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A Design-Led Study on the Coupling of Human Wellbeing and Circular Consumer Experiences

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ABSTRACT

This paper reports on an exploratory design-led case study on how to achieve a stronger coupling of human wellbeing and material resource flow as a strategy to contribute to reducing textile consumption for the Circular Economy. The significance of wellbeing and sustainability for consumer experiences is discussed. The Wellbeing Framework for Consumer Experiences in the Circular Economy of the Textile Industry is introduced, this engages with both hedonic short-term pleasure-seeking—usually associated with fashion consumption and eudaimonic dimensions of wellbeing. The study methodology consists of a novel 'living lab' in the form of a speculative retail environment consisting of alternative circular consumer experiences, products and prototype services in the context of circular textile consumption. The study participants' experiences and the meanings of wellbeing to them in the context of sustainable consumption are presented and discussed. These findings flesh out, validate and refine the Wellbeing Framework elements and dimensions and demonstrate its operationalisation as a design strategy to facilitate meaningful sustainable consumer experiences. The paper concludes that designing consumer experiences to amplify human wellbeing is a viable circular strategy and that the Wellbeing Framework can contribute to this design process.

1 | Introduction

This paper reports on a study undertaken by the consumer experience strand of the Textile Circularity Centre (TCC), an interdisciplinary multi-partner project funded by the EPSRC. The centre and this study are situated against a backdrop of the constant demand for new clothing, characteristic of 'fast fashion', which has created fashion overconsumption (McNeill and Moore 2015). In the UK and the EU, the average person consumes over 25 kg of textiles annually, which is 2–3 times the global average (Niinimäki 2010), with more than 60% of this consumption being clothing (WRAP 2019). TCC explored consumer behaviour, awareness and attitudes, as a vital component/node within the circulation of products and materials (Wastling et al. 2018), whilst acknowledging that sustainability is a complex systemic economic, social and political issue that extends beyond the power of individual consumers to resolve (Heinze 2021). More broadly, TCC explored ways to achieve a stronger coupling of human wellbeing and material resource flow (i.e., the lifecycle phases of a garment) as a strategy to contribute to reducing textile consumption (Balderjahn et al. 2020; Barrington-Leigh 2022).

In this paper we discuss the significance of wellbeing and sustainability for consumer experience and introduce the (removed for annon). Wellbeing Framework for Circular Consumer

Experiences (Petreca et al. 2025). This holistic framework consists of three wellbeing elements—feeling well, doing well and being well and 16 wellbeing dimensions. It situates hedonic (short term pleasure-seeking, usually associated with fashion consumption) and eudaimonic dimensions of wellbeing (Martela and Sheldon 2019), that is longer-term, active, and agentive ways of living, within the circular textile economy.

This key contribution of this paper is to further inform understanding of consumer wellbeing for sustainable consumption. We validate and refine the elements and dimensions of the Wellbeing Framework for Circular Consumer Experiences by fleshing out what wellbeing meant to the study participants in the context of sustainable consumption at the living lab. Further the paper illustrates how the Framework can be operationalised (e.g., by sustainable retail, brands and designers) as a design strategy to facilitate meaningful consumer experiences with textile circularity. We show that designing sustainable consumer experiences to amplify human wellbeing is a viable strategy to reduce textile consumption for a successful Circular Economy (CE), and that the Wellbeing Framework for Circular Consumer Experiences is a useful resource that can contribute to this design process.

2 | Wellbeing and Sustainable Consumer Experiences

Sustainability is a complex systemic issue, which we understand as the need to stay within the 'safe operating space for humanity' (Rockström et al. 2009) inside planetary boundaries. The CE is a recent iteration of sustainability paradigms and its emphasis on 'closing the loop' offers a practical way forward (Nikolaou et al. 2021). The TCC emphasises a circular economy model that seeks to redefine material value beyond cost to encompass socioeconomic factors and sees consumer awareness, attitudes and behaviours as having an important role in future circular economies of textiles, garments and fashion (Taufik et al. 2015). Sustainable consumption (e.g., extending the use and lifespan of garments, reducing consumption and waste via reuse, repair and recycling) involves utilising services and products that satisfy needs and enhance quality of life, while minimising environmental impact to ensure the wellbeing of future generations is not compromised (Vargas-Merino et al. 2023).

Despite their central role in resource usage and allocation, however, consumer considerations are often overlooked in CE conceptualisations, which tend to prioritise the practicalities of resource flows. TCC addresses this gap by exploring ways to support consumers to actively engage with and adopt more 'circular' practices. This requires a less 'technical' approach to circular consumption by addressing it as a social and cultural phenomena. This includes the ability of consumers (individuals and collectives) to engage with the forms of labour involved in sustainable consumption including 'purchase, use, reuse, cleaning, sorting and recycling' (Hobson et al. 2021; Luukkonen et al. 2024). More specifically, this paper explores the potential of recoupling human wellbeing and resource flow as a strategy for new forms of CE consumer experiences. A dominant narrative marketed, supported and mobilised by fashion brands and retailers, is that wellbeing can be achieved through consumption (Kim and Hong 2011). However, such narratives are grounded in a reduced and partial understanding of wellbeing that is focused on short-term hedonic pleasure-seeking and conspicuous consumption. In contrast, routes to sustainable consumption tend to focus on providing information (e.g., labels and measurements) (Schiaroli et al. 2024), discourses of sacrifice, moralistic criticism, or suppression of personal or social needs (Kjellberg 2008; Middlemiss 2018; Soper 2020; Legere and Kang 2020; Becker-Leifhold 2018). Research suggests that speaking to longer-term (eudaimonic) aspects of human wellbeing (e.g., attachment or bodily and sensorial comfort) may offer an alternative effective route to sustainable consumption (Chamberlin and Callmer 2021) including sustainable 'anti-consumption' of clothing which seeks to decrease acquisition and or disposal of clothes and slow the fashion cycle (Vesterinen and Syrjälä 2022). Other research has shown that while acquisition reduction alone is not associated with consumer subjective wellbeing, intensive and extended usage of garments are positively associated with it, and that this relationship is in part mediated by improved body image (Vesterinen et al. 2024). In response, we propose a holistic approach to wellbeing and the circular economy that integrates and balances hedonic and eudaimonic dimensions of well-being.

2.1 | Wellbeing Framework for Circular Consumer Experiences

Eudaimonic wellbeing (less often associated with fashion consumption) speaks to the bigger notion of a life full of purpose and potential, underpinned by the power to make choices and participate in one's own life, agentive ways of living with embodied consequences and social meaning which cannot be decomposed into momentary affective experiences. The wellbeing framework for circular consumer experiences aims to move arguments, interventions and policy beyond notions of wellbeing as short-term (hedonic) pleasure, in which effort and ethics are always a negative cost and shifts the debate from a sole focus on individual behaviour, choice and responsibility, to better understand the social factors and norms that shape people's everyday practices, including patterns of consumption (eudaimonic wellbeing). From a holistic perspective, we understand wellbeing as a dynamic temporal process that unfolds across the process of consumption in moments of both satisfaction and challenge and relates to deep social factors such as the embodied experiences and self-perception evoked by a garment (Evans 2019). The framework presents 16 interconnected dimensions of wellbeing, organised under three well established overarching elements: Feeling well, doing well, being well (Figure 1). We briefly outline these elements and dimensions below (the Framework is described in Petreca et al. 2025).

Feeling well refers to the subjective dimensions of wellbeing, including hedonic dimensions and psychosocial needs and satisfaction and includes six wellbeing dimensions: enjoyment and pleasure, bodily and sensory experiences (including comfort and discomfort), attachment, community & belonging, caring and self-worth (Bandura 1982; Fleetwood-Smith et al. 2019). *Enjoyment and pleasure*, that is the state or experience of positive emotions and sensory pleasure are significant features of wellbeing (e.g., the pleasure of trying on clothes with

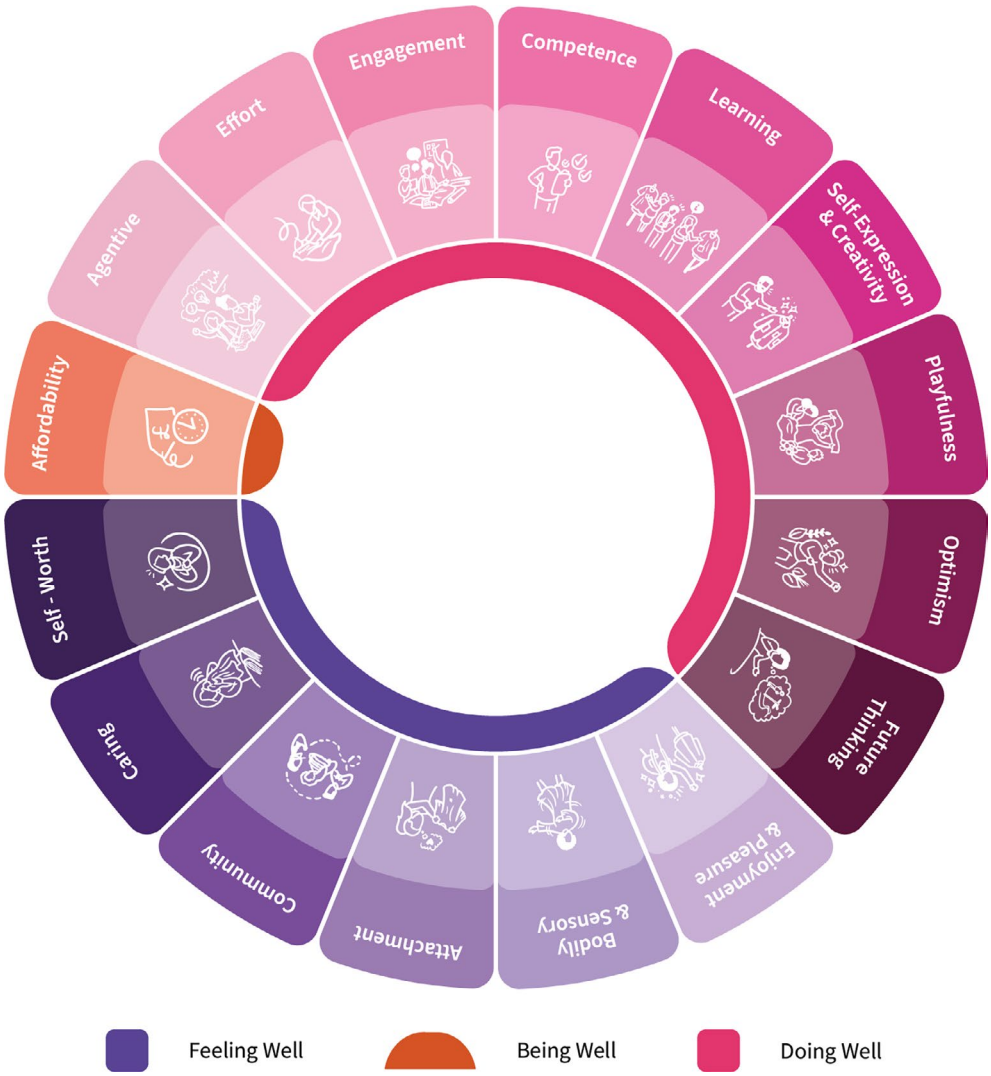

FIGURE 1 | (removed for annon) Wellbeing framework for consumer experiences in the circular economy of the textile industry.

friends, dressing to go out, making a garment (Niinimäki and Armstrong 2013)). The wellbeing effects of *bodily and sensory* awareness are well established (e.g., in relation to mindfulness and somatic therapies) and can significantly impact on the embodied experiences of sustainable fashion consumers (Ciaunica et al. 2021; Entwistle 2000, 2023). Fostering consumers' *sense of attachment to garments* (including their emotional connection, memories and sense of identity associated with a garment) comprises another argument for ways to lower consumption (i.e., promoting care for a garment, extending its lifespan and being less likely to buy something new to replace it (Maldini and Balkenende 2017)). The politics and economics of *caring* are associated with attachment and wellbeing more generally. Care is at the core of slow fashion movements, emotionally durable design, meaningful design (Chapman 2005, 2021; Casais et al. 2016; Sheth et al. 2011; Cooper 2005) and repair (Korsunova et al. 2023), which link sustainable consumption with care for nature and care for the material world (Hernandez et al. 2020). Care is a key social aspect of sustainable consumption practices that aim to extend the lifetimes of objects and materials. Mesiranta et al. (2025) argue for a shift in conceptualising circular consumption practices as matters of care to go beyond technocentric perspectives and account for the complex relations between humans and nonhumans. There is a strong argument for the value of *community & belonging* (both at a local level and online) and bringing people's wellbeing back into the conversation to increase consumer participation in the circular economy, which can in turn contribute to feeling agentive and in control, a sense of belonging and in turn a sense of *self-worth* which encompasses notions of self-esteem and self-respect all key aspects of wellbeing (Ryan and Deci 2017).

Doing well relates to subjective wellbeing including eudaimonic dimensions and personal needs for satisfaction. This wellbeing dimension consists of eight dimensions: agency and a sense of control, engagement, effort, competence or learning, creativity and self-expression, playfulness, optimism and a sense of a future (prospective) self. There is a strong argument within the sustainability literature that people are—or need to become—active stakeholders in the processes of fashion sustainability and circular consumption. For example, by fostering *agency and a sense of control* (i.e., actively, independently and competently interacting, participating, or co-creating in the process of fashion 'consumption'), *engagement* (ranging from participation to collaboration) and *effort*. Effort has been defined as 'the subjective intensification of mental and/or physical activity in the

service of meeting some goal' (Inzlicht et al. 2018, 388). While effort might be considered an off-putting quality to aim for in sustainable consumption strategies, as for many, consuming 'sustainably' is already too effortful, exerting effort purposefully has been shown to play a positive role in interactions (Waterman et al. 2010). For example, Lundblad and Davies' (2016) research into the values and motivations of sustainable fashion consumers found people felt 'good' and a 'sense of accomplishment' for making more sustainable choices; a large part of this came from consumers' effort in researching their purchases (the 'cost of becoming informed') before buying them. More generally, there is thorough systematic evidence showing that people subjectively value more products they either effortfully assembled, or personalised and co- designed rather than ready-made products (Eisenberg 1992; Franke et al. 2010; Mochon et al. 2012). Competence and learning are central to wellbeing and being a skilled sustainable consumer. Increasing consumer participation in the CE requires supporting consumers to become more aware and skilled, and developing the infrastructure for learning these skills. Competence, or a sense of 'mastery', is a feature of consumers' emotionally meaningful relationships to products (Casais et al. 2016). Competent consumers, can reflexively engage with how things are used, make informed choices about acquisition and divestment to avoid accumulation (Gregson et al. 2007), refers to the skills and confidence required to undertake specific circular practices, such as renewal and repair, or the co-design of apparel. Learning refers more specifically to the active process of gaining skills and knowledge. Infrastructure and opportunities for learning these skills are an area for further development, but the literature highlights numerous examples that show the potential virtuous circle that can be set in motion by people learning even a relatively rudimentary skill (Korsunova et al. 2023). Fashion is long acknowledged as playing a central role in *creativity and self-expression*, as it allows individuals to curate their identities through stylistic choices, serving as a form of non-verbal communication (Händler Svendsen 2006). *Playfulness* is a key dimension of wellbeing (Wilk 2022), using fashion as exploration. The circular economy requires a sense of *optimism* (notions of a bright/good future) and a vision of a *future (prospective) self* (i.e., the capacity to imagine future outcomes and engage in pre-emptive change) (Szpunar 2010). Expressing concern and feeling hopeful about the future may motivate pro-environmental behaviour and engender trust that one's actions can ameliorate pressing ecological dilemmas (Ojala 2012, 2015). These dimensions of doing well relate to a broader sense of meaningfulness, purpose, self-efficacy and authenticity.

Being well refers to the objective and socioeconomic dimensions of wellbeing, in addition to health-promoting conditions, experiences and behaviours discussed above. The key aspect relevant to wellbeing, fashion and sustainability is *affordability*. Sustainable fashion products and services tend to be more expensive both in monetary value and time than less sustainable options and price is regularly found to limit or override other factors involved in purchase decision making (Brandão and da Costa 2021), even among 'eco-conscious' fashion consumers (Connell 2010). Although some sustainable fashion consumers are willing to pay more for purchases, they see as higher-quality and longer-term 'value for money' (Lundblad and Davies 2016). However, 'sustainable' practices are most likely to be enacted by everyday consumers where these are affordable. This relates to practical issues of access and feasibility.

We return to these elements and dimensions in the findings and discussion section to flesh out what wellbeing meant to the study participants in the experiential environment of the Regenerative Fashion Hub, a living lab.

3 | Methodology: Wellbeing and the Regenerative Fashion Living Lab

The study used a 'Living Lab' methodology (McPhee et al. 2012; Malmberg et al. 2017). Living labs differ from other qualitative methods (case studies and interviews) in that they integrate research directly into the innovation process, with a strong emphasis on generating actionable, sustainable solutions, rather than focusing solely on data collection (Franz et al. 2015). Living labs centre on co-creation, user participation and iterative prototyping, testing and refining solutions within real-life contexts that integrate research and experimentation into localised environments to address context-specific challenges, gather data and drive design. Living labs thus provide a dynamic, situated experience which contrasts with many other qualitative methods which tend to be more structured and predefined and less design driven (Forbat et al. 2025). This method allowed us to incorporate various methods within a setting that encourages consumer participation and closely resembles real-life scenarios. We designed the Regenerative Fashion Hub, an experiential speculative retail environment situated in East London, UK which consisted of alternative circular consumer experiences, products and prototype services in the context of circular textile consumption. It built on and extended the 'Compositor Tool', an earlier speculative retail-based iteration that explored ways for consumers to participate in material circularity and forge deeper connections to materials and products (Petreca et al. 2022). The Compositor Tool facilitated 'design into experience' (exploring new product/brand experiences and novel interaction types), observation at micro and macro levels (from individual sensory perceptions to contextual and social implications) and enabled a variety of dimensions of consumer experience to be interrogated.

The living lab brought to life the journey of biowaste from source of waste through to the consumption of apparel (Figure 1) through a configuration of different consumer experiences. The aim being to recouple resource flow and human wellbeing, including by informing the design of technology which can encourage consumers to slow-down the moment of consumption through connection with and reflection on their clothes, to facilitate sustainable and circular textile consumption (Mugge et al. 2005). Station 1, a 'Multisensory installation' exploring the process of refining and regenerating bio-waste. Station 2, a 'Materials Library' of cellulose-based textile samples made from bio-waste. Station 3, a 'Materials Gym' presenting larger material samples for developing material knowledge and expressing attachment to textiles and products through touch, gesture and movement. Station 4, the 'Circular Shirt Builder', a co-design and customisation station featuring a modular shirt as one example of these processes, designed to evoke elements of traditional tailoring in a retail

FIGURE 2 | Top row left: Overview of the living lab; right: Interactive installation; second row left: Materials library; right: Materials gym. Third row: Circular Shirt Builder station; bottom row: Co-design combination examples. CE patches. Image credit: Ezzidin Alwan.

setting while emphasising modularity and co-design. Station 5, a 'Renewal and Repair' station displaying examples of repaired garment. Station 6, 'Role-patches', displayed a series of five patches for people to reflect in a playful way on their 'role' in the circular economy (see Figure 2).

The living lab provided a prototype future retail environment. The configuration it presented was but one configuration of many spaces envisaged for the future. A range of studies were facilitated at the Regenerative Fashion Hub over a 6-week period (October to November 2022). These were approved by research ethics committees at the Royal College of Art and University College London. This paper draws on the findings of one study, a Guided Journey of the Hub which explored how consumer experiences designed to promote and amplify human wellbeing might contribute to more sustainable consumption, what wellbeing means in the context of fashion consumption, and how consumer wellbeing can be fostered. The study consisted of a researcher guiding participants around the six stations of the Hub described above.

3.1 | Participants

The study was advertised via Twitter, Instagram, LinkedIn and centre networks. Prospective participants were able to register to take part in the study and select a date and time slot, they were emailed an information sheet with fuller details of the study. On arrival at the Hub participants were welcomed and given the information sheet again and a written consent form to read and complete: a researcher was available to answer any questions. Participants were remunerated with a token £10 voucher.

The study recruited a total of 30 participants, all London based, primarily female (22 F, 8 M) and ages ranged from 19 to 50 years, with an average age of 30. The majority (24) of participants ethnicity and cultural backgrounds were white-British/European, two participants were Asian (India), two Chinese, one Black-African (Nigeria) and one Brazilian. Specific information on participants' socioeconomic status was not collected; however, most participants were students or industry professionals working in fashion, textiles, sustainability and other areas of design. While participants had more knowledge and/or interest in sustainable textiles/fashion than the 'average' consumer, we argue that working with proxy consumers who have or show a receptivity toward sustainable practices is a good starting point. Previous research has shown that the later positively contributes to circular behaviour adoption (De Chiara et al. 2024).

3.2 | Data Collection

Participants were guided either individually or if they attended the (removed for annon) with others as a pair or small group.

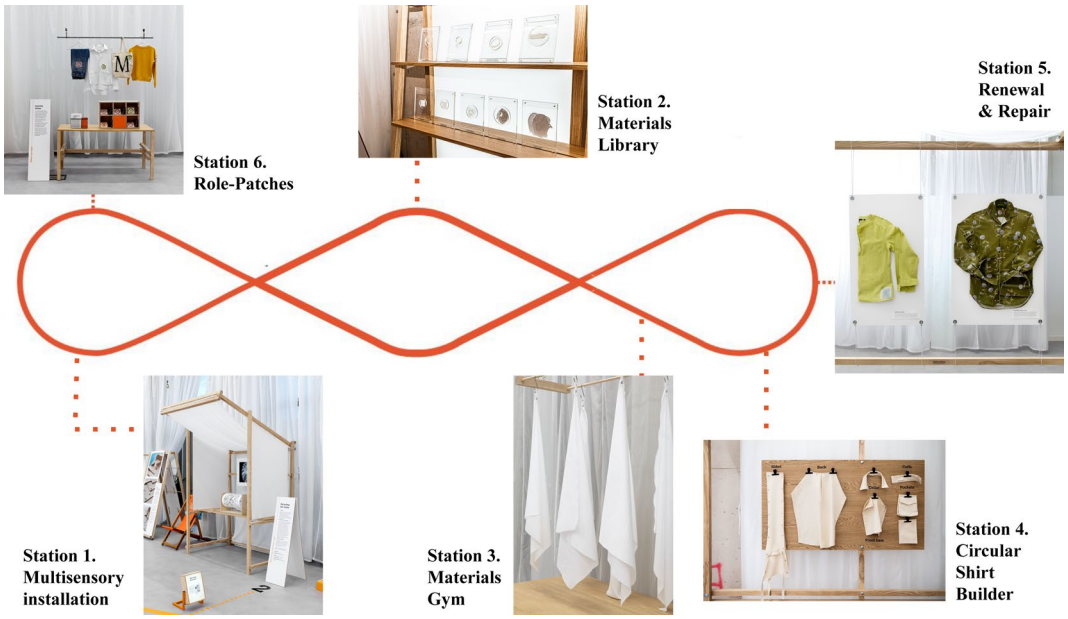

FIGURE 3 | (removed for annon) Station map.

Their interaction during the journey was observed by the researcher who also used a topic guide drawing on the 16 dimensions of the Wellbeing framework to prompt participants to comment and reflect on their experiences. Semi-structured questions and open prompts were developed for each of the stations to explore related themes including their preferences (e.g., Which material sample would you most likely wear and why?), past experiences (e.g., What clothes do you have in your wardrobe that you do not wear and why?) and attachment to garments (such as 'Tell us about an item of clothing you own that you'd like to breathe new life into, and why?'). For example, we asked how a fabric felt emotionally and sensorially on their body, probed their experience at the co-design station in terms of ownership and effort, and elicited participant stories of repair which prompted discussion of competence, skill, effort and attachment. While the initial question was asked consistently across all participants, the probes were used in a more open way to respond to the interests of the participant. The average participant journey time was 45 min (ranging from 35 to 70 min). During this journey all participants visited all six (removed for annon) stations described above (illustrated in Figure 2) and the station map below (Figure 3).

The time participants spent at each station varied depending on the participants' interests. Participants spent 2–5 min at the four display style stations, that is, the 'Multisensory installation' (Station 1), the 'Materials Library' (Station 2), the 'Renewal and Repair display' (Station 5) and the 'role-patches' (Station 6). They spent longer at the 'Materials Gym' (Station 3) and the 'Circular Shirt Builder' (Station 4) which were more hands-on, including engaging in the process of co-designing a modular shirt by selecting from the available options. Times varied from 5 to 15 min and 15 to 25 min respectively. When participants completed the journey, they were shown a table display of the 16 dimensions of the framework printed on cards and asked to select any cards (as many as they liked) that resonated with their Hub experience, they were then asked to elaborate on their selection. All participants completed this task and the average time it took was 15 min (ranging 12–20 min). All journeys were video recorded with a small hand-held camera.

3.3 | Data Analysis

The analytical process combined a deductive approach that employed the TCC Wellbeing Framework (Petreca et al. 2025) to interrogate wellbeing concepts identified in the participants' experiences alongside an inductive (bottom-up) thematic analysis (Braun and Clarke 2006) to identity wellbeing themes emerging from the data. This consisted of six iterative steps (not always linear) including: verbatim transcription and familiarisation with the data; identifying initial codes; clustering codes into 'candidate' themes; reviewing and verifying themes; formalising themes and shaping them into a coherent narrative; and reporting themes supported by pertinent quotations. In conducting our analysis, we paid particular attention to episodes where dimensions of wellbeing were evident. Through this analytical process we sought to flesh out and anchor the wellbeing concepts in/through the participants' experiences.

4 | Findings

4.1 | Feeling Well

Participants spoke of their complex and often negative feelings related to fashion and garments, rooted in the difficulty of finding clothes that they liked, that suited or fitted them well, that they could afford, and their struggle to find 'their style'. Three dimensions of feeling well—enjoyment and pleasure, bodily & sensory experiences and attachment, stood out as having a strong significance for the majority (more than half) of participants.

Over a half of participants spoke of their *enjoyment and pleasure* in garments and fashion in terms of aesthetics, design, patterns, colour and the sensory feel of a garment on the skin. The

sensuous feel of materials and their comfortable, breathable, cooling, or warming relationship and fit to the body, their *bodily and sensory* qualities which participants commented on as enjoyable and giving pleasure. They enjoyed being free to touch and feel the materials at the Materials Gym (3), Circular Shirt Builder (4) Renewal and Repair (5) stations: 'It feels so lovely! I don't want to let go... (laughs)' (P15). Participants discussed the pleasure of wearing and making garments and discovering something new about themselves through their interactions, which one participant described as a creative process of 'self-discovery' (P8).

All participants told stories across the guided journey, and notably at the stations that promoted hands-on-engagement with garments (i.e., stations 3, 4 and 5) of touching clothes in shops and markets, and memories of mothers or grandmothers' expertise in touching fabric to determine its qualities. At the Materials Gym station, most used touch gestures (small rubbing motions, stroking) which they saw as the most acceptable to use in shops, with others (stretching, scrunching, draping on the body) less acceptable: 'I think scrunching is almost a little bit aggressive?' (P28). They touched to understand how the material would feel and behave on the body, its weight, transparency, breathability, temperature, comfort, creasing, drape and movement, and durability: 'I think you get a feel for a material by seeing how it flows on your skin, the density of it almost' (P14). This prompted participants to consider materials as part of a holistic bodily and sensory experience, 'I try to imagine myself in the shirt [made of the fabric she is feeling] five, six hours into the day would I be comfortable in it? Would it sustain living, if I'm wearing, moving around? I don't feel it being comfortable; it might get sticky, it's just too flowy' (P10). They valued being able to touch, 'I felt this experience of being in touch with the material and all this. I've been attuned!'(P19).

The co-design process at the Circular Shirt Builder station was experienced as fun, exciting, collaborative and prompting enjoyment and pleasure—both in relation to the experience of making and wearing. Several participants for whom shopping was generally a negative experience commented on this. This speaks to notions of effort and 'I designed it myself' effect (Franke et al. 2010) Participants wanted co-design to be responsive and aligned to their bodies' contours (e.g., curves, shoulder line), proportions, size, height, shape and feelings in which, 'The body is part of the co-creation, and the participation' (P1). Many participants commented on their sense of a sustainability aesthetic as 'puritanical, itchy, practical and worthy' rather than pleasant or sensual (P17). They reflected on unworn garments that looked good when bought for the colour or style but that did not feel good to wear (e.g., choked, did not move well, too sweaty): 'We end up wearing it and then we realise how awful we feel in it and we won't wear it' (P10); 'How it feels on our body, it's important, it gives me different emotion' (P6).

Fostering consumers' sense of *attachment* to garments has been proposed as a CE strategy (Maldini and Balkenende 2017). In this study, across all stations, participants linked a sense of attachment to their clothes with their positive memories and felt bodily experiences of them (e.g., comfortable, warm), which meant they were worn often. Repair was also considered to increase the emotional value of a garment, '[since repairing them] I've felt a stronger sense of connection, a subconscious attachment' (P16). Some participants saw engaging in the process of co-design (station 4) as having the potential to create attachment to garments and enable them to 'grow with you' (P4). Conversely their lack of awareness of negative material qualities at the time of purchase (e.g., itchiness, lack of breathability, heaviness), resulting in clothes not being worn, led to a sense of detachment. Participants found touching materials helped them to foster awareness of the qualities of fabrics and their preferences, supporting better choices and the conditions for attachment.

At the Renewal and Repair Station, participants shared stories of their pleasure at mending or repurposing a garment, 'it helps how you express yourself...It can feel a bit less like you're just buying into this consumerism and materialistic and capitalist hellscape' (P23). Repairing garments was strongly associated with *caring* and *attachment* (as noted above), something done with garments participants felt affection for (sometimes linked to original cost), 'that's *why* you're mending your clothes, because you're attached to them' (P10).

While participants' comments across all the stations and notably the Materials-Gym, emphasised the need to bring the sensing body back in, retail stores were seen to discourage tactile exploration of garments. Touch was seen as risky: 'You may leave some damage' (P9). They consistently commented on the need for clothes shopping to go beyond the visual to incorporate more touch, movement, sound and smell into coherent circular consumer experiences, suggesting it would be useful for sustainable retail spaces to develop 'low stakes' (P28) multisensory and tactile ways to explore materials and garments.

The remaining dimensions of the feeling well dimension of well-being (i.e., community, and self-worth) were mentioned by less than a third of participants suggesting they were more dispersed and weakly articulated through the living lab stations.

4.2 | Doing Well

Most participants described the living lab presentation of the process of textile circularity as a sequence of steps (stations) that map to consumer decisions (e.g., choice of material, modular design selections) as contributing to an enhanced sense of agency and control, engagement and competence, and around a third highlighted the role and significance of effortful activity, which in turn generated a sense of *playfulness*, *creativity*, engagement with one's *future prospective-self* and *optimism* which were articulated across the living lab experience.

The multiple invitations to touch and interact with materials and garments (and their body) enabled participants to feel an active part of textile circularity: 'It gives me a feeling like I'm joining the process' (P1); 'I have a sense of control and kind of connected' (P19). Interacting with the materials in the Materials Gym and Co-design stations engaged participants in making decisions and selections (e.g., choice of modular components—cuffs, collars, pockets and hems), which generated a

strong sense of control and competence in relation to making sustainable choices, 'It empowers you to make choices that align well in terms of your values' (P16); '...it makes you feel like you're leading the regenerative cycle, leading the change' (P10). Participants counter-posed this to a common feeling of passivity in consumption, and helplessness or hopelessness in relation to making a difference to sustainability and climate crisis, 'You look around at some point and ask, "why am I covered in plastic and oil, and did I make this choice?" It feels passive, but you are making choices... it's how you made those choices that sometimes you need to look at!' (P21).

Participants spoke of engagement and participation as key to agency, connection, self-discovery, and optimism, 'There is a sense of connection: you feel like you are part of a solution (P16)'; 'Participation in the design of a garment, how to make and take something apart, is about ME ... there's a challenge around how that happens' (P7). Participation was also spoken of in terms of the *effort* of sustainable consumption, the time involved in researching and understanding garment labels, the financial effort of shopping sustainably, the work of engaging in co-design, time spent caring for clothes (e.g., ironing or repair) and the planet more broadly.

Effort was perceived and experienced as a key dimension of co-design and repair, with the effort-level dependent on a participant's skills and balanced with the promise of circularity and longevity. Overall, participants felt that co-design could give them a new experience of 'fit', which was seen as a valuable and tangible payoff for the effort (time and cost) of making sustainable choices, compared to feeling worthy: 'It can't just be about good for the planet' (P19). Several participants found co-design 'overwhelming' (P25), time consuming or too complicated 'It's like making a meal from scratch vs buying a ready meal,' (P23), while others considered it beyond their design competence, 'I tried it [Nike-ID] out a few times—and thought [of their design outcome] "that's ugly"' (P21). These participants recognised the barriers to repair, wanted more scaffolding and support to enable them to participate in co-design.

Participants expressed the importance of becoming *competent* in assessing and comparing their qualities and engage with the feel and movement of a garment rather than solely the visual, toward supporting more informed consumption and less returns (a significant factor in fashion over-consumption): 'when I was trying those materials, I felt my sense of mastery growing. And it's a satisfying feeling when you learn when you improve a bit' (P15). Most participants commented on their lacking competence in renewal and repair techniques, and the need to learn these skills to become more confident and competent. 'Having something like this [Materials Gym station] in a shop could be good' (P13). Co-design was understood as a process of *learning* these skills through making, to improve understanding of how to touch and assess materials and gain knowledge and understanding of garment construction and the potential for modularity and repair. Many participants expressed a need for support in the face of the communal 'lost learning', seen as one consequence of contemporary fast fashion, 'many people I know don't even know how to sew on a button' (P4). Many participants commented on wanting to learn these techniques, and raised the many barriers to doing so, notably their lack of access to learning related to limited time and/or money. More generally, participants spoke of *learning* about themselves and what they like and don't like through the process of the living lab experience: 'Sometimes having to go by the look, I never feel that connected to materials. I have never thought about different ways of touching them'. Increased competence was strongly linked to *optimism*: 'You feel "oh I can do all of this, I can take care of it," all those things [the station activities] are doable on an individual level' (P10); 'We tend to see so many things in sustainability as forward and future thinking. Seeing all these things coming together [at the living lab], it just feels possible. That's Optimism obviously, but its competence as well ... something we could start implementing soon, that is already being implemented. It gives me hope' (P14).

4.3 | Being Well

Affordability trumped most participants' concern about the feel and quality of a fabric and their desire to wear sustainable clothes. The durability of a fabric and its ease of care (e.g., ironing, cleaning and stains), which help to ensure a garment will look good over time, were linked to affordability and sustainability and key to participants' choice of materials at the Materials Gym station. Some were sceptical about the sustainability 'pay off', '...What do I get for my more money other than feeling morally good?' (P21). Nonetheless, the possibility of co-design was valued by most participants, with some expressing willingness to spend 'a little more' for an 'investment piece', that they could keep engaged with through modularity for longer, and to have something co-designed to their body, 'I'm five foot and my inner leg is 24 inches! Most clothes on the high street fit me but don't suit me...the dream is to have something just tailor made for me' (P26). Overall, however, co-design was perceived to be expensive and unaffordable. Renewal and repair were linked to affordability *if* one had the skills and time to 'fix and sort stuff you already own' (P18), otherwise it was seen as a matter of balancing the time and monetary cost of a repair with the personal value of a garment. Participants viewed the study focus on materials, designs adaptable to the particularities of different bodies, and repair as re-framing the affordability of sustainability in a shift away from 'expensive sustainable bougie brands' (P25).

4.4 | Wellbeing for Sustainable Consumer Experiences

The above findings were used to generate a score to rank how each participant associated key wellbeing dimensions with their experience of each living lab station: absent (0), weak (1), medium (2) or strong (3). These individual scores were amalgamated to generate an average collective score to signal the strength of participants' coupling of each wellbeing dimension with each of the Hub stations (station 6—the Role Patches was excluded). We then mapped these scores to produce a collective map of the 'texture of the wellbeing experience' realised through the design of the living lab (Table 1). As we discuss in the next section, this enabled us to operationalise the Wellbeing Framework for

TABLE 1 | Representation of strength of participant association of wellbeing dimension with living lab station: Absent—white; weak—light grey; medium—dark grey; strong—black.

Wellbeing element and dimension	Station				
	Immersive experience	Materials showcase	Materials gym	Co-design	Renewal and repair
DOING WELL					
Engagement-participation					
Agentive/Sense of control					
Learning (curiosity awareness)					
Effort					
Competence					
Creativity					
Prospective-self					
Optimism					
Playfulness					
FEELING WELL					
Enjoyment and pleasure					
Bodily and sensory					
Attachment					
Caring					
Community and belonging					
Self-worth					
BEING WELL					
Affordability					

Consumer Experiences in the Circular Economy of the Textile Industry as a design strategy.

5 | Discussion

Wellbeing is a notoriously vague term, further muddled by the fragmented notions of it that are used to market a range of fashion products including fast fashion (e.g., see Magnus and Toriello 2020). This paper contributes to extending wellbeing for CE fashion by clearly defining wellbeing and supporting the challenge of strategically mobilising it for sustainability. The findings presented above provide a textured account of what wellbeing meant to the study participants in the context of circular fashion. This is valuable as it fleshes-out, refines and validates the elements and dimensions of the Wellbeing Framework for Consumer Experiences in the Circular Economy of the Textile Industry (Petreca et al. 2025).

Participant enjoyment of the sustainable consumer experiences provided through the living lab experience was strongly underpinned by the bodily and sensory opportunities it offered, notably the permission to touch. This reflects a sense that the usual sensory palette of consumer experiences is too limited. Significantly for sustainable consumption, this negatively impacted on participants' ability to assess the qualities or behaviour of a material on the body which in turn contributed to their poor purchasing decisions—including buying garments that were seldom, if ever, worn. This suggests that consumer experiences that offer more bodily and sensory experiences, in which everyday scenarios of garment wearing are used to generate reflective tools and help consumers to learn about their sensorial and material preferences, could help to both reduce consumption and support more intensive and extended usage of garments which is positively associated with consumer subjective wellbeing and improved body image (Vesterinen et al. 2024).

It is commonly agreed that to promote fashion sustainability and circular consumption requires consumers to become more active stakeholders (Petreca et al. 2025). Providing participants with consumer experiences that generate a sense of agency and control, opportunities for engagement, participation or co-creation in the process of fashion 'consumption', are valuable ways to achieve this. As our findings and those of others show, however, this also requires a degree of consumer effort and competence (Norton et al. 2012). Effort is a central dimension of becoming and feeling agentive through the process of sustainable consumption. Recognition of the forms of labour involved in sustainable consumption such as the work, skills

and time involved in the process of co-design and repair is crucial (Luukkonen et al. 2024). Our findings, and those of other studies, suggest that to avoid consumer overwhelm and overload consumer—with the potential of hopelessness and disengagement (Gkargkavouzi et al. 2025) effort needs to be carefully balanced with playfulness, and creativity, as well as opportunities for engagement with one's sense of future prospective-self and optimism. Experiences that help to enhance consumers competence, sense of 'mastery', confidence and learning are thus key to the design of sustainable consumer experiences that lead to emotionally meaningful relationships to a product (Casais et al. 2016). In this study, co-design offered such an experience as it enabled participants to learn from engaging with materials and with each other through the process of creating their modular shirts together, and generated the sense of being a part of a bigger process, an active part of textile circularity.

Fostering consumers' sense of attachment to and promoting care for a garment, and extending its lifespan (e.g., via repair), is another route to reducing consumption—making it less likely consumers will buy something new to replace it (Maldini and Balkenende 2017). Finding ways to reframe care as 'tinkering', 'affective practices', and 'care as ethico-political action' (Mesiranta et al. 2025) can further elaborate the social and cultural practices of sustainable consumption and contribute to wellbeing. Situating repair and care in relation to sustainable consumer practices draws on the bonding effects of repair (McNeill et al. 2020) and the ways in which garment care and repair provide ways to 'get to know' garments and redefine ownership in ways that contribute to wellbeing (Lee and Wakefield-Rann 2021). It is important nonetheless to acknowledge the barriers to sustainable consumption (e.g., the skills or cost associated with repair and co-design) and to provide adequate scaffolding and support to enable consumers to participate in these strategies (Terzioğlu 2021). A key barrier consistently mentioned in this study and the literature was affordability and the need to provide consumers with opportunities to learn or re-skill in repair. This is particularly important in the context of recoupling wellbeing and resource flow as acquisition reduction alone has been shown not to be associated with consumer subjective wellbeing, while intensive and extended usage of garments (which are related to attachment, care and repair) are positively associated with wellbeing (Vesterinen et al. 2024).

5.1 | Mobilising Wellbeing as a Design Strategy

Research has shown that dominant strategies to encourage more sustainable consumer behaviour (education, information, emphasising the negative impact of current consumption systems and asking people to make sacrifices) have limited effect (Wilk 2022; Bly et al. 2015; Jackson 2009). Strategies that engage with human wellbeing may provide a more effective strategy (Chamberlin and Callmer 2021), the argument being that sustainable alternatives need not only to be available and viable, but also attractive (Vargas-Merino et al. 2023; Wilk 2022). The findings presented in this paper have shown how the dynamic view of wellbeing provided by the Wellbeing Framework (as a composite of various dimensions, each manifesting with varying degrees or expressions across different experiences) can inform the design and evaluation of sustainable consumer experiences.

We operationalised the TCC Wellbeing Framework as a design strategy for a second iteration of the Regenerative Fashion Hub. The scores generated through the living lab study (Table 1), combined with the qualitative analysis of the participant data were used to inform the redesign of the living lab stations. These findings enabled us to better attune to and articulate where and why one might want to amplify or moderate a specific wellbeing dimension in the consumer experience—and to engage with the potential consequences of doing so. We embedded the 16 wellbeing dimensions in the second version of the living lab by iterating and incorporating new interactions and technologies to further amplify the wellbeing of the experience. For example, the Materials Gym station sought to more explicitly integrate whole body sensory explorations of materials by actively inviting participants to be more playful in their interaction with the materials provided. The design of the narrative and touch-based elements of the immersive multisensory VR experience (titled Farfalla) developed for the second living lab embedded and amplified a variety of wellbeing dimensions (i.e., attachment, engagement, agency and a sense of control, enjoyment, bodily and sensory, caring, community and optimism) which served to increase users' awareness of the sustainability of their choices. Clearly, it was not desirable to design every station with a strong sense of every wellbeing dimension; if for example, all station experiences required a strong effort and learning, the consumer experience would likely be overwhelming and exhausting. In addition, one might want to configure and evoke participants' sense of optimism, community and belonging, and effort at different points in a consumer experience to create a more textured experience. We are not suggesting that all consumers will respond to an experience in the same way, rather that the Wellbeing Framework can be used to design a possible trajectory or pattern of wellbeing within a consumer experience. Operationalising the TCC Wellbeing framework for evaluation (living lab 1) and design (living lab 2) enabled us to consider which wellbeing texture, highlights and sequences we wanted to produce through the iterative design and reconfiguration of the stations.

More generally, the TCC Wellbeing Framework can be mobilised by retailers and designers to attune their design attention to when and how they might configure different wellbeing concepts and the resulting textures of wellbeing that are created. This can help to foster the reimaging (and evaluation) of consumer experiences that couple consumer wellbeing and sustainability within a circular economy.

6 | Conclusion

Consumer experiences designed to promote and amplify human wellbeing have the potential to significantly contribute to more sustainable consumption. The empirical design-led research presented in this paper validates the definitional work on wellbeing underpinning the TCC Wellbeing Framework for Consumer Experiences in the Circular Economy of the Textile Industry (Petreca et al. 2025). This has further elaborated the framework by fleshing out what wellbeing meant to the study participants in the context of circular textiles/fashion. This definitional work on wellbeing provides a basis for strategies to bring wellbeing into the evaluation and design of meaningful

sustainable consumer experiences and behaviour. This is fundamental to design out overconsumption and to enable consumers to benefit from the wellbeing concepts that are explored in this paper. Recoupling wellbeing and sustainable consumption has the potential to support a more plural, multifaceted wellbeing from fashion, rather than the one-dimensional, short-lived satisfaction experienced through current linear consumption.

Interrogating and understanding of the relationships between wellbeing and sustainable fashion consumption is at an early stage. Studies (including this one) are small scale, speculative and exploratory and further empirical research is required to support its conceptualisation including 'in-the-wild' studies in an existing shop with 'real' consumers, existing brands and fashion collectives, longer-term research on the efficacy of individual consumption-reducing strategies and human wellbeing, and how brands and governments could better support consumers to contribute to fashion and textiles circularity (Fashion Revolution Poland 2023). A limitation of this study is that the participants had more knowledge and/or interest in sustainable textiles/fashion than the 'average' consumer, and future research with a broader range of participants is needed. Further exploration of how to balance and integrate agency, participation, effort, competence, a sense of belonging or community and affordability in the context of sustainable consumption is also needed. While this study contributes to advancing the field in relation to wellbeing dimensions of sustainable consumer experiences, 'in-the-wild' and longitudinal studies will further enable research into consolidating relevant dimensions into wellbeing indicators and subsequently deriving metrics to facilitate design implementation and evaluation.

Our findings are nonetheless particularly useful for circular economy efforts to transition consumers to become active stakeholders in the materials resource flow. Wellbeing is critical to this transition as it fosters an agentive attitude, active engagement in circular practices, learning and competence. While circularity extends beyond individual consumer efforts, their awareness, attitudes and behaviours are crucial for the future circular economies of textiles, garments and fashion. The holistic definition of wellbeing mobilised and illustrated in this paper can support retail and designers working in the circular textile economy to create meaningful sustainable consumer experiences centred around wellbeing. Well defined and holistic wellbeing (i.e., beyond hedonism) appears to have the potential to be coupled with material resource flow to shape sustainable consumer behaviour. The Wellbeing Framework is a resource for designers to integrate wellbeing into their design of products, services and experiences to empower consumers to become active nodes in the circular value chain, enabling responsible and personalised engagement; to support consumer-facing in-store experiences and services that ease the adoption of circular practices by amplifying couplings between the resource flow, wellbeing and satisfaction; and the design of new, digitally immersive experiences and services around apparel products productive for textiles circularity.

We conclude that designing consumer experiences to amplify human wellbeing can facilitate meaningful consumer experiences that recouple human wellbeing and resource flow in the context of textile circularity and that this is a viable strategy to help reduce textile consumption. Whilst consumer experiences must encompass other socio-economic, environmental and technical dimensions, we propose that the promotion of human wellbeing be at the heart of new circular consumer experiences to design out overconsumption. The TCC Wellbeing Framework for Consumer Experiences in the Circular Economy of the Textile Industry and findings presented in this paper offer the community a resource to support this design process.

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Ethics Statement

The study was approved by the RCA and UCL ethics committees.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Research data are not shared.

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