Doodle Away: An Autoethnographic Exploration of Doodling as a Strategy for Self-Control Strength in Online Spaces

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Doodle Away: An Autoethnographic Exploration of Doodling as a Strategy for Self-Control Strength in Online Spaces

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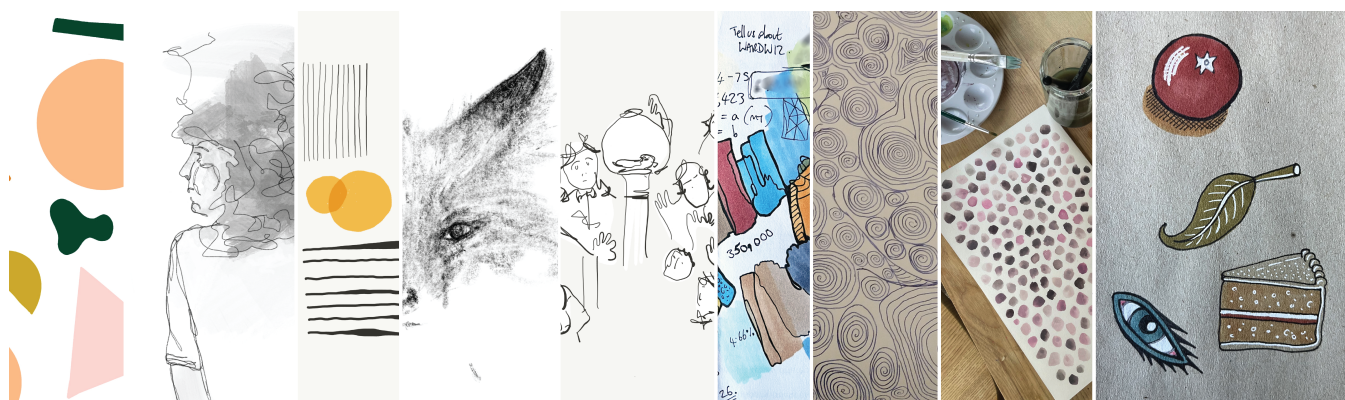Open Lab, School of Computing, Newcastle University
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Figure 1: A montage selection of layered doodles by all the authors made during the autoethnographic study – presented as snapshots and layered stripes.

ABSTRACT

We think we are not alone when we say: navigating the new online spaces surrounding us is more difficult than we could have predicted. In this paper, we explore doodling as a tool for self-control while attending passive online spaces. We, four researchers in the field of Human-Computer Interaction, engaged in doodling during our online meetings, seminars, and conferences. We also kept an autoethnographic diary along with a collection of our doodles. We reflected and then discussed through affinity diagramming, whereby five themes were developed: More than human, Designerly ways of sketching, Traces of time and space, Emotional aesthetics & thoughts, Sketching materials, techniques, and tangible characteristics. We conclude by inviting the HCI community to contribute with their doodles during the CHI2023 conference in Hamburg or remotely.

CCS CONCEPTS

• **Human-centered computing → HCI design and evaluation methods**.

KEYWORDS

doodles, autoethnography, remote meetings, visual thinking, sketching

1 INTRODUCTION AND BACKGROUND

1.1 Self-control strength

The two realms of the strength model [7] offer us an opportunity to identify, plan, and achieve life goals; and to increase our ability to exert power over how we view ourselves and how we interact with environments [38]. To support ourselves in establishing a strength model that is beneficial we must engage with a personal resource, self-control, an ability to regulate one's emotions, thoughts, and behaviours in the face of temptations and impulses that reduce our
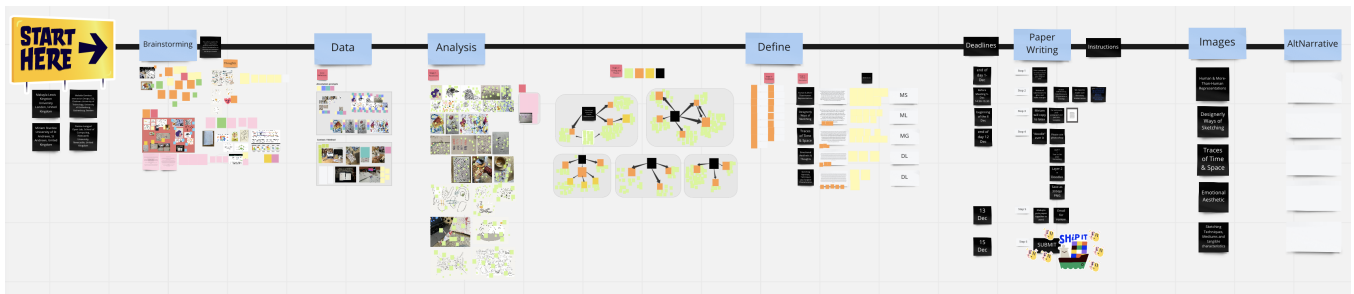
Figure 2: Overview of the process of making this paper. To read the workspaces descriptions please visit our Miro board here.

capacity to achieve our goals or regulate ourselves in less favourable environments [5]. Strategies for self-control are not learned but rather developed over time, they allow us to build skills (self-control strength) that support us to manage our emotions, impulses, and behaviours [6].

We begin to learn self-control in our early years, whereby teachers support us to regulate our emotions, thoughts, and behaviours in the classroom, with a goal of increasing our ability to remain present and learn without internalised distractions, e.g., daydreaming, or undesired behaviours, e.g., talking with others or playing with break time toys, during lessons. Self-control games, such as 'Freeze' [28], and fidget toys, e.g. 'Pop It' [9], provide children with small acts of self-control and can often lead to an increase capacity. In this instance, children who regularly engage with self-control games or objects, learn to better inhibit their urges, thoughts, feelings, and behaviours thus increasing their self-control strength in the classroom. *"Self-control is like a muscle"* [6], the capacity to maintain self-control is not infinite, activities and or objects that require more than fleeting consideration will reduce our capacity to regulate ourselves. Thus, without the presence of interspersed breaks, self-control strength is easily depleted [ref]. If you ever wondered why school children are required to take breaks, away from their learning space, to play tag with friends in a busy playground, you now know why. Interspersed breaks allow children to recharge and rebuild their strength reserves for their next lesson.

As we leave childhood our ability to regulate our thoughts, feelings, and behaviours is vastly improved although we are not masters of this craft. As we identify new, more complex life goals and interact with more challenging environments, we must continue to identify and practice new strategies for self-control strength. This *AltCHI* paper puts forward an exemplar of self-control strength in adult life.

1.2 Self-control strength in online environments

The authors, higher-education researchers, regularly spend a multitude of hours passively sitting in highly controlled situations, e.g., meetings, seminars, and conferences, that often require the use of a vast amount of self-control strength. We must maintain vigilance and present ourselves in an "interested" fashion, appropriate body language, facial expressions, and regular eye contact. These emotions, thoughts, and behaviours often lead to the consumption of strength reserves, which when we leave such environments causes negative feelings, thoughts, and behaviours for the next task, e.g., one author noted, "sometimes I just want to go to bed after a two-hour staff meeting".

To negate this, organizers will often build in 'comfort breaks' that strategically require attendees to move to a new space, offering an opportunity to recharge. In situations where these sessions occur online, especially at home, 'comfort breaks' cannot be enforced by the organizers due to their lack of in-person presence. At-home attendance exposes the authors to personal or family obligations, everyday distractions, and "zoom fatigue" [17, 45]. This is confounded by the COVID-19 pandemic and subsequent 'hybridity at work'; we now interact with the world through screens and webcams more, increasing our passive engagement . To improve strength capacity, remote organizers encourage attendees to shift the participant from passive to a more active participant using physical movement, e.g., "please stand up and walk around your room", screen breaks, etc. [42] and envisioning the situation to being in-person with a goal of improving our performance at and after the event, attendance rate and overall well being . Although, doing this requires a conscious effort by the attendees to enact these behaviours, thus further reducing one's strength capacity.

With our at-home environment unlikely to change, what can we as attendees do to become aware of our self-control strength when in passive situations? What can we do to help ourselves to remain present, motivated, and professional, to enact behaviors that limitedly impact our self-control capacity, thus, allowing us to regulate our feelings, thoughts and behaviors during often back-to-back meetings, long seminars, etc? This *AltCHI* paper puts forward the role of 'doodling' as a strategy to increase self-control strength, with the limited impact on our capacity, in online environments.

1.3 Doodling, a strategy for self-control strength

Doodling is a freeform expression of self, subconscious or our environment, and can take many forms, from the visual creation of lines to the curation of the physical space around or in front of us. To define the doodle is difficult and its purpose is open for debate [22]. Toub [55] describes the doodle as lying between "meaningless scribbles unworthy of serious consideration" and "a vital and fundamental source of human creativity". The lack of a clear definition allows us to explore the space unbiased, as much as the subject matter and method vary so wildly as to defy research expectations.
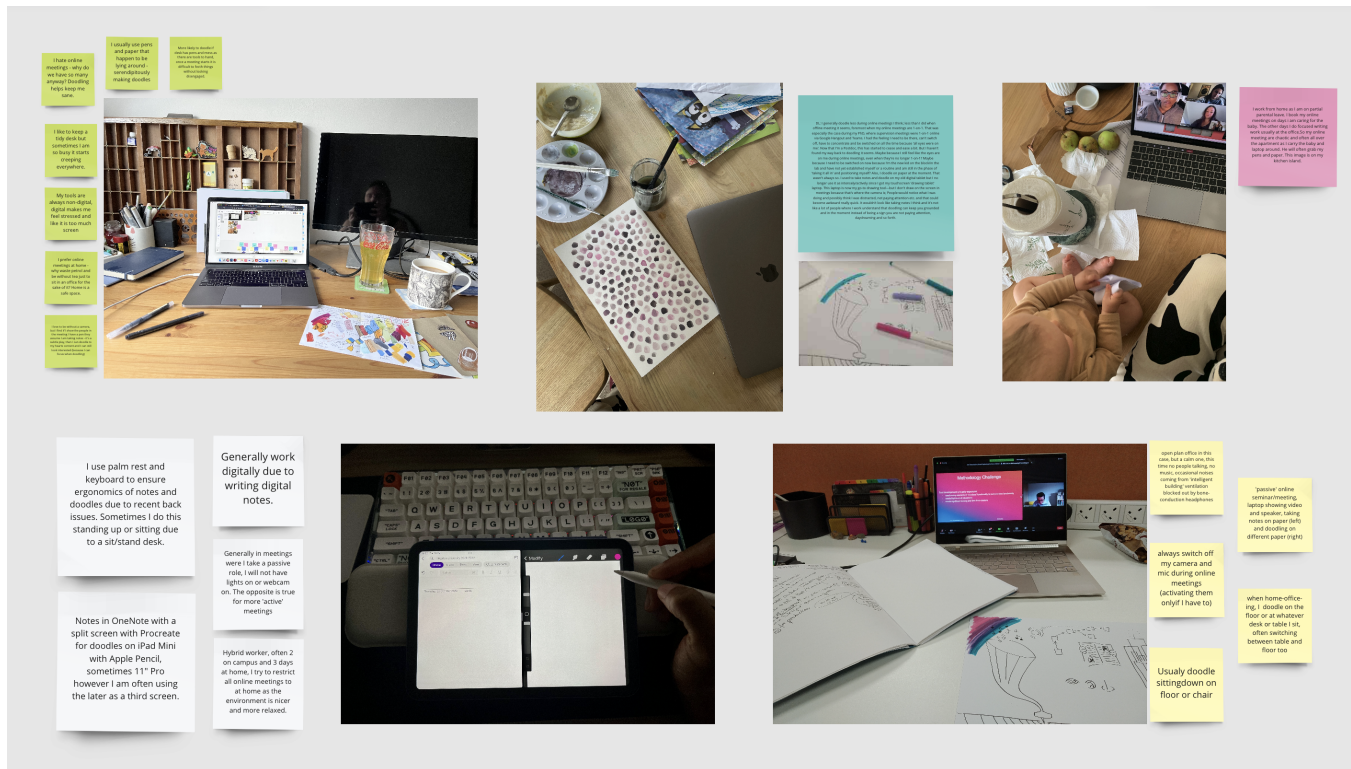
Figure 3: Authors digital and traditional doodle workspaces. To read the descriptions please visit our Miro board here.

Brown suggests the doodle also has power for innovation and freedom of expression [10], and Baweya suggests doodling as a method for positive self expression [8]. Within the context of self-control strength, creative activity has been seen to have an associated balance with positive mental state [11]. Why we create doodles is also open for debate. We often see these images in margins or on the back of envelopes, suggesting 'mindless' mark making, but doodling whilst in meetings or at events has also been shown to aid cognition and recall — 'active listening' [1]. This is similar to the effect of sketchnoting, where the mark making moves on from the doodle and has a purposeful story to tell [51] – an image made whilst actively listening can take our mind back to the location and state of creation. Doodles also have a quality of being unique to the artist, there is as much to personal style in a doodle as to a painting, some remain ephemeral, whilst others take on a life of their own and become works of art in their own right. We suggest the doodle in the context of this work as both a work of creative freedom, and an aide to concentration – a method of remaining 'present' and in control during difficult online meetings and events, and, with its own rewards.

2 THE PRACTICE OF SELF CONTROL

2.1 Doodling for higher education teachers and researchers

The first author brought together four academics (three from the United Kingdom and one from Sweden), who identify themselves as teachers and researchers in the area of human-computer interaction and/or user experience design with an interest in doodling for self-control practice at work and personal life. The process of practice for self-control was mapped out using Miro, and we invite the AltCHI community to explore our thoughts and process first-hand. The link can be found here.

2.2 Autoethnographic doodle diary

A first person [14, 37] diary study was carried out to investigate the relationship between doodling and maintaining self-control strength when passively attending work-related activities in online environments. In each instance the authors were remote. The diary study occurred over a four-week period at the beginning of a new academic year, 01 September to 01 October 2022. The authors agreed to log all doodle events as much as possible, although it was determined that the requirement to doodle during every passive online event was not always suitable, as it could cause the doodle(s) to become a conscious task, thus negatively impacting self-control strength. Therefore, the authors agreed to set-up up a doodle space either at the work desk, traditional or digital (see Figure 3), and let the practice of doodling occur naturally.

The authors logged every doodle event, using a shared Miro as a logbook, after they occurred or shortly thereafter but within one hour. Each log entry included a photo or scan of the doodle(s) and annotations that answered: How the doodle(s) was/were born? How the doodle(s) end(s) up? and; The experience and feelings during and post doodling? (see Figure 2). Thirty-two pages of doodles
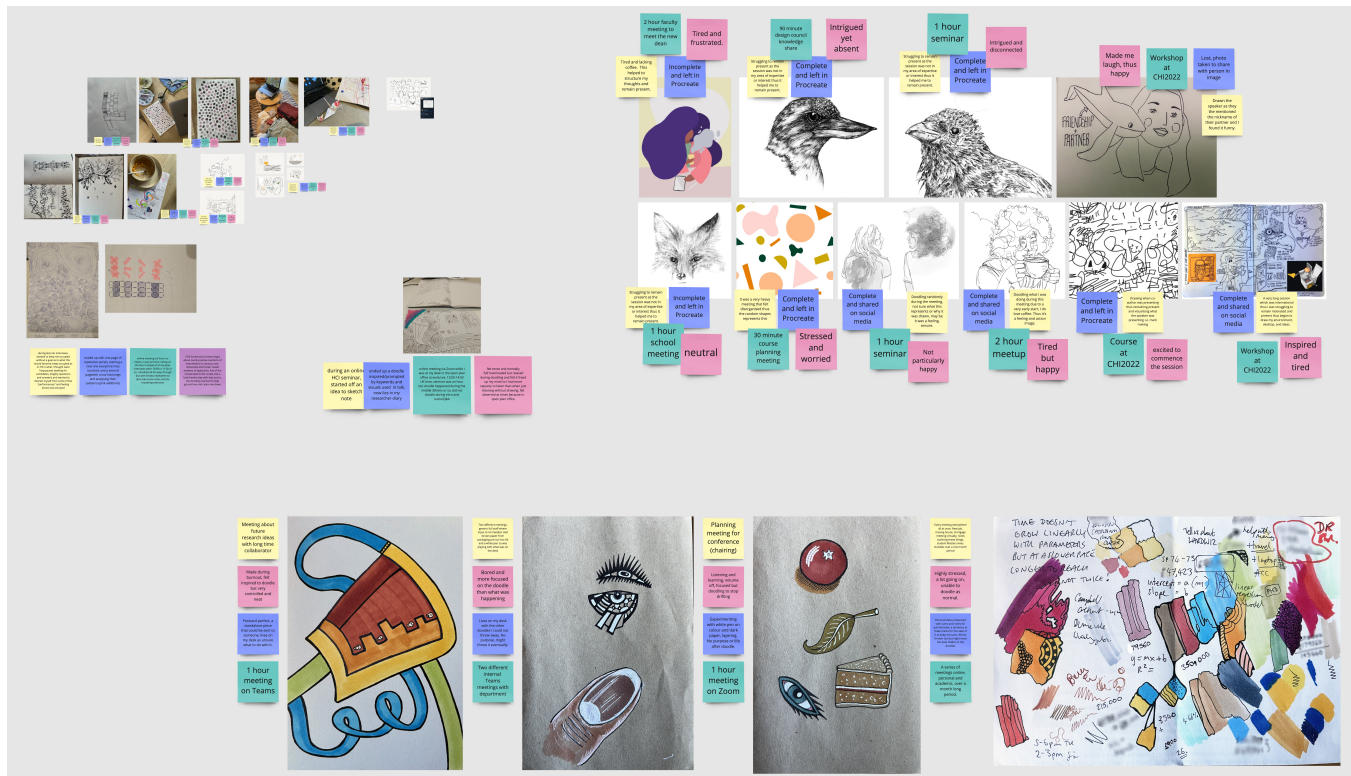
Figure 4: Authors digital and traditional doodles and annotations. To view study data please visit our Miro board here.

were created across all authors (see Figure 4) using a multitude of drawing tools (see Figure 3).

2.3 Personal Reflection

2.3.1 ML:. I actively embrace a hybrid working life, on campus two to three days a week, and work from home for the remaining time. I try to restrict online meetings to at home, due to the less sterile office environment and limited distractions. In meetings where I take a passive role, I will often turn off lights and webcam, I like to feel relaxed, and unwatched. I mostly work digitally, especially when taking notes, favoring Microsoft OneNote, with doodling restricted to Procreate App on my iPad (see figure 1 bottom-left). I prefer my notes to be neat and separated from my doodles. This separation ensures that when reviewing my notes, I do not feel 'guilty' for sending time absentmindedly doodling. Although most people say my doodles are more illustrative (see figure 2 top-right) thus creating greater guilt, I have always found it easier to draw experiences rather than the abstract. For me, illustrative doodles are a way of keeping busy during moments where notes are not required, they prevent me from stepping away, disengaging, from the meeting (I am very easily distracted) by creating a second desktop to work on something I consider more interesting and or motivating.

2.3.2 MS:. The move away from all-online in the immediate post lockdown brought more challenges, online meetings transitioned to hybrid, or in person only, workloads increased and due to having more 'active' meetings, where I was required to take part and often write/co-work, I did not always find the space to doodle. I also realised that due to needing to completely clear my desk for house viewings, I no longer had the materials I was used to around me – if they were not to hand I could not leave a meeting or turn my camera off to find paper, pens and begin to doodle, even if I wanted to. I began to 'doodle' by working on menial tasks such as deleting email, but this made me disconnect from the meeting in a way that doodling would not have done. Other attendees can see you working from your eyes and body movements, whereas the doodle is an acceptable form of note taking or reflecting and people can appreciate that need. As part of the house clearing, I also threw out two years of covid doodles, a loss that is now keenly felt as I appreciate the richness of what I had created, and the lost ideas that are now consigned to the ether.

2.3.3 MG:. Online meetings meant I could finally participate! I was on parental leave this entire last year but still working part-time. But that meant my hands were often busy taking care of the baby while attending meetings, which meant my doodling took many forms. My busy home life is filled with children interacting with everything we leave on the table. So often, I kept myself occupied doodling with bits and bobs from their own arts and crafts practices in the home. Curiously, the children also took over both mine and my husband's doodles and filled them in if we left them lying on the table. The physical doodles became a conversation between us before ultimately ending up in the trash. When compared to the meetings or presentations I attended in person during this period, I
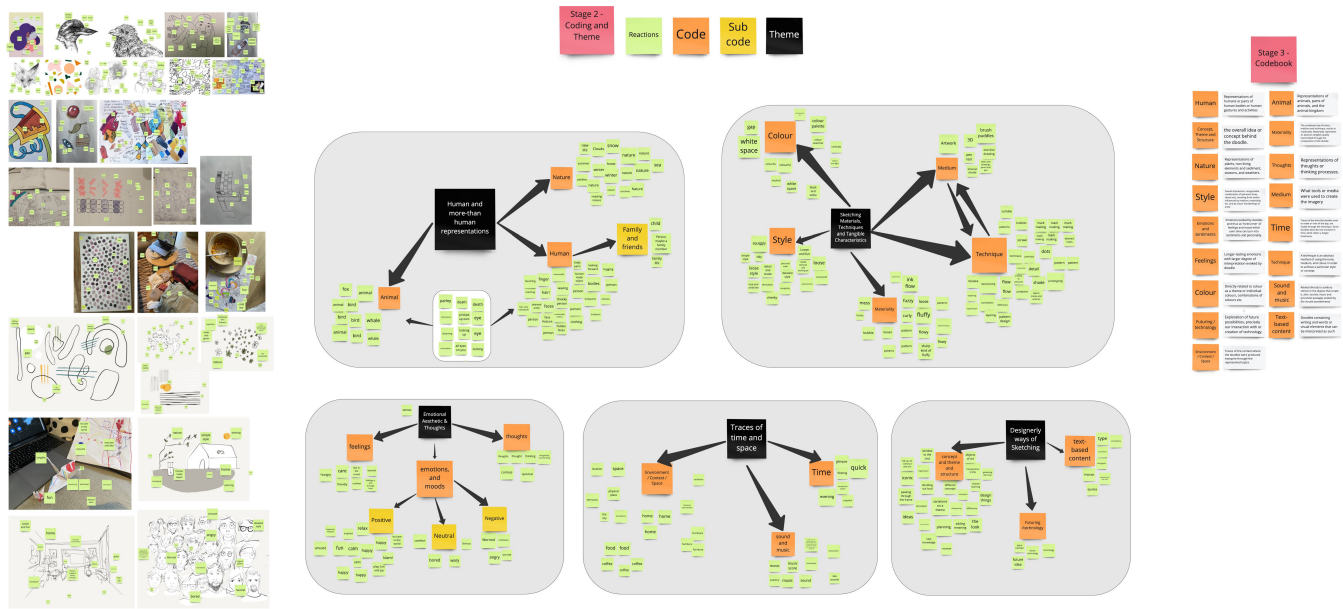
Figure 5: Analysis of study data, to view authors analysis of data please visit our Miro board here.

could tell that the doodling in person took more intricate dimensions in the form of drawings informed by the environment I was in (the room, or the people speaking). The in-person doodling was in truth more engaging than the one I did while attending online meetings, and had more post-meeting value. However, I saw that the act of doodling in the home took much more interesting and engaging shapes: I doodled with clothes, through folding with origami, and collage. I would arrange things or use tangible objects to create a satisfying result much through the process. The materiality of the doodle was much more important than the content, for example through the processing of bubbles of watercolour, watching them change shade and dry. That beauty in the materiality kept me grounded in place while still able to listen to the meeting through the screen.

2.3.4   DL:. I generally doodle less during online meetings—less than I did when meeting offline it seems to me. That was especially the case during my PhD, where supervision meetings were online and 1-on-1. I had the feeling that I needed to 'fully be there', can't switch off, have to concentrate and keep the mutual gaze going all the time because 'all eyes were on me'. Now that I'm a Postdoc, this has started to ease a bit. But I haven't found my way back to doodling as I did in the 'days of olde'. Maybe because I still feel like all eyes are on me during online meetings, even when they're no longer 1-on-1? Maybe because I need to be switched on now because I'm the new kid on the block/in the lab, have not yet established myself or a routine and am still in the phase of 'taking it all in' and positioning myself? Also, when I do it, I doodle on paper at the moment. That wasn't always so. I used to take notes and doodle on my old digital tablet but I no longer use it since I got my touchscreen 'drawing tablet' laptop which is now my go-to drawing tool—but I don't draw on the screen in meetings because that's where the camera is. People would notice what I was doing

and possibly think I was distracted, not paying attention etc. and that could become awkward really quickly. Maybe people wouldn't understand that doodling keeps me grounded and in the moment instead of being a sign that I'm not paying attention, daydreaming and so forth. Or maybe I'm wrong and they do it too. Only one way to find out…

2.4   Analysis

At the end of the diary study, the authors reflected on their practice through additional annotations. The doodles were then placed in a blank Miro board, see Figure 5. The authors individually assessed each doodle by adding their reactions, it was agreed the doodle reactions would be concise, up to 10 words, and focus on what the author sees and or feels when looking at each doodle, see Figure 5 right. This was followed by a collaborative process, and multiple discussions, using an affinity diagramming approach [24, 35, 36] whereby codes (n = 21) and five themes emerged: more than human, designerly ways of sketching, traces of time and space, emotional aesthetic & thoughts, and sketching materials, techniques and tangible characteristics (see Figure 5 right).

3   FINDINGS

The following pages put forward the five themes for doodling as a strategy for building self-control strength alongside exemplars. To engage with the following pages, using AltText, the reader should either activate their computer or smart device screen reader or open in Adobe Acrobat in Mac or Windows then activate Read Out loud.

3.1 More than Human

Doodling is special because it de-centres the human, allowing us to go beyond our own self and surroundings and consider alternative viewpoints, realities and situations. When we are in flow, during active listening, what is drawn can allow novel thoughts and different ways of seeing to emerge. The link between the self and the image can be disparate, appear disconnected, but also is a glimpse into the unconscious: what does it mean to be human? And how do we extend ourselves in more than human depictions? Coulton and Lindley [12] see any object as being a 'self contained construct', in this sense, our doodles belong in the time and space they were created, and have an embedded meaning constrained by that environment. As objects we have created, they then exist in the world, imbued with meaning that we may not even be consciously aware of - part of a 'constellation' of that object and its linkages. Much of Human-Centred design works on the premise that what our 'attention' focuses on is the relevant part, but items are often created by non-humans for non-humans [20], could we also frame the doodle as something that, because it can come from an unconscious place, is also free of our attention and therefore has a value as its own artefact?

3.2 Designerly Ways of Sketching

Sketching is used beyond design, but in our doodles, there were clear references to ways of thinking inherent to the discipline of design. Doodles take many forms, but in many cases they were reminiscent of annotated portfolios [18], combining visuals and words, notes and reminders. There were combinations leading to formulations of concepts [50], or images that existed as aesthetic pieces in their own right. As design is inherently a form of creative speculation – albeit one that often produces an artefact – doodling in this sense also connects with ideas pertaining to the futuring of technology [52]: as we put lines down on the page, are we also engaging with a specific form of mindful designerly sketching practice? These lines can also be seen as "material traces" – an imprint that we leave upon the world that can be used as a starting point for further interrogation [48]. Doodles can also be a form of documentary – as nascent sketchnotes, or personal reflections on a space – often, when doodling, we simply portray what is in front of us, taking cues from environment or screen, things people say or do, ideas that spring from a chance comment [34]. A collection of such artefacts can also be curated and form their own ideation-based design workbook, to be used as a reference and inspiration for later work – the 'woolly ideas' that later are developed [18].

3.3 Sketching Materials, Techniques & Tangible characteristics

This harks back to the table of contents of many drawing encyclopedias and handbooks listing the sections and thus the facets used to describe the process and product of drawing, or doodling for that matter. These facets are varied but often circle around the themes of materials, techniques, colours, 'characteristics' and style [3, 21, 53]. In other words, this refers to the two sites of production and image per se and their individual technological and compositional modalities, [47]; with the technological modality denoting "any form of apparatus designed either to be looked at or to enhance natural vision, from oil paintings to television and the internet" and the compositional modality denoting "specific material qualities of an image or visual object [... such as] content, colour and spatial organisation" [47, p. 25-26]. These two sites are highly interconnected with two further sites identified by : circulation (how an image is transported and displayed) and audiencing, the latter evidencing the influence of what we have termed 'Sketching Materials, Techniques and Tangible Characteristics' on the perception, interpretation and meaning-making of people engaging with the drawing or doodle. Another way of looking at doodles in the vein of 'scrutinising what is seen on the surface' is through the concept of visual grammar as defined by Kress and van Leeuwen [31]. There, forms of drawing, achieved with whichever combination of materials and tools, can be analysed by looking at their visual lexis—i. e. the visual 'vocabulary' used, meaning the content such as people, places and things being represented—and their visual syntax, meaning the form and compositional structures in which said content is depicted [31, 41]. This can help shine a light on the marks on the page, the shapes and forms they make up and the scenes they create, the stylistic elements and combinations of tools and materials, thus illuminating the content, concepts, thoughts and emotions presented or evoked by starting from the surface, [29]. This and the other themes discussed earlier then provide another path to explore the products and processes of doodling, its effects and benefits, which Aquino [2] sums up as follows: "it can increase focus and memory retention, it is a form of expression and communication, it is a way to relieve stress, it can enhance creativity and imagination, and it can increase artistic confidence".
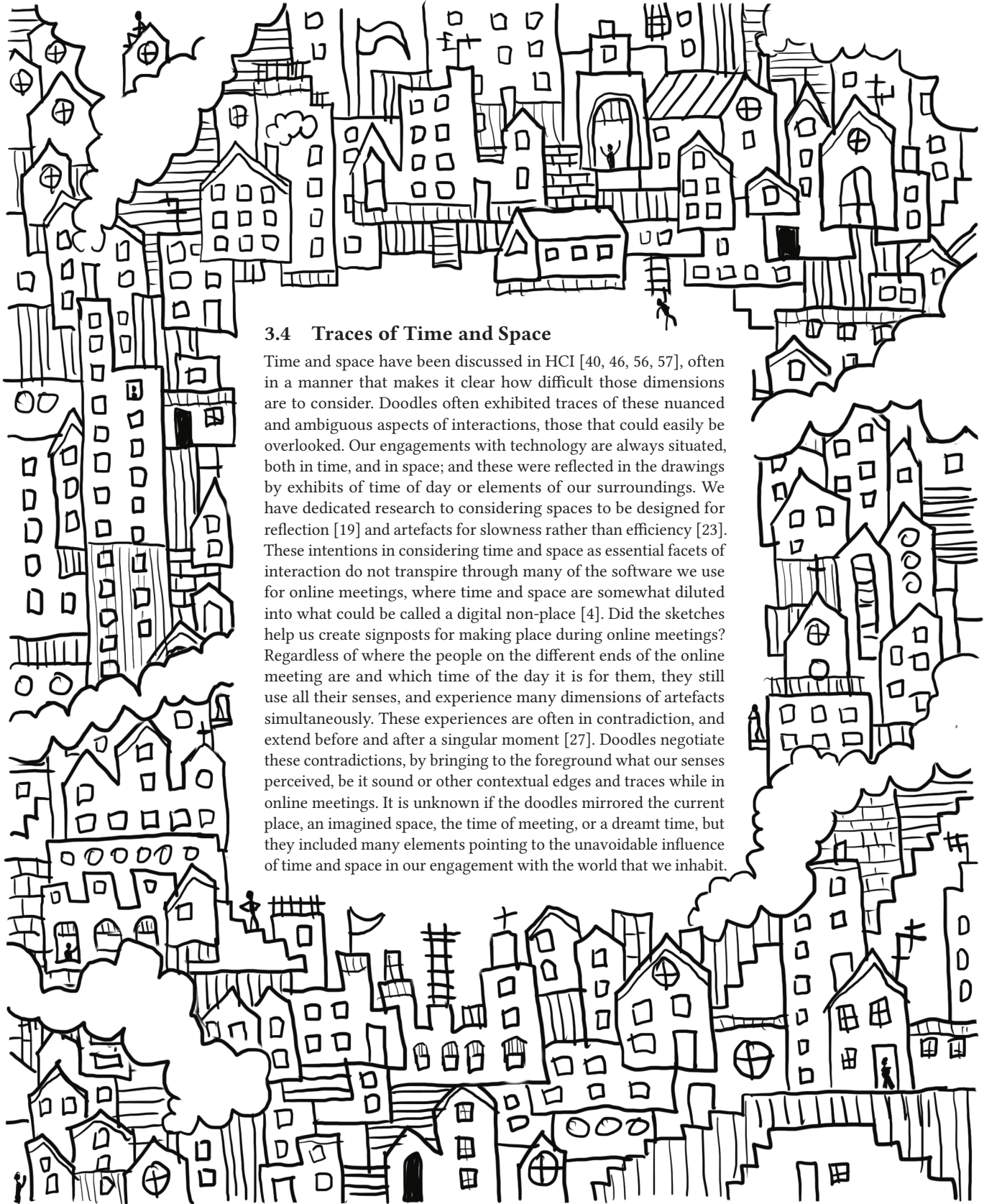
3.4   Traces of Time and Space

Time and space have been discussed in HCI [40, 46, 56, 57], often in a manner that makes it clear how difficult those dimensions are to consider. Doodles often exhibited traces of these nuanced and ambiguous aspects of interactions, those that could easily be overlooked. Our engagements with technology are always situated, both in time, and in space; and these were reflected in the drawings by exhibits of time of day or elements of our surroundings. We have dedicated research to considering spaces to be designed for reflection [19] and artefacts for slowness rather than efficiency [23]. These intentions in considering time and space as essential facets of interaction do not transpire through many of the software we use for online meetings, where time and space are somewhat diluted into what could be called a digital non-place [4]. Did the sketches help us create signposts for making place during online meetings? Regardless of where the people on the different ends of the online meeting are and which time of the day it is for them, they still use all their senses, and experience many dimensions of artefacts simultaneously. These experiences are often in contradiction, and extend before and after a singular moment [27]. Doodles negotiate these contradictions, by bringing to the foreground what our senses perceived, be it sound or other contextual edges and traces while in online meetings. It is unknown if the doodles mirrored the current place, an imagined space, the time of meeting, or a dreamt time, but they included many elements pointing to the unavoidable influence of time and space in our engagement with the world that we inhabit.

3.5 Emotional Aesthetic & Thoughts

All forms of art are said to wield a strong expressive power, especially regarding the expression and elicitation of emotions and feelings, [30, 32]. Image-based methods, such as drawing and doodling, have been described as a conduit for expressing and sharing tacit and ineffable knowledge which text-based methods, i.e. spoken and written words, cannot always bring to the fore, [25, 33, 43, 54]. In other words: they aid in reflecting knowledge that one is conscious of but also aid in reflecting the sub- or unconscious that is "not expressible in ordinary discourse" [15, p. 7] making the 'unsayable' and 'unwriteable' explicit, giving it a shape and form so it can be reflected on and shared. Such expressions and responses on an aesthetic and emotional level can positively influence one's regulation of emotions and thus be beneficial to managing one's mental health [16, 39], evoke empathy and understanding towards the experiences of others, in turn increasing compassion, self-reflection and emotional reflexivity [13, 15]. But visual expression comes with a caveat, a curse and a blessing at the same time: ambiguity. What am I visualising and how? What am I seeing? How to read what is seen and what is perhaps said between the drawn lines in other people's doodles? It is this ambiguity that stresses the role of interpretation in arts, its potential precedence over meaning [26, 49]. And it is this ambiguity that allows images, such as doodles, to be a neutral meeting ground [44], a place to express, share and reflect on emotions and thoughts. A place empowering the creator as well as the audience to explore and negotiate possible (re-)interpretations and (re-)make meaning. A place giving them access to different layers of knowledge, thought and emotions; effable, tacit and ineffable. A place not in competition with the spoken or written word, but a complement to paint a more holistic picture.

4 INVITATION TO PRACTICE SELF-CONTROL STRENGTH

We invite the HCI community to use this page on the paper to doodle during the presentation and the remaining of the CHI' 2023 conference then and share your doodles and annotations, if you prefer, using the project Miro Board or #DoodleCHI hashtag on social media.

REFERENCES

[1] Jackie Andrade. 2010. What does doodling do? *Applied Cognitive Psychology* 24, 1 (Jan. 2010), 100–106. https://doi.org/10.1002/acp.1561

[2] Vicky Faye B. Aquino. 2013. *The effects of doodling on the academic and artistic learning of K-12 students.* Master's thesis. The University of the Arts.

[3] Clive Ashwin. 1982. *Encyclopaedia of Drawing.* HarperCollins Distribution Services, Glasgow, Scotland.

[4] Marc Augé. 1995. *Non-places: Introduction to an Anthropology of Supermodernity.* Verso. 122 pages.

[5] Roy F. Baumeister and Julie Juola Exline. 2000. Self-Control, Morality, and Human Strength. *Journal of Social and Clinical Psychology* 19, 1 (March 2000), 29–42. https://doi.org/10.1521/jscp.2000.19.1.29

[6] Roy F Baumeister and Kathleen D Vohs. 2003. Willpower, choice, and self-control. , 201–216 pages.

[7] Roy F. Baumeister, Kathleen D. Vohs, and Dianne M. Tice. 2007. The Strength Model of Self-Control. *Current Directions in Psychological Science* 16, 6 (Dec. 2007), 351–355. https://doi.org/10.1111/j.1467-8721.2007.00534.x

[8] Priyanka Baweja. 2020. Doodling: A Positive Creative Leisure Practice. In *Positive Sociology of Leisure.* Springer International Publishing, 333–349. https://doi.org/10.1007/978-3-030-41812-0_19

[9] Lindsey Biel. 2017. Fidget toys or focus tools. *Autism File* 74 (2017), 12–13.

[10] Sunni Brown. 2015. *The Doodle Revolution: Unlock the Power to Think Differently.* Portfolio, New York, NY.

[11] Tamlin S. Conner, Colin G. DeYoung, and Paul J. Silvia. 2016. Everyday creative activity as a path to flourishing. *The Journal of Positive Psychology* 13, 2 (Nov. 2016), 181–189. https://doi.org/10.1080/17439760.2016.1257049

[12] Paul Coulton and Joseph Galen Lindley. 2019. More-Than Human Centred Design: Considering Other Things. *The Design Journal* 22, 4 (May 2019), 463–481. https://doi.org/10.1080/14606925.2019.1614320

[13] Journey Coward. 2022. *Doodling as Self-Expression: Building Self-Efficacy in Normally Functioning Adults.* Dominican University of California. https://doi.org/10.33015/dominican.edu/2022.at.01

[14] Audrey Desjardins, Oscar Tomico, Andrés Lucero, Marta E. Cecchinato, and Carman Neustaedter. 2021. Introduction to the Special Issue on First-Person Methods in HCI. *ACM Trans. Comput.-Hum. Interact.* 28, 6, Article 37 (dec 2021), 12 pages. https://doi.org/10.1145/3492342

[15] Elliot Eisner. 2008. Art and Knowledge. In *Handbook of the Arts in Qualitative Research: Perspectives, Methodologies, Examples, and Issues.* SAGE Publications, Inc., 3–13. https://doi.org/10.4135/9781452226545.n1

[16] Daisy Fancourt, World Health Organization: Regional Office for Europe, and Saorise Finn. 2019. *What is the evidence on the role of the arts in improving health and well-being?* WHO Regional Office for Europe, Europe, UK.

[17] Liz Fosslien and Mollie West Duffy. 2022. How to combat zoom fatigue. https://hbr.org/2020/04/how-to-combat-zoom-fatigue

[18] Bill Gaver and John Bowers. 2012. Annotated Portfolios. *Interactions* 19, 4 (jul 2012), 40–49. https://doi.org/10.1145/2212877.2212889

[19] Maliheh Ghajargar, Mikael Wiberg, and Erik Stolterman. 2018. Designing Places for Reflection. In *Internet of Things.* Springer International Publishing, 107–120. https://doi.org/10.1007/978-3-319-94659-7_6

[20] Elisa Giaccardi and Johan Redström. 2020. Technology and More-Than-Human Design. *Design Issues* 36, 4 (Sept. 2020), 33–44. https://doi.org/10.1162/desi_a_00612

[21] Simon Grennan. 2022. *Thinking About Drawing: An Introduction to Themes and Concepts.* Bloomsbury Publishing.

[22] Sharat Gupta. 2016. Doodling: The artistry of the roving metaphysical mind. *Journal of Mental Health and Human Behaviour* 21, 1 (2016), 16. https://doi.org/10.4103/0971-8990.182097

[23] Lars Hallnäs and Johan Redström. 2001. Slow Technology – Designing for Reflection. *Personal and Ubiquitous Computing* 5, 3 (Aug. 2001), 201–212. https://doi.org/10.1007/pl00000019

[24] Gunnar Harboe and Elaine M. Huang. 2015. Real-World Affinity Diagramming Practices: Bridging the Paper-Digital Gap. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems* (Seoul, Republic of Korea) *(CHI '15).* Association for Computing Machinery, New York, NY, USA, 95–104. https://doi.org/10.1145/2702123.2702561

[25] Graham E Higgs. 2008. Psychology: Knowing the Self through Arts. In *Handbook of the Arts in Qualitative Research: Perspectives, Methodologies, Examples, and Issues,* J. Gary Knowles and Ardra Cole (Eds.). SAGE Publications, Inc., Thousand Oaks, Chapter 46. https://doi.org/10.4135/9781452226545

[26] Gunilla Holm, Fritjof Sahlström, and Harriet Zilliacus. 2018. Arts-based visual research. In *Handbook of arts-based research.* The Guilford Press, New York, NY, US, 311–335.

[27] Evangelos Karapanos, John Zimmerman, Jodi Forlizzi, and Jean-Bernard Martens. 2009. User experience over time. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems.* ACM. https://doi.org/10.1145/1518701.1518814

[28] KIBOOMU. 2022. *Party Freeze Dance Song.* https://www.youtube.com/watch?v=4hJHGSFNetA

[29] Evmorfia Kipouropoulou. 2020. Children's Drawings and the Grammar of Visual Design: Pedagogical Application of the Depiction of the "Other" in Pre-school Children's Drawings. *Multilingual Academic Journal of Education and Social Sciences* 8, 1 (June 2020). https://doi.org/10.46886/majess/v8-i1/7274

[30] J. Knowles and Ardra Cole. 2008. *Handbook of the Arts in Qualitative Research: Perspectives, Methodologies, Examples, and Issues.* SAGE Publications, Inc. https://doi.org/10.4135/9781452226545

[31] Gunther Kress and Theo van Leeuwen. 2020. *Reading images* (3 ed.). Routledge, London, England.

[32] Patricia Leavy. 2020. *Method meets art* (3 ed.). Guilford Press, London, England.

[33] Ruth Leitch. 2006. Limitations of language: developing arts-based creative narrative in stories of teachers' identities. *Teachers and Teaching* 12, 5 (Oct. 2006), 549–569. https://doi.org/10.1080/13540600600832270

[34] Makayla Lewis, Mauro Toselli, Ruth Baker, Julia Rédei, and Claire Elisabeth Ohlenschlager. 2022. Portraying What is in Front of You: Virtual Tours and Online Whiteboards to Facilitate Art Practice during the COVID-19 Pandemic. In *Creativity and Cognition* (Venice, Italy) *(C&C '22).* Association for Computing Machinery, New York, NY, USA, 350–363. https://doi.org/10.1145/3527927.3531455

[35] Ali Haskins Lisle, Coleman Merenda, and Joseph Gabbard. 2019. Using affinity diagramming to generate a codebook: a case study on young military veterans and community reintegration. *Qualitative Research* 20, 4 (June 2019), 396–413. https://doi.org/10.1177/1468794119851324

[36] Andrés Lucero. 2015. Using Affinity Diagrams to Evaluate Interactive Prototypes. In *Human-Computer Interaction – INTERACT 2015.* Springer International Publishing, 231–248. https://doi.org/10.1007/978-3-319-22668-2_19

[37] Andrés Lucero, Audrey Desjardins, Carman Neustaedter, Kristina Höök, Marc Hassenzahl, and Marta E. Cecchinato. 2019. A Sample of One. In *Companion Publication of the 2019 on Designing Interactive Systems Conference 2019 Companion.* ACM. https://doi.org/10.1145/3301019.3319996

[38] Teresa Müller and Cornelia Niessen. 2018. Self-leadership and self-control strength in the work context. *Journal of Managerial Psychology* 33, 1 (Feb. 2018), 74–92. https://doi.org/10.1108/jmp-04-2017-0149

[39] Carol Nash. 2021. COVID-19 Limitations on Doodling as a Measure of Burnout. *European Journal of Investigation in Health, Psychology and Education* 11, 4 (Dec. 2021), 1688–1705. https://doi.org/10.3390/ejihpe11040118

[40] William Odom, Siân Lindley, Larissa Pschetz, Vasiliki Tsaknaki, Anna Vallgårda, Mikael Wiberg, and Daisy Yoo. 2018. Time, Temporality, and Slowness. In *Proceedings of the 2018 ACM Conference Companion Publication on Designing Interactive Systems.* ACM, New York, NY, USA, 383–386. https://doi.org/10.1145/3197391.3197392

[41] Rumiko Oyama. 2000. Visual Communication across Cultures. *Journal of Intercultural Communication* 3 (2000).

[42] Erik Peper, Vietta Wilson, Marc Martin, Erik Rosegard, and Richard Harvey. 2021. Avoid Zoom Fatigue, Be Present and Learn. *NeuroRegulation* 8, 1 (March 2021), 47–56. https://doi.org/10.15540/nr.8.1.47

[43] Deanna Petherbridge and South Bank Centre. 1991. *The primacy of drawing: An artist's view.*

[44] Jon Prosser and Catherine Burke. 2008. *Image-based Educational Research: Childlike Perspectives.* SAGE. 407–420 pages.

[45] Cassandra L. Raby and Joah R. Madden. 2021. Moving academic conferences online: Understanding patterns of delegate engagement. *Ecology and Evolution* 11, 8 (Feb. 2021), 3607–3615. https://doi.org/10.1002/ece3.7251

[46] Amon Rapp, William Odom, Larissa Pschetz, and Daniela Petrelli. 2022. Introduction to the special issue on time and HCI. *Human–Computer Interaction* 37, 1 (jan 2022), 1–14. https://doi.org/10.1080/07370024.2021.1955681

[47] Gillian Rose. 2016. *Visual methodologies* (4 ed.). SAGE Publications, London, England.

[48] Daniela K. Rosner, Miwa Ikemiya, Diana Kim, and Kristin Koch. 2013. Designing with Traces. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (Paris, France) *(CHI '13).* Association for Computing Machinery, New York, NY, USA, 1649–1658. https://doi.org/10.1145/2470654.2466218

[49] Agnieszka Rydzik, Annette Pritchard, Nigel Morgan, and Diane Sedgley. 2013. THE POTENTIAL OF ARTS-BASED TRANSFORMATIVE RESEARCH. *Annals of Tourism Research* 40 (Jan. 2013), 283–305. https://doi.org/10.1016/j.annals.2012.09.006

[50] Erik Stolterman and Mikael Wiberg. 2010. Concept-Driven Interaction Design Research. *Human–Computer Interaction* 25, 2 (May 2010), 95–118. https://doi.org/10.1080/07370020903586696

[51] Miriam Sturdee, Makayla Lewis, and Nicolai Marquardt. 2018. SketchBlog #1: The Rise and Rise of the Sketchnote. *Interactions* 25, 6 (oct 2018), 6–8. https://doi.org/10.1145/3281661

[52] Miriam Sturdee and Joseph Lindley. 2019. Sketching & Drawing as Future Inquiry in HCI. In *Proceedings of the Halfway to the Future Symposium 2019.* ACM, New York, NY, USA, 1–10. https://doi.org/10.1145/3363384.3363402

[53] Joshua C. Taylor. 1957. *Learning to Look: A Handbook For The Visual Arts.* University of Chicago Press.

[54] Elliot Eisner Tom Barone. 2006. *Arts-Based Educational Research*. Routledge. https://doi.org/10.4324/9780203874769.ch5

[55] Jim Toub. 2014. In and out of the margins: The doodle in art and popular culture. https://www.thefreelibrary.com/In+and+out+of+the+margins%3a+the+doodle+in+art+and+popular+culture.-a0403061311

[56] Anna Vallgårda, Morten Winther, Nina Mørch, and Edit E. Vizer. 2015. Temporal form in interaction design. *International Journal of Design* 9, 3 (2015), 1–15.

[57] Mikael Wiberg and Erik Stolterman. 2021. Time and Temporality in HCI Research. *Interacting with Computers* 33, 3 (May 2021), 250–270. https://doi.org/10.1093/iwc/iwab025