmki3@exseed.ed.ac.uk; valentina.andries@ed.ac.uk; susan.lechelt@ed.ac.uk; chris.elsden@ed.ac.uk }

Children and young people grow up today in a digital economy. They will experience a vast array of digital forms and representations of money, from gift cards and pocket money apps to in-game purchases and cryptocurrencies. Recent child-centred research in HCI has begun to address this shift; in this study we extend this by gathering expert perspectives through an interview study with 12 diverse experts, to consider children's financial experiences more holistically. In so doing, we identify: A) key qualities of digital monies that impact children's lives; B) the primary benefits, challenges and harms they face with digital financial systems and C) the specific opportunities for the HCI community to address these challenges through research and design.

Children; Digital Money; FinTech; Expert Study; Financial Education

1. INTRODUCTION

Children and young people today grow up in a digital economy. They shop online; buy and consume digital goods; make money and trade with their peers online; manage their money through mobile apps; exchange gift cards for in-game currencies and credit; and even get financial advice through social media and generative AI-powered chatbots (Lukas and Lukas 2024). While most younger children will still begin learning about money through cash, many may never have been inside a bank branch. Aged 13, they can dispense with an old-fashioned bank card and use *Apple* or *Google Pay* services. Learning how to use digital money and navigate digital economies are now essential parts of growing up (Andries *et al.* 2025).

Meanwhile, the way money is represented and exchanged has become faster, seamless, placeless and more complex. This is not only an educational challenge. Given the inherently social meaning of money (Zelizer 1989, Acker and Murthy 2018), money's digital evolution impacts how children interact and relate to the world around them. Whether paying for school dinners by scanning a fingerprint, or parents receiving notifications for every purchase made through a 'pocket-money app', how we design children's financial interactions is clearly both a social and economic concern. In the UK context, the Money and Pensions Service (MAPS) identify a lack of research on the benefits and risks of emerging financial technologies for children, and their current financial behaviours, knowledge and attitudes (MaPS 2023).

This is an essential and urgent topic for HCI research – but especially in the UK given the formal duty of care UK banks and financial institutions have for customers in vulnerable circumstances (FCA 2021). The HCI community has a long history of studying the evolution of money and technology, from the introduction of mobile money (Ghosh and O'Neill 2020, Mustafa *et al.* 2019) cashlessness (Pritchard *et al.* 2015) and financial inclusion (Barros Pena *et al.* 2021b, Verma *et al.* 2025) through to money management practices (Kaye *et al.* 2014, Vyas *et al.* 2016), programmable money (Elsden *et al.* 2019) and designing for the financial needs of particular vulnerable groups (Barros Pena *et al.* 2021a, Bellini 2023, Brozena *et al.* 2024).

There has also been growing attention to how children interact with new financial technologies. Yip *et al.* (2023) employ co-design methods with children to explore the evolving nature of financial literacy; Hardwick *et al.* (2025), and Fitton and Read (2023) have studied the problematic nature of monetisation in children's games; and (Andries *et al.* 2025) conducted a cultural probe study to understand how younger children are introduced to digital money. This study extends this prior work through an expert interview study with 12 subject-matter experts from both industry and academia, with expertise ranging from child development and digital parenting, through to financial education and gambling apps. Whilst child-led participatory research provides vital insights into children's lived experiences, the views of experts offer a complementary lens to understand the financial landscape, developmental milestones, regulations

© *McKinley et al.*

Published by BCS Learning and Development Ltd.
Proceedings of BCS HCI 2026, UK

and systems at play that shape end-users experiences.

Based on diverse experts' perspectives our study poses the following research questions:

• RQ1: What qualities of digital money are most impactful in children's learning and experience?

• RQ2: What primary challenges and harms do children and their parents face with digital monies?

• RQ3: What are the key opportunities for HCI and Design Research in addressing these challenges?

Addressing these questions, we make two primary contributions: a) to articulate the significance and challenges that digital money presents for children and young people, and b) to identify impactful opportunities for HCI and design research.

2. BACKGROUND AND RELATED WORK

2.1. Evolving Forms of Digital Money

As background, we first summarise key socio-technical financial trends and systems that mediate and define digital money. Trends towards ***cashlessness*** accelerated during the Covid-19 pandemic and clearly shape how money looks and feels on a day-to-day basis. Mobile banking apps – which can be opened remotely (Dieter and Tkacz 2020) have replaced many face-to-face banking services. Contactless and mobile payments (e.g. *Apple Pay* and *Google Pay*) further obscure bank cards as a physical token of payment. Online merchants and payment services such as *Shopify*, *PayPal* or *Stripe* enable highly streamlined online checkouts, where even the friction of entering card details is not required. Despite this, there are still many, especially those on lower incomes or in marginalised groups, who rely upon cash to manage their money (Hall *et al.* 2022, Johnson *et al.* 2026) or struggle with digital forms of money.

'Digital money' implies not just money in a digital bank account but the range of ***digital interactions and devices*** that mediate ***digital payments*** (e.g. payment cards; card readers or 'Point of Sale' devices; mobile banking apps etc.). New innovations such as '*Pay by Bank'* (supported by *Open Banking*) remove the need for card networks to make digital payments, and illustrate ***money as a form of data.***

'E-money' is an important category of digital 'fiat currency'. The UK's Financial Conduct Authority (FCA) describes 'e-money' as money stored electronically, for example on a gift card, or a prepaid or 'pay as you go' debit card (FCA 2013). These pre-paid products have an emphasis on limited forms of spending, rather than deposits. Pre-paid cards are usually employed for specific services or use cases – such as travel money, store loyalty or gift cards, and are often used to mediate Under 18s access to money. Prepaid cards underpin many 'Pocket Money' apps for young people (including *Rooster Money*, *GoHenry* and *HyperJar*) which offer basic functions of a traditional bank account.

Gift vouchers and cards for digital services (e.g. *Amazon, Xbox, Roblox*) – also represent a key point of exchange between physical and fiat currency into ***non-fiat, platform, gaming and crypto currencies*** – (e.g. *Twitch Bits, Robux or Bitcoin*). In most cases, these provide a one-off, one-way payment or exchange into forms of digital credit, tokens, currency or assets, for use on digital platforms (O'Dwyer 2023). Platforms employ various digital accounting structures and ways to earn, exchange, store and spend these currencies. While these currencies may seem to act like money, in most cases they cannot be withdrawn or cashed out from the platform ecosystem (Elsden and Speed 2022) and subject to variable rules of the platform. Unlike traditional banking systems where there is some protection and interoperability for customers deposits and assets, these forms of currencies are far less regulated, and far more ***dynamic, data-driven and programmable*** (Elsden *et al.* 2019). They can represent and mediate value in new ways, but their equivalence to money is often unclear.

2.2 HCI and Digital Money

HCI research has steadily examined the digital transformation of money. Broadly speaking, prior work demonstrates that though digital systems can offer greater convenience and efficiency, they also often disrupt established, situated, and 'artful' (Vyas *et al.* 2016) social practices around money. In her classic work on 'special monies', Zelizer (1989) shows how different kinds of money can, by design, have clearly defined social meanings and conditions attached to them, which digital systems often flatten and erase. These meanings can shape deeply held rituals and practices related to things like 'tips' and indeed children's pocket money. Similarly, Ferreira *et al.* (2015) introduced *'moneywork'* – the, coordination and labour required to make any money or payment *work* in practice. Likewise, Kow *et al.* (2017) describe platform currencies and payments such as *WeChatPay* as 'Special Digital Monies' with unique 'transactional attributes' that shape their meaning.

More recently, money research in HCI has studied money with specific groups or individuals in vulnerable circumstances – for example older adults (Vines *et al.* 2012), neurodivergent groups (Lyhme *et al.* 2026) or those who have experienced intimate partner abuse (Bellini 2023). CHI workshops in 2025 and 2026 (Blair *et al.* 2025, Elsden *et al.* 2026) offer numerous examples of how the current design and logic of digital monies overlooks the nuanced challenges and needs of users with less financial capability. Elsden *et al.* (2026) argue these groups –

including children and young people – require money systems which are more 'configurable' to their particular needs, abilities and social contexts.

2.3 Children's Interactions with Digital Money

Previous research around children's interaction with money has tended to focus upon financial capability and literacy, which are essential life skills that support autonomy and independent living (MaPS 2019). While financial literacy focuses on understanding, *capability* speaks to being able to act upon that understanding – with access to the tools and opportunity to do so. Financial capability impacts overall well-being (Sun and Chen 2022) and children start to learn vital money skills and habits aged 3-7 (Whitebread and Bingham 2013).

A recent literature review describes possible benefits of digital money for children, such as earning opportunities, the potential for greater financial inclusion and the use of digital tools to enhance financial management (Lukas and Lukas 2024). However, it also notes significant risks, including increased exposure to online scams and fraud, impulsive spending and gamified financial habits. In addition, the way children learn about money has shifted, with young people now learning not just through traditional familial and classroom-based systems, but also from digital platforms and online 'FinFluencers'. The review identifies major gaps in evidence, calling for more multidisciplinary research on digital financial literacy; specifically, it highlights the need for better insight into how 'fintech' and digital currencies affect children, and their online financial behaviours, attitudes and experiences.

Three key recent studies have directly involved children in participatory research about digital money. This emergent literature provides some foundational perspectives for our work. In a co-design study focused on financial literacy, Yip et al. (2023) found that children frequently encounter challenges in conceptualising different kinds of digital payments, game currencies, in-app purchases, and cryptocurrency. This fragmented understanding complicates their grasp of digital money as a concept. The study also observes that children often gain financial knowledge implicitly through digital experiences such as gaming and e-commerce. In a cultural probe study with younger children (aged 7-12) Andries et al. (2025) illuminate the enduring significance of cash for children, and their progression towards an increasingly digital economy, through the use of pocket money apps and other accounts There remains considerable ongoing parental control and moneywork, especially where children do not possess their own device. However, as Yip et al. (2023) also note, there is a tension between fostering financial independence and maintaining parental oversight.

Studies also show how children's financial landscapes are shaped by their participation in digital economies within games and social media. Though there are clear risks to these environments, children often exhibited a nuanced understanding of virtual currencies and their value. Hardwick et al. (2025) describe in detail how children were able to identify fairness and harm in relation to digital goods and assets, based on their experiences of deceptive monetization practices. These prior studies emphasise a complex design space, where children need to learn about digital money and gain financial autonomy, but remain vulnerable to the complexities presented by the contemporary digital economy.

However, though these individual studies provide vital, child-led insights to children's contemporary experiences of digital monies, no prior work has engaged subject matter experts or financial service design professionals to understand the wider context and implications of these systems for children. This is an important gap that our study addresses, to reflect critically on the ways in which digital and data-driven technologies, platforms and economies are shaping children's interactions, understanding and experiences of money.

3 METHODOLOGY

3.1 Overview

To gain a holistic view of the digital financial landscape facing children, we planned a series of semi-structured interviews with subject matter experts (SMEs). We sought diverse perspectives on common topics, and also invited interviewees to express their own expertise and concerns. The interviews, taking place in 2025, were initially framed as 'horizon scanning', to identify current and emerging issues, with an orientation to how digital money has, and will, continue to change children's financial lives. We specifically sought experts who had worked directly with children in their work, and advocated strongly for child-centred approaches.

3.2 Expert Recruitment

We developed an initial long list of potential experts, including existing contacts, with diverse expertise. Initial contacts also suggested further experts to engage with. The resulting sample included 12 participants, summarised in Appendix 1. The sample includes five academics, each from different disciplines, and experts and senior leaders working in both the commercial and third sector. Their expertise spanned banking for children, child development, social mobility, gambling, youth market research and financial decision making. All but one of the experts (P10) were UK-based, and our discussion mainly focused on the UK context.

3.3 Interview Protocol

The interview guide was structured in three parts. These included: **1)** core questions about children and digital money, and individual questions on areas of specialist knowledge; **2)** discussion of any literature, projects or resources the experts had produced; **3)** discussion of key findings from prior research on children and money. Core interview topics included: how the SMEs defined and understood digital money and its significance for children; what the SMEs perceived as the most significant changes in how children experience money; the role and challenges of contemporary financial education; what they perceived as the most significant harms children could face in relation to digital money; and where they saw the greatest need or opportunity for further academic research. Interviews were shared between by Authors 1,2, and 4 (A1, A2, A4).

3.4 Data Collection and Analysis

All interviews took place and were video recorded on Microsoft Teams. Interviews lasted for 45 to 75 minutes and were professionally transcribed. Author 1 (A1) led the analysis and initially watched all video recordings for familiarity. A combined inductive and deductive approach was taken to qualitatively analyse the interview data and construct thematic summaries of the responses to key issues and questions discussed by multiple experts, while recognising individual expertise and distinct perspectives. A1 initially open coded each transcript for individual points of interest, and also coded to compare multiple experts' responses on some questions. A document listing all codes was then collated to combine and refine similar codes. Short extracts of data from interviews were also included to show the meaning of codes. Following Braun and Clarke's (2006) approach, a set of initial candidate themes were then developed by A1 by grouping initial codes together. A1 then re-read the transcripts to ensure that no data had been overlooked and consider any other data or codes which could be included. These themes, their underlying codes, and extracts of the data were then discussed robustly within the research team. The team further refined these themes in relation to the initial research questions and discussion topics. A1 then wrote a detailed account of codes and quotes within each theme, which were collaboratively edited for clarity and succinct presentation as Findings.

4 FINDINGS

4.1 Defining Digital Money

Without a single consistent definition for digital money, our experts articulated several significant features for how digital money is understood and experienced by children and families.

4.1.1 Digital money as anything beyond cash
Given the many possible ways in which digital technologies could mediate money, several SMEs focused on what digital money is not – physical money, and primarily cash. "Basically, my way of defining it is you exclude kinda the physical cash and what you're left with is falling into there" [P5]. Other experts felt the lived experience of digital money is defined by the many devices and networks required to operate it and through which it can be accessed simultaneously.

> "If I gave a kid a hundred dollars in cash, it just stays as that physical cash in there, but when I give a kid a hundred dollars let's say as a gift card, then you have to access it from, like, all these sort of places, like your smart phone, your computer, maybe this device right here" [P10].

Furthermore, P1 articulated a definition of digital money comprising three modes of interaction, from just interacting digitally with the (fiat) banking system, to products and services that enable digital payments, and finally to non-fiat platform currencies.

> "So back in the day... I will transfer some money from my bank to your bank. Since then obviously with the rise of online banking [...], that's probably the second evolution of digital money. And then the third iteration would probably be more to do with like credits that you have in games and things like that." [P1].

4.1.2 Multi-dimensional access and exchange
Evidently, digital money has become increasingly plural, multifaceted and complicated. Our experts emphasised the importance of interactions where money and value is exchanged visibly to children, for shaping understanding of how money works.

Money "is only valuable when you come to exchange it for something" [P7]. This may still be a traditional exchange: "Here's your pocket money, you can go and buy some sweets...It's just that it's done through digital means.." [P7]. However, many of the things children value now – such as a 'skin' for a character in a video game – are natively digital, and so the means and context of exchange differs from a traditional shopping experience.

P8 identified multiple currencies that children and families encounter and their evolving nature from traditional physical collectible items like "football and Pokémon cards" to online equivalents which require virtual currencies – "Fortnite, Robux" [P1]. Adding to the complexity is the increased accessibility, availability, choice and functionality of digital money. As P12 reflected "There's less consolidation and more variety in different offers, markets and products and the ways that money is going to be accessed and available".

Finally, products that service digital money are vast, ranging from current accounts, credit, savings, investments, mortgages, insurance and loans. Although these product sets are not necessarily new, the complexity of them intensifies in a digital environment. Our experts discussed how although money is now potentially more accessible, the practical steps to access it remain complex:

> "But it's also very difficult to access as well, right, passwords and, you know, log ins and IDs and things like that, right. So it has its kind of weird trade-off. That's kind of why I sort of say the everywhere and nowhere." [P10].

As P10 goes on to highlight, the placelessness and potentially abstract nature of digital money is "where it gets kind of complicated for kids".

4.1.3 Invisible, immediate, frictionless and individualised

SMEs highlighted several qualities of digital money with implications for children. The lack of physical representation was seen as a key issue. For example, no longer receiving change when paying by card "makes something that was visible invisible. So that is a challenge for young children because we know that representations have value" [P2]. The apparent seamlessness and immediacy of digital money can limit understanding and be problematic:

> "We can literally stand in the kitchen, boil the kettle and make purchases on your phone.[. . .] it's frictionless which actually when you think about financial wellbeing is a problem because there's no friction" [P9].

P11 highlights how digital money is abstracted away from traditional banking infrastructure of physical bank cards to apps where "previously, you know, you might have had a bank card, whereas now it's just kind of well I've got money somewhere in an app" [P11]. These shifts also speak to the increasingly invisible and individualised nature of digital money, which can mask key management practices such as bill-paying. This may not only impede learning through observation and practice, but also means that harms such as fraud, theft and money muling take place and "and nobody else is aware that it's happening to them" [P9].

4.2 Evolving Interactions with Digital Money

4.2.1 Change and loss of rituals and exchange

Participants highlighted how the lack of tangibility of digital money can impact and even eliminate various cultural rituals associated with money. Whereas paper money would usually be carefully handled as a precious or "holy object", digital money instead has a "flattening effect" [P4]. While this can make money more frictionless and convenient, it makes money less distinctive, and makes it harder to attach special meaning, or rules, to certain kinds of money.

Another SME expressed concern that from a child's perspective "money is just like content in any other kind of content, whether it's pictures, words" [P4]. P10 similarly raised the abstract nature of digital money, and the blurred roles of technology, as either a tool to support, mediate or manage money (e.g. a banking app) – or a currency itself (e.g. crypto or platform currencies). Physically handling money and its distinctive physical forms were seen as crucial to understanding value, and the social nature of exchange. There may also be a challenge for digital systems to build an emotional "connection with money" and to "bring that to life" [P8].

4.2.2 Digital money as connected and risky

Our experts described physical money as a more local and limited system, making it easier to learn, understand and manage. In contrast, digital money has many more possible points of connection and exposure, leading to wider and less predictable risks especially in relation to fraud. For example, P2 highlighted how "children may go and lose £5 or their wallet but it's, it's sort of a limited amount" [P2]. With digital money, children may also be connected to parents' accounts (e.g. through automated checkout information) enabling them to access and spend money excessively. More positively, digital money can also be empowering, by enabling presenting new forms of peer-to-peer value exchange.

> "[…] with young people giving credit, data credit to each other and gifting each other cause they want to play with the other person. So there's quite a lot of altruism I think that could happen there from that ability to share and support" [P4].

Beyond money itself, the broader digital economy – through marketing, social media, streaming and gaming – presents children with financial concepts and content at a younger age, and before these concepts are introduced in formal education or by their parents. One expert in youth financial education identified ages 8-12 as a key point when young people gain devices and become "exposed to decisions about whether they should buy, not buy, play games which have those things" [P1]. Hence:

> "digital accelerates [...] where an eight year old now is dealing with stuff that a twelve year old or fourteen year old was only dealing with previously" [P8].

Though children may be developing competency in using digital money at a younger age [P3], specific concerns were expressed related to the risks of frictionless online shopping and payment, and the "early autonomy to make, spend and lose money online" [P4]. Experts also worried about the risks of encountering bad actors, scams, identity theft and data misuse. Beyond these explicit harms, participants described the 'strings attached' [P8] in online economies, especially in relation to data.

4.2.3 Parents navigating evolving digital money
The complex and blurred lines between technology, finance, social media, data, gaming, and the digital economy clearly presents challenges for parents, many of whom are not digital natives and did not encounter digital money during their own formative years. Experts were concerned that some "parents feel really under-prepared to have conversations about digital money" [P3] and where:

> "Parents want to be like supervising and guiding their children but they just don't have the experience or the knowledge" [P3].

As children engage at younger ages, it is also important that parents are "ready for that transition. Whereas the kids might be ready, but the parents aren't" [P6]. The ongoing evolution of digital money is also challenging. Participants identified in-app payments [P6], and the many intermediaries and exchanges involved in online transactions – from gift cards and in-game currencies through to cryptocurrencies as "very, very tricky for parents" [P10]. In terms of parenting, the pace of change and the overall fluidity of money "makes it more difficult to teach, more difficult to understand, more difficult for parents to set clear and consistent boundaries" [P4]. This is exacerbated by the lack of personal experience of these boundaries, rituals or transitions from parents' own childhood to fall back on:

> "They're looking for simple heuristics that they can draw upon […] in the same way as, 'when I was young you stayed in until this time'" [P2].

Even if parents are well informed and "know where you want young people to end up" [P8], it is difficult to know when the right age is to introduce different financial concepts and degrees of autonomy. The wider digital landscape and economy can then both accelerate and muddle up what, how and when children learn. The autonomy children historically may have had in spending their own physical cash may be undermined by parental control and surveillance of digital money.

4.3 Experiential Financial Education

4.3.1 Learning about digital money concepts
Children acquire financial knowledge through various methods, including observation, experience, and instruction both formal, informal and self-sought. What children observe and experience has changed, and most younger children in the UK will now rarely observe their parents make physical cash transactions, even if pocket money remains initially cash-based (Andries et al., 2025). Some experiences, like exchanging money or managing different card details, may remain highly visible, while others, such as payment of bills or household budgeting are more hidden.

Traditional financial literacy and understanding key concepts such as 'needs vs wants' or saving and budgeting remain relevant. Experts also felt children from a young age can understand that digital money is "real money […] even though you can't see it" [P1] However, the capability to "use it well and effectively, it's a much bigger set of competencies" [P1]; and is dependent on having a good understanding of digital platforms in general. In this way, "one of the biggest predictors of good digital financial literacy is good media literacy" [P3].

For example, the ease of online shopping requires learning self-control – "if you have a smart phone or internet access you can easily spend that in like seconds*"* [P6]. Furthermore, the engagement with a global digital economy can mean that: "everything is in front of kids all the time and their lifestyles are quite aspirational [P9]." However, there is often a "big disconnect" [P9] in understanding true costs.

4.3.2 Lacking formal education leads to alternatives
Formal education is an important way for all children to learn about money. However, our experts discussed that formal education about digital money, specifically via UK national curricula, is limited and lacks impact. Experts agreed on the need to rethink how digital money is taught in formal education, especially in primary years (under 12 years of age), recognising how many cashless interactions children already have. "Most transactions the kids are doing in the day to day – it's not happening with cash any more" [P6].

However, since young people are already deeply experientially engaged with digital money, there are opportunities for "financial education interventions" [P3]. While our participants pointed to many resources developed by various organisations to support financial education, there remain many gaps in provision. Children and families may then turn to diverse and unregulated online sources:

> "self-socialisation […] when young people, if they're not learning through the home and school, are looking to educate themselves and then they automatically are then turning online and, and are maybe not engaging with the right kind of sources" [P7].

P4 pointed to the cultural shifts towards a gig economy and entrepreneurship, which can be support learning about work and autonomy, but are "ripe for exploitation for others offering, you know, quick routes". P10 explained that children are likely driven towards money-related content online, related to a specific thing they're looking to buy:

> "when they talk about money or things like that on social media, it's always about the thing that I wanna purchase, right. I wanna buy this car, I wanna buy this toy, I wanna buy this thing here."

Financial education for younger children especially could be better aligned with the trends, products and interests they already have. Pocket money apps such as *GoHenry* and *Rooster* were widely discussed as financial education tools. These aim to foster experiential learning and financial skills, letting children earn, learn, and spend safely. Features like spending limits and savings pots encourage autonomy and positive habits, and some apps provide financial education directly. However, experts caution these apps' effectiveness depends largely on parental involvement. As P2 emphasised: "How many parents are actually sitting down with all these lovely resources?" P4 even worried these apps could give parents "*a false sense of oversight*" as other aspects of money management, or financial interactions in children's lives, such as gift cards or in-game payments, happen outside of the app.

4.4 Gaming and Money

Much of children's leisure time is devoted to online gaming on platforms, where they may develop an understanding of value and financial concepts by using digital money. However, there are also notable concerns regarding unregulated monetisation.

4.4.1 Gaming as meaningful financial experience
Our experts recognised the central role that gaming can play in children's lives, and saw both games and gamification as potentially valuable. Some games offer "a low risk environment because you can make mistakes" with play money and provide "the kind of the experiential element, kind of handling money that you can't get at a very young age in operating with real money" [P10]. Others described gaming as "a way that young people learn to interact with the world" [P9] and noted the potential of "really good conversations to come out of it" [P10]. In addition, the rich meaning, and the sense of ownership that children can experience in games, can lead them to value digital money and goods. P6 suggested a potential endowment effect (where people over-value something they already own) for digital goods, such as skins. Such items "aren't technically money but they have money-like value to the children and young people [...] so if you lose your skin it's like losing your favourite trainers" [P9]. These quotes reflect the importance some young people place on digital goods and financial interactions.

4.4.2 Challenges with gaming and money
Our experts simultaneously identified many potential issues with money in gaming environments. Firstly, gaming companies were perceived to be astute and exploitative, using data to understand exactly how young people spend money and creating a "pressure to spend constantly" [P4]. While games of chance and low stakes monetary exchange are often features of children's play, P12 identified the "commodification of play" in networked digital games as a significant new development:

> "The corporation is designing these things to extract as much value from you as possible and to encourage you to spend and to keep spending. So it's the commodification of play that I think is the big difference."

Others highlighted potential confusion, obfuscation, or "design tricks" [P2] related to fluctuating offers and conversion rates that are "quite tricky to understand*"* [P11] when buying or distinguishing in-game currencies from real money where some young people "just don't realise that they're spending real money and their card is associated with the game" [P3]. Elsewhere, P4 expressed concerns about the closed nature of in-game currencies, that could "lock you in to the system".

More broadly, participants reflected well-known concerns about chance-based transactions, such as "'loot boxes" where the buyer is blind to the actual content and value of a certain pack of digital items. In the UK these practices are not currently regulated as gambling activities, and young people can be specifically targeted with promotions to engage in these risky financial activities and leading to a "culture of gambling online" [P3].

While parents have often faced challenges in understanding the intricate mechanics of games their children play, some of the trading mechanics and logics of platforms such as Roblox can be particularly challenging to follow.

> "In order to buy that skin I have to trade my actual fiat currency for an in-game currency […] and then maybe I trade [the skin] with another player for something of more value and then I try to get a loot box […], it's a more complex system… it's less well appreciated by adults who kinda go, 'well it's all just digital, what's the value'" [P4].

Hence, it is not simply a case of how much money children spend in online games, but *how* they are doing so, and what they learn through these experiences that parents may be unaware of.

4.5. Primary Challenges and Harms

We directly asked our experts about harms and concerns related to digital money, and how to address them. Their responses cut across prior themes and helpfully summarise our findings.

4.5.1 Challenge 1: Navigating the evolving, plural and flattened nature of digital money
Digital money has evolved from an underlying accounting system as part of banking infrastructure, to being deeply embedded in all manner of digital ecosystems and infrastructures – from online shopping to platform currencies. Young people experience many different things as digital money,

which can have varying qualities and risks. In this context, the boundaries and underpinnings of fiat currency (which adults might think of as 'real money') and banking infrastructure appear increasingly frayed and abstract when money is mediated and represented primarily through apps and screens. In these forms, money is no longer so explicitly precious, limited, and valuable; nor is it so bound up in traditions, habits and rituals through which the meaning, importance and subtleties of managing money can be shared and taught.

Our experts highlighted two primary areas of concern in relation to this. Firstly, as money is disconnected from traditional rituals and meanings, it is harder for young people to learn and be taught about its 'value' and how to manage money well:

> "I think there's something inherently as a human when you see or have something physical. It's a bit easier to conceptualise what it is... Now if you never really go through that process, is it just, completely abstract, as to what [money] is if you never actually see it?" [P5].

Secondly, as money is now so interwoven with digital ecosystems, it comes laden with many of the contemporary anxieties and challenges of any new digital technology. Digital platforms offer new learning opportunities experiences, alongside misinformation and the potential to be exposed to certain harmful concepts, content or communities.

4.5.2 Challenge 2: Learning about digital money (experientially, by observation, and in education)
There are new capabilities and competencies that children require to interact well with digital money. These skills are interwoven with digital and media literacy in general, and related to how children are introduced to, educated and given autonomy in digital ecosystems. A key concern of experts was that children no longer so easily learn by observing their parents and others engaging with money, as digital transactions tend to be more private and seamless. At the same time, parents can be reticent or lack confidence in teaching children about digital money, especially in more complex digital environments. Digital technologies can also accelerate children's access, expectations and exposure to certain financial concepts and activities. Hence, parents are unsure about what to teach children, at what age, and how. There is also a lack of formal education related to digital money, especially for younger children (under 12 years of age). This can lead children to seek their own information and become misinformed through Finfluencers or other unreliable sources.

> "They don't understand enough to be able to critique the information to know whether that is valid information or not. They run the risk of then acting on something that might lead them to take the wrong course of action" [P7].

4.5.3 Challenge 3: Protecting children as vulnerable financial actors
Experts expressed several more serious concerns about the potential vulnerability of children as financial actors, at risk of harm and exploitation. Many experts had concerns about monetisation in games, and the pressure to spend money. Beyond this, experts repeated concerns about the potential for certain mechanics and transactional patterns, such as loot boxes to encourage gambling in ways that are potentially harmful and largely unregulated (Hardwick et al., 2025; Mills et al. 2024). Besides the risks of seeking "instant gratification" [P1], it is difficult for children to appreciate how gaming platforms can manipulate players' interactions to incentivise spending.

Experts also expressed concern at children being vulnerable to fraud or scams which would have been less likely in a pre-digital age. Digital accounts and transactions give scammers more access to target children who may have more to lose (either through access to adults' accounts, accumulated digital goods or in-game currencies).

> "They're losing money, often parents' monies. That has an impact on their wellbeing, their financial wellbeing. It can, you know, destabilise families, it can create conflicts, it can create all sorts. It can lead to children doing some more risky behaviours cause they don't want […] to have the card taken off them" [P4].

Most of all, experts were concerned that if this does happen, it can be hard for parents to detect and intervene: "It's happening in such a private way that parents aren't even seeing that their kids are being defrauded because they've victim to a scam" [P9].

5. DISCUSSION: OPPORTUNITIES AND CHALLENGES FOR HCI RESEARCH

Our discussion is organised in relation to the three primary challenges and harms our experts identified, with opportunities for further research, drawing on diverse and participatory HCI methods.

5.1 Challenge 1: Navigating Digital Money

5.1.1 Defining qualities and forms of digital money
Research should more clearly articulate the nuances of different kinds of digital money and identify their significance to children at different ages. We might collate distinctive design patterns (Alexander 1977), strong concepts (Höök and Löwgren 2012) and transactional attributes (Kow *et al.* 2017) of children's digital monies, for example through detailed designerly walkthroughs (Dieter and Tkacz 2020) and studies of various Pocket-Money Apps and Under-18 banking products.

5.1.2 Challenging 'digital demonetisation'
Specifically, research should identify and challenge patterns of what we term – *digital demonetisation* – where the special meanings and value of money are flattened in the way it is represented digitally. In a plural financial landscape, it is important for children to be able to distinguish different kinds of money and exchange, and how transactions do or don't relate back to fiat currency. We also need to understand more about how younger children experience and conceive of 'real money'. As noted in Andries et al. (2025) money that is exchanged and spent in games is distinctly real and meaningful to children, who can manage its value within a game but overlook how this relates to money and value in other contexts.

5.1.3 Futures of banks and financial institutions
The abstraction of digital money presents particular challenges for traditional financial institutions. If money is now experienced primarily as ephemeral, placeless 'content', how does this shape young people's views, loyalty and expectations of financial service providers? As their formative financial experiences change, and in the context of global economic uncertainty, how might their views and attitudes to risk and long-term financial products, like pensions or insurance change? Participatory design futuring approaches (e.g., Elsden *et al.* 2023, Sharma *et al.* 2024)) might consider how children's experience digital money may shape the futures of banks and financial institutions themselves.

5.1.4 New heuristics, rules and boundaries
Our findings suggest parents need more support in terms of developing clear rules, heuristics, rituals and boundaries in relation to diverse forms of digital monies. Maintaining consistent boundaries that protect children while enabling their growth and autonomy is fundamental for children's wellbeing and development. The pace of change of financial technologies can make this difficult for parents. The shared visibility of finances provided by specific children's money products, such as pocket money apps, can help scaffold conversations and shared boundary setting. However, they also replicate a pattern of potentially intrusive parental oversight of children's digital activities (Wang *et al.* 2021).

5.1.5 Designing phy-gital financial experiences
Given the importance of physical representations of money and value, there are clearly intriguing design opportunities in considering how to support more tangible and embodied learning with digital money (Vandermaas--Peeler *et al.* 2007). We may also explore opportunities to embrace contemporary trends in more low-fi, retro or nostalgia products in children's technologies – such as wi-fi enabled landline telephones as alternative to smartphones.

5.1.6 Designing fair exchange systems
The ways in which money is exchanged, from one form to another, from a gift card to credit in a game, to other in-game currencies is crucial for how money is now understood. Interfaces for exchange warrant detailed user studies to understand how parents and children engage with, and make sense of, the exchange taking place. In addition, as a key touch point where children and parents are likely to collaborate on 'moneywork' together, we might explore how these interactions can be used to encourage and scaffold positive financial education.

5.2 Challenge 2: Learning about Digital Money

5.2.1 Linking digital literacy, financial literacy, and wellbeing
The SMEs in our study frequently proposed links between financial literacy and more general digital literacy, and this is also shown in prior research (Lo Prete 2022). These suggest that digital and financial literacies might be mutually reinforcing to some extent, requiring further exploration, and that efforts to develop or improve financial capability must account for the digital contexts in which financial decisions are increasingly embedded.

5.2.2 Developing impactful financial education
Experts were interested to explore ways to improve the efficacy of financial education, seeing the need to "meet children where they are" [P3] and educate in ways and contexts relevant to children's day-to-day lives. There is an opportunity to understand the positive roles games can play to develop financial concepts, or extend a gamified approach to financial education. There is also now much more data about children's financial lives. This should be treated with care, but can be used to help children to reflect on and pro-actively manage their finances or to support conversations between parents and children.

5.2.3 Supporting parents' understanding
Many parents need to be supported to learn more about digital money themselves, how to support their children's learning and potential financial harms and risks their children may face. They should be aware of how children can encounter a 'hidden curriculum' of digital money – often through gaming platforms, social media or peer networks. To provide age-appropriate guidance, parents should be offered resources that explain not only the technical aspects of digital money, but when and how certain concepts align with developmental milestones.

5.3 Challenge 3: Children as Vulnerable Financial Actors

5.3.1 Identifying dark patterns in children's money
Children's economic lives are increasingly shaped by environments that incentivise spending through gaming mechanics, advertising, peer pressure and "gamblification" – blurring the boundaries between

entertainment, consumption, and gambling (Macey and Hamari 2019, Brock and Johnson 2021). These practices are linked to psychological distress among young people, with loot box engagement particularly associated with harmful financial and emotional outcome (Drummond *et al.* 2020). These powerful pressures to spend may erode or work against children's ability to develop healthy financial habits, highlighting the need for critical interventions at the intersection of HCI, child protection, and financial literacy. HCI and UX design research has precedent in identifying and studying dark patterns – intentionally produced interfaces and services that are not in users' best interests (e.g. Gray *et al.* 2018, Gray 2026, Brignull, 2023). These deceptive patterns present in children's financial lives require urgent research to consider how children may encounter and counteract them.

5.3.2 Parental oversight vs childrens' autonomy
In the context of a datafied society (Van Dijck, 2014) parents can now monitor many aspects of children's lives – their precise location, their browsing history, their screen time – and now their financial lives. Children clearly need parental oversight and protection as they begin to engage with digital money in various ecosystems – a major concern of some of our experts was the way that children can be victims of fraud or theft in ways that are less visible. However, Yip et al. (2023) argue for tools which support a transition towards more financial responsibility, rather than employing restrictive gatekeeping. This aligns with findings from (Wang *et al.* 2021) on parental control apps generally, which highlight designs that facilitate negotiation and mutual understanding rather than punitive control.

5.3.3 Participatory and inclusive design
Finally, advancing research on children's digital money and financial capability requires further approaches that are genuinely participatory and inclusive, centering children's voices and their lived experiences rather than treating them solely as vulnerable or naïve subjects for financial education. Drawing on cooperative inquiry and participatory design frameworks (Druin 1999, Iversen *et al.* 2017) studies should extend prior work by Yip et al. (2023) and Andries et al. (2025) which foreground children as active protagonists in shaping the financial tools they use, recognising their needs, preferences, and aspirations, while also taking into account the context of use and family dynamics towards developing financial capability that is meaningful to children themselves.

5.4 Limitations and Further Work

The discussion above proposes many potential avenues of research to address the challenges our study has identified. However, it is important to recognise the UK-centric focus of our own research, and that much of the other significant prior work on children and money is situated in WEIRD (Western, educated, industrialized, rich and democratic) societies. Clearly both how children are raised, and how money is used, are highly shaped by cultural context and traditions. There is thus much more to learn about how children beyond WEIRD countries experience and learn about digital monies in different forms and contexts. Our study explicitly focused on gaining diverse expert perspectives to gain a holistic view on the wider financial landscape children experience, who often spoke on behalf of children. Future work should continue to work directly with children as participants to further validate the findings we present here in terms of children's own experiences. Likewise, we encourage deeper engagement with industry professionals, practitioners and policy makers on specific issues, to better understand how concepts and ideas from academic research can actually impact the products and services children and young people engage with in their day to day lives.

6. CONCLUSION

This paper highlights the timely need for inter-disciplinary research on children's engagement with digital monies. As financial practices become increasingly digitised, seamless, and socially embedded, children's everyday experiences of value, exchange, and financial capability are being reshaped in ways that present both opportunities and risks. Informed by prior literature on HCI and Money, and the perspectives of 12 diverse subject matter experts, we describe key qualities of digital money that impact children, and identify three major challenges for children and digital monies: *Navigating Digital Money*; *Learning about Digital Money*; and *Children as Vulnerable Financial Actors*. Our discussion presents opportunities and an interdisciplinary research agenda to tackle these challenges, rooted in the rich perspectives and methods HCI and design researchers can provide.

7. ACKNOWLEDGEMENTS

We are grateful firstly to all of our expert participants who gave their time and candour to support the research. We also acknowledge the support of our colleague Cara Wilson who shaped early planning stages of this research and related projects. The research was part of the *Exploring Children's Digital Money Futures* project supported through the Centre for Purpose Driven Innovation in Banking, a strategic partnership between the University of Edinburgh and Natwest Group (NWG) located at the Edinburgh Futures Institute. While undertaking this research Caroline McKinley was a visiting researcher at the University of Edinburgh, and a Lead UX Researcher at NWG, working with Rooster Money.

8. REFERENCES

Acker, A. and Murthy, D., 2018. Venmo: Understanding Mobile Payments As Social Media. *In*: *Proceedings of the 9th International Conference on Social Media and Society*. New York, NY, USA: ACM, 5–12.

Alexander, C., 1977. *A pattern language: towns, buildings, construction*. Oxford University Press.

Andries, V., Wilson, C., Everson, H., McKinley, C., and Elsden, C., 2025. The Secret Lives of Children's Money: Exploring Children's Financial Interactions in Transitions from Cash to Digital Monies. *In*: *Proceedings of the 24th Interaction Design and Children*. New York, NY, USA: Association for Computing Machinery, 52–68.

Barros Pena, B., Kursar, B., Clarke, R.E., Alpin, K., Holkar, M., and Vines, J., 2021a. 'Pick Someone Who Can Kick Your Ass' - Moneywork in Financial Third Party Access. *Proceedings of the ACM on Human-Computer Interaction*, 4 (CSCW3), 218:1-218:28.

Barros Pena, B.B., Kursar, B., Clarke, R.E., Alpin, K., Holkar, M., and Vines, J., 2021b. Financial Technologies in the Cycle of Poor Mental Health and Financial Hardship: Towards Financial Citizenship. *In*: *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*. New York, NY, USA: Association for Computing Machinery, 1–16.

Bellini, R., 2023. Paying the Price: When Intimate Partners Use Technology for Financial Harm. *In*: *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*. New York, NY, USA: Association for Computing Machinery, 1–17.

Blair, J., Brozena, J., Vines, J., Kaye, J., Matthews, M., and Abdullah, S., 2025. Future of Money and HCI. *In*: *Proceedings of the Extended Abstracts of the CHI Conference on Human Factors in Computing Systems*. New York, NY, USA: Association for Computing Machinery, 1–6.

Braun, V. and Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative research in psychology*, 3 (2), 77–101.

Brignull, H. Deceptive Design. 2023. Testimonium.

Brock, T., & Johnson, M. (2021). The gamblification of digital games. *Journal of Consumer Culture*, *21*(1), 3-13.

Brozena, J., Blair, J., Richardson, T., Matthews, M., Mukherjee, D., Saunders, E.F.H., and Abdullah, S., 2024. Supportive Fintech for Individuals with Bipolar Disorder: Financial Data Sharing Preferences for Longitudinal Care Management. *In*: *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems*. New York, NY, USA: Association for Computing Machinery, 1–15.

Dieter, M. and Tkacz, N., 2020. The Patterning of Finance/Security: A Designerly Walkthrough of Challenger Banking Apps. *Computational Culture*, (7).

Druin, A., 1999. Cooperative inquiry: developing new technologies for children with children. *In*: *Proceedings of the SIGCHI conference on Human Factors in Computing Systems*. New York, NY, USA: Association for Computing Machinery, 592–599.

Drummond, A., Sauer, J.D., Ferguson, C.J., and Hall, L.C., 2020. The relationship between problem gambling, excessive gaming, psychological distress and spending on loot boxes in Aotearoa New Zealand, Australia, and the United States—A cross-national survey. *PLOS ONE*, 15 (3), e0230378.

Elsden, C., Barros Pena, B., Lyhme, H., Brozena, J., Mwesigwa, D., Speed, C., Kaye, J., and Vines, J., 2026. Configuring Money as an Interface. *In*: *Proceedings of the Extended Abstracts of the 2026 CHI Conference on Human Factors in Computing Systems*. New York, NY, USA: Association for Computing Machinery, 1–5.

Elsden, C., Feltwell, T., Lawson, S., and Vines, J., 2019. Recipes for Programmable Money. *In*: *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*. New York, NY, USA: ACM, 251:1-251:13.

Elsden, C., Jones, V., Helgason, I., Abernethy, L., and Brown, W., 2023. FestForward: Participatory Design Futuring and World-Building for Equitable Digital Futures in Performing Arts Festivals. *In*: *Proceedings of the 2023 ACM Designing Interactive Systems Conference*. New York, NY, USA: Association for Computing Machinery, 1424–1437.

Elsden, C. and Speed, C., 2022. Designing new money: Creative transactions on Twitch. *DRS Biennial Conference Series*.

FCA, 2013. *FCA Handbook - PERG 3A.3 The definition of electronic money*. https://handbook.fca.org.uk/handbook/perg3a/perg3as3?timeline=true&date=22-05-2026

FCA, 2021. *PS22/9: A new Consumer Duty*. https://www.fca.org.uk/publications/policy-statements/ps22-9-new-consumer-duty

Ferreira, J., Perry, M., and Subramanian, S., 2015. Spending Time with Money: From Shared Values to Social Connectivity. *In*: *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing*. New York, NY, USA: ACM, 1222–1234.

Fitton, D. and Read, J.C., 2023. "Money from the Queen": Exploring Children's Ideas for Monetization in Free-to-Play Mobile Games. *In*: J. Abdelnour Nocera, M. Kristín Lárusdóttir, H. Petrie, A. Piccinno, and M. Winckler, eds. *Human-Computer Interaction – INTERACT 2023*. Cham: Springer Nature Switzerland, 203–213.

Ghosh, I. and O'Neill, J., 2020. The unbearable modernity of mobile money. *Computer Supported Cooperative Work (CSCW)*, *29*(3), 227-261.

Gray, C.M., 2026. The Dark Patterns Knowledge Stack: Exploring New Ways to Negotiate Context, Law, and Design. *In*: *Proceedings of the 2026 CHI Conference on Human Factors in Computing Systems*. New York, NY, USA: Association for Computing Machinery, 1–11.

Gray, C.M., Kou, Y., Battles, B., Hoggatt, J., and Toombs, A.L., 2018. The Dark (Patterns) Side of UX Design. *In*: *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*. New York, NY, USA: Association for Computing Machinery, 1–14.

Hall, M., Morrison, J., Singh, A., and O'Doherty, 2022. *The Cash Census*. RSA. https://www.thersa.org/reports/the-cash-census/

Hardwick, T., Carter, M., Harkin, S., Zhangshao, T., and Egliston, B., 2025. 'They're Scamming Me': How Children Experience and Conceptualize Harm in Game Monetization. *In*: *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*. New York, NY, USA: Association for Computing Machinery, 1–14.

Höök, K. and Löwgren, J., 2012. Strong concepts: Intermediate-level knowledge in interaction design research. *ACM Transactions on Computer-Human Interaction*, 19 (3), 23:1-23:18.

Iversen, O.S., Smith, R.C., and Dindler, C., 2017. Child as Protagonist: Expanding the Role of Children in Participatory Design. *In*: *Proceedings of the 2017 Conference on Interaction Design and Children*. New York, NY, USA: Association for Computing Machinery, 27–37.

Johnson, H.L., Spalitta, H., Kim, C.Y., and Mutlu, B., 2026. Supporting Money Management among Adults with Down Syndrome: A Multi-Technology Probe Study. *In*: *Proceedings of the 2026 CHI Conference on Human Factors in Computing Systems*. New York, NY, USA: Association for Computing Machinery, 1–20.

Kaye, J.J., McCuistion, M., Gulotta, R., and Shamma, D.A., 2014. Money talks: tracking personal finances. *In*: *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. ACM, 521–530.

Kow, Y.M., Gui, X., and Cheng, W., 2017. Special Digital Monies: The Design of Alipay and WeChat Wallet for Mobile Payment Practices in China. *In*: R. Bernhaupt, G. Dalvi, A. Joshi, D. K. Balkrishan, J. O'Neill, and M. Winckler, eds. *Human-Computer Interaction – INTERACT 2017*. Cham: Springer International Publishing, 136–155.

Lo Prete, A., 2022. Digital and financial literacy as determinants of digital payments and personal finance. *Economics Letters*, 213, 110378.

Lukas, M. and Lukas, J., 2024. *Literature Review: The impact of digital money on children and young people's financial education*. Money and Pensions Service. https://maps.org.uk/en/publications/research/2024/the-impact-of-digital-money-on-children-and-young-people

Lyhme, H., Barros Pena, B., and Wilson, S., 2026. Navigating Financial Lives: How Autistic Adults Adapt Financial Technologies, Tools and Strategies. *In*: *Proceedings of the 2026 CHI Conference on Human Factors in Computing Systems*. New York, NY, USA: Association for Computing Machinery, 1–13.

Macey, J. and Hamari, J., 2019. eSports, skins and loot boxes: Participants, practices and problematic behaviour associated with emergent forms of gambling. *New Media & Society*, 21 (1), 20–41.

MaPS, 2019. *Financial capability of children and young people in the United Kingdom: Recontact Study 2017-2018 – technical report | Money and Pensions Service*. Money and Pensions Service. https://maps.org.uk/en/publications/research/2019/financial-capability-of-children-and-young-people-in-the-united-kingdom-recontact-study-2017-2018-technical-report

MaPS, 2023. *UK Children and Young People's Financial Wellbeing Survey: Financial Foundations | Money and Pensions Service*. https://maps.org.uk/en/publications/research/2023/uk-children-and-young-peoples-financial-wellbeing-survey-financial-foundations

Mills, S., Ash, J., & Gordon, R. (2024). Children and young people's experiences and understandings of gambling-style systems in digital games: Loot boxes, popular culture, and changing childhoods. *Annals of the American Association of Geographers*, *114*(1), 200-217.

Mustafa, M., Mazhar, N., Asghar, A., Usmani, M.Z., Razaq, L., and Anderson, R., 2019. Digital Financial Needs of Micro-entrepreneur Women in Pakistan: Is Mobile Money The Answer? *In*: *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI '19*.

O'Dwyer, R., 2023. *Tokens: The Future of Money in the Age of the Platform*. Verso Books.

Pritchard, G., Vines, J., and Olivier, P., 2015. Your Money's No Good Here: The Elimination of Cash Payment on London Buses. *In*: *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems*. New York, NY, USA: ACM, 907–916.

Sharma, S., Howell, N., Ventä-Olkkonen, L., Iivari, N., Eden, G., Hartikainen, H., Kinnula, M., Durall, E., Nitsche, M., Okkonen, J., Pait, S., Rubegni, E., Sluis-Thiescheffer, W., van der Velden, L., and Varanasi, U.S., 2024. Promoting Criticality with Design Futuring with Young Children. *In*: *Proceedings of the 13th Nordic Conference on Human-Computer Interaction*. New York, NY, USA: Association for Computing Machinery, 1–15.

Sun, S. and Chen, Y.-C., 2022. Is Financial Capability a Determinant of Health? Theory and Evidence. *Journal of Family and Economic Issues*, 43 (4), 744–755.

Van Dijck, J. 2014. Datafication, dataism and dataveillance: Big Data between scientific paradigm and ideology. Surveillance & Society 12, 2 (2014),

Vandermaas--Peeler, M., Nelson, J., and Bumpass, C., 2007. 'Quarters Are What You Put into the Bubble Gum Machine': Numeracy Interactions during Parentchild Play. *Early Childhood Research & Practice*, 9 (1).

Verma, P., Becker, C., & Sabie, S. (2025). 17 Years of Fintech for Financial Inclusion: A Systematic Review and Critical Value Analysis. *Proceedings of the ACM on Human-Computer Interaction*, *9*(7), 1-33.

Vines, J., Dunphy, P., Blythe, M., Lindsay, S., Monk, A., and Olivier, P., 2012. The joy of cheques: trust, paper and eighty somethings. *In*: *Proceedings of the ACM 2012 conference on Computer Supported Cooperative Work*. ACM, 147–156.

Vyas, D., Snow, S., Roe, P., and Brereton, M., 2016. Social Organization of Household Finance: Understanding Artful Financial Systems in the Home. *In*: *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing*. New York, NY, USA: ACM, 1777–1789.

Wang, G., Zhao, J., Van Kleek, M., and Shadbolt, N., 2021. Protection or Punishment? Relating the Design Space of Parental Control Apps and Perceptions about Them to Support Parenting for Online Safety. *Proc. ACM Hum.-Comput. Interact.*, 5 (CSCW2), 343:1-343:26.

Whitebread, D. and Bingham, S., 2013. *Habit Formation and Learning in Young Children*. Money Advice Service. https://kidwealth.com/wp-content/uploads/the-money-advice-service-habit-formation-and-learning-in-young-children-may2013.pdf

Yip, J.C., Ello, F.M.T., Tsukiyama, F., Wairagade, A., and Ahn, J., 2023. 'Money shouldn't be money!' : An Examination of Financial Literacy and Technology for Children Through Co-Design. *In*: *Proceedings of the 22nd Annual ACM Interaction Design and Children Conference*. New York, NY, USA: Association for Computing Machinery, 82–93.

Zelizer, V.A., 1989. The Social Meaning of Money: 'Special Monies'. *American Journal of Sociology*, 95 (2), 342–377.

APPENDIX 1

ID	Role	Org Area/Type	Role & Organisation Synopsis (summarised from participant's own remarks)
P1	Head of Impact and Insights	Financial Education Charity	Driving insight, policy, and alumni engagement in a youth employment charity by using evidence and research to improve young people's prospects.
P2	Professor	Academic Institution	Academic exploring how to design ways to help children understand complex ideas and concepts.
P3	Policy Manager (Children and Young People)	Government Agency	Drives social mobility within the youth and community sectors; implements change at a strategic level through influencing government policy.
P4	Research and Development Director	Social Enterprise	Working to improve outcomes for children in a connected world.
P5	Director	Market Research Agency	Commercial agency researcher specialising in social research projects, including evaluations of government and corporate financial engagement programmes.
P6	Senior Lecturer	Academic Institution	Academic exploring consumer financial decision-making, financial technology, and financial education.
P7	Professor	Academic Institution	Academic whose interests are in financial services marketing and specifically financial wellbeing.
P8	CEO	Commercial Bank	Senior leader in a financial services organisation focused on youth banking.
P9	Sustainable Banking Lead for Financial Capability	Commercial Bank	Senior leader in a financial services organisation focused on financial wellbeing.
P10	Associate Professor	Academic Institution	Academic whose interests include how digital technologies support collaboration in families.
P11	Quantitative Insight Director	Market Research Agency	Commercial agency researcher specialising in the youth sector.
P12	Professor	Academic Institution	Academic specialising in gambling research, policy and practice.