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# Researcher introspection for experience-driven design research



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*We challenge the unquestioning pursuit of the appearance of objectivity and ingrained designer-user dualism in human-centred design research and propose a resurrection of introspection as a valid approach to investigating subjective experiences. Through comparing epistemic perspectives and reviewing the histories of introspection in several disciplines, we liberate the research field of experience-driven design from a long-lasting doubt about and the disguised and unsystematic use of this method. To establish a foundation for the further development of introspective methods, we focus on its most controversial type (i.e. researcher introspection) and discuss its strengths and weaknesses, preconditions of use, diverse ways to practise for different suitable experience-driven design research purposes, and useful techniques and tools.*

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Introspection, as Gould (1995, p. 719) defines it, is ‘an ongoing process of tracking, experiencing, and reflecting on one’s own thoughts, mental images, feelings, sensations, and behaviours’. As experiential and reflective beings, we all introspect in everyday life to understand our internal states and interactions with the external world. When you are aware of an ongoing experience and searching for answers for such questions by thinking, ‘Why am I feeling so?’, ‘How can I describe it?’, ‘How may I cease/sustain this undesirable/desirable experience?’, you are introspecting, though it often happens in an automatic and unstructured way. As a human-centred design (HCD) researcher investigating subjective experiences, have you ever involved examining your own lived experiences for insights or knowledge generation? Introspection, as a research approach, is controversial yet powerful. It has long been doubted and criticised by positivists and behaviourists as lacking objectivity and therefore being ‘unscientific’. However, it is evident that when a research community (e.g. psychology, sociology, and consumer research) stopped viewing people as merely rational decision-making beings and started investigating experiential aspects (e.g. hedonic pleasure, symbolic meanings,

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emotions, and moods) as the primary concerns, the epistemological discussion of introspection, as well as its methodological development and application, naturally followed.

The design discipline had its experiential turn about two decades ago, and in recent years, experience-driven design, an HCD approach that takes an intended experience as the primary goal of the design process, has been developed (Desmet & Schifferstein, 2011; Hekkert, Mostert, & Stompff, 2003). Accordingly, many design researchers have been actively investigating various types and aspects of human experience in the context of human-design interaction. In this paper, we propose that introspection represents a potential to be unlocked for such HCD investigations. In our discussion of that potential, we will draw from research practices and debates that have been reported in various other disciplines where introspection has been effectively developed and used for studying subjective phenomena.

At this point, we shall clarify that the concept of introspection can be understood in two scopes. In its narrow conception, introspection has been used as a synonym for all methods that involve a *researcher's self-introspection*. For scholars, typically in sociology, anthropology, and consumer research, introspection is characterised by the researcher's, either sole or partial, reliance on systematic and transparent self-introspection. Because of the unity of the researcher and the researched (or subject), the researcher who practises introspection is called 'researcher-introspector' (Gould, 1995; Woodside, 2004). However, psychologists and cognitive scientists often hold a broader concept which includes also *guided introspection* (i.e. the researcher only guides the subjects to introspect; Wallendorf & Brucks, 1993) in the spectrum. Of all the introspective methods, guided introspection appears the most objective and therefore has been well accepted already in the HCD community. Bearing this in mind, a review of HCD methods addressing experiences such as in-depth interviews, sentence completion (Kujala & Nurkka, 2012; Nurkka, Kujala, & Kemppainen, 2009) and UX curve drawing (Kujala, Roto, Väänänen-Vainio-Mattila, Karapanos, & Sinnelä, 2011), tells us that many employ guided introspection as part of their underlying mechanisms. When the participants are asked to express their sensory feelings, meaning perceptions and emotional reactions, they are expertly guided to introspect. Thus, guided introspection is not a primary focus in this paper, though we elaborate on it in one of the following sections and contrast it to the other introspective methods.

We have observed that researcher's self-introspection is included in much of our own HCD research, in the research of our colleagues and peers, and in the design research of our students. However, unlike in some other disciplines, it is seldom mentioned in the methodological sections of scientific publications

of the HCD research community. Contrasting, methods relying on the researcher's first-person account seems to be more openly accepted in the practice-led design research. Besides, when conducting clinical research for experience-driven design projects, the objectivity criterion can be balanced by the need for richness and subjectivity, as in the words of [Fulton Suri \(2003, p. 42\)](#):

*... to be really useful to design for experience, objective data is not enough. We cannot leap to design ideas from analysis directly nor can we observe people's thoughts and feelings - their motivations, emotions, mental models, values, priorities, preferences and inner conflicts. Yet we need to integrate these subjective phenomena, for it is these that make up people's experience and help us as designers to respond.*

As a result, building empathy with potential users has been considered a crucial early step in the experience-driven design process, and many subjective and interpretive design techniques, such as role immersion ([Koskinen, Battarbee, & Mattelmäki, 2003](#)) and experience prototyping ([Buchenau & Fulton Suri, 2000](#)), have been introduced as effective clinical research methods to design for experience. However, we argue that a *designer's empathy* (i.e. to experience and understand what the users experience) is only half of the story; *designer's introspection* on the basis of empathy (i.e. examining and interpreting empathised experiences in order to generate design insights and envision new experiences) is the latter half that is under-examined. In terms of scholarly research, because of the taboos imposed on introspection, researchers committed to the HCD tradition rarely acknowledge that their (non-objective) self-introspections have any role in their understanding of the experiences (e.g. joy and sorrow, frustration and satisfaction, shame and pride) that all humans may have (let alone systematically report). Instead, it seems that the results of HCD researchers' self-introspections are often veiled, perhaps unintentionally, as part of the interpretation of 'objective' data generated by the subjects.

This methodological denial of the researcher's self-introspection in the HCD field has prevented proper development of relevant methods, and that may be due to two reasons. First, the design discipline is still partially under the shadow of an earlier attempt to establish it as a science through positivistic epistemology and methodology. A similar historical pattern also appeared in the early decades of psychology, sociology, and consumer research; their more recent histories have shown that a fruitful methodological revolution requires an open epistemological debate and revision in the field. So far, however, HCD research methods which embed introspection have only been justified in the name of 'innovation' ([Hanington, 2003](#)) without serious epistemological confrontation. The other reason may be the ingrained designer-user dualism in HCD research. 'Users are not designers' and 'designers are not users' ([Nielsen, 1993](#), pp. 12–13). These two lines perhaps can be seen

as the logical foundation of the entire user-centred design movement. However, it is worth noting that this designer-user dualism emerged during the heyday of usability research, whose concern was rather rational and pragmatic - whether users can easily and efficiently operate an interactive product to complete an intended task. Along with the rise of experiential considerations, 'user-centred' has been broadened to 'human-centred' in which operational efficiency may not always be the only or foremost consideration. We challenge the designer-user dualism and argue that, in the name of 'human-centeredness', design researchers should be considered human as well and should be encouraged, when appropriate, to systematically use themselves as a measuring instrument to understand human conditions that may well be shared by many others.

Therefore, in this paper, we primarily focus on the narrow concept of introspection and intend 1) to liberate the HCD field from a general doubt about (and hesitance to report) the researcher's self-introspection; 2) to set up a foundation for the further systematic development of introspective methods for examining and understanding experiences for design. In the paragraphs that follow, we first review the three epistemic perspectives involved in the methodological development of introspection. Second, we provide a brief historical review of its early application, rejection, and contemporary resurrection in several academic disciplines more mature than design. Third, for greater clarity, we position researcher's self-introspection as a concept that is relevant yet distinct from practitioner-researcher's reflection in practice-led research. After that, we present a taxonomy of introspective methods. Focusing on the most controversial form (i.e. researcher introspection), we introduce autoethnography as the best developed type of researcher introspection. Then, we use the remaining sections to discuss the strengths and weaknesses, preconditions of use, ways of practice for different suitable research purposes, and useful techniques and tools related to researcher introspection. Finally, we conclude by connecting our discussions on researcher introspection with other introspective methods.

### *1 The underlying epistemic perspectives*

To confront and overcome some of the taboos imposed on introspection, we shall first review the underlying epistemic perspectives that play significant roles in the discussion. The first is the positivistic, third-person perspective. This perspective has long been considered to be undoubtedly scientific, primarily because the researcher is expected to take an objective and detached outsider's point of view and to accept only observable and measurable events and behaviours as legitimate data; that is, the researcher should investigate a given phenomenon 'without influencing it or being influenced by it' (Guba & Lincoln, 1994, p. 110). Not surprisingly, this approach has dominated the natural sciences where phenomena are independent of human consciousness,

such as space-time curvature, are studied. However, the positivist influence reaches much deeper and broader than that. As noted by [Morgan \(1983, p. 395\)](#), ‘the idea of obtaining a generalised form of objective knowledge based on the positivist ideal of systematic, comparative, replicative observation and measurement is often used as a point of reference against which all research should be judged’. But what about when a researcher is examining subjective phenomena, such as sensations, thoughts, memories, imaginations, emotions, and moods? Would the third-person perspective alone be enough for us to acquire a holistic understanding?

Unlike the third-person perspective, the *first-person* perspective represents an epistemic stance that allows those fundamentally experiential and subjective phenomena to be studied by the observer looking inward (often along with looking outward into the world, backward into the past, and forward into the future). We should note that the concept of ‘*observer*’ in a first-person investigation differs essentially from that in a third-person study. In a third-person study, the observer is one who measures what is believed to be objectively in the world (e.g. the subjects’ eye movement or fMRI brain image). In contrast, in a first-person study, the observer examines their own subjective experiences which are themselves instances of the phenomenon under investigation. In this case, therefore, the researcher may take the observer position and collect their own subjective experiences as rich and accessible data for analysis. Likewise, subjects may also be observers who are trained or guided by the researcher to examine and externalise their subjective inner experiences.

Similarly, some researchers have also found the second-person perspective, which focuses on intersubjectivity between the first-person (focusing on subjectivity) and the third-person (focusing on objectivity), to be a valuable perspective for researching the subjective realm ([De Quincey, 2000](#)). Although second-person methods may manifest in diverse formats in various disciplines, they generally share a common belief that the researcher is neither detached and dispassionate nor merely an introspective self-examiner, but rather is highly empathic and emotionally engaged with the subjects. Such a perspective reduces the psychological gap between the researcher and subjects and encourages the researcher to take direct experience and interaction with the subjects as the primary way of knowing ([Gallese, 2014](#); [Schilbach et al., 2013](#)). In the design discipline, to a great extent, empathic design methodologies are built upon this stance.

Introspection is not welcome under the judgement of dominant positivistic criteria. However, if we embrace the first-person or second-person perspective, introspection would enable us to understand, examine, and theorise about *subjective experiences* in naturalistic settings and enjoy a privileged and peculiar access to the subjective data which are not directly accessible from the third-person perspective with the same level of readiness, vividness, richness and

depth (Brown, 1998a; Byrne, 2005; Gould, 1995, 2012). If we look back at history, in the early years of many relatively young disciplines, there was a common burden of 'being recognised as a science', which urged these research communities to reject introspection and use only third-person approaches in order to appear objective and properly scientific, even though subjective phenomena have always been a focus of their enquiries. Nevertheless, the frustrations caused by lack of first-person understanding later encouraged them to rethink, openly debate, and systematically develop introspective methods.

## 2 *Early application, rejection, and resurrection*

The early application of introspection finds its origins in philosophy. In the Eastern world, Confucianism, Taoism, and Buddhism all took introspective self-observation as the central methodology for the development of their philosophies (De Silva, 2000). In the history of Western philosophy, the early epistemological discussion on the introspective way of knowing can be found as early as Plato's *Theaetetus*, in which Plato wrote in the voice of Socrates '... why should we not calmly and patiently review our own thoughts and thoroughly examine and see what these appearances in us really are?' In the following millennia, introspection has been used in most, if not all, major projects in the philosophy of mind (e.g. those by Descartes, Locke, Hume and Kant). As a philosopher and one of the founding figures of psychology, William James also adopted introspection as the most important method in his development of psychology and described its methodological significance thusly (1890/1950, p. 185): 'Introspective observation is what we have to rely on first and foremost and always'. Wilhelm Wundt, another founding figure of psychology, also insisted that only the person having the experience being studied can observe and report it, and therefore used introspection as his primary research method for psychological enquiry (Schultz & Schultz, 2015). Unlike the earlier philosophers, Wundt attempted to develop and apply introspection as a scientific approach by emphasising precise experimental control over the conditions under which long- and well-trained subjects (or self-observers) perform introspection (Hergenhahn & Henley, 2013; Schultz & Schultz, 2015).

However, in the early 20th century, with the increasing influence of positivism in all sectors of science and humanity, behaviourism began gaining its dominant position in psychology and strongly rejected the use of introspection (Güzeldere, 1997). Watson (1913, pp. 158, 176), one of the behaviourist pioneers, argued that the theoretical goal of psychology should be 'the prediction and control of behaviour'. He contended that because it heavily relied on introspection, 'human psychology has failed to make good its claim as a natural science' and 'psychology, as the behaviourist views it, is a purely objective, experimental branch of natural science which needs introspection as little as do the sciences of chemistry and physics'. Because of

its secure 'trouble-free' methodology, the behaviourist paradigm soon became broadly accepted, extremely influential, and remained dominant in psychology for over half a century. This eventually caused introspection to disappear from psychological research in the Anglo-American world (Güzeldere, 1997). Similarly, according to Ellis (1991), researchers who examined the development of modern sociology (e.g. Camic, 1986; Hinkle & Hinkle, 1961; Ross, 1979) suggested that in the same era, sociologists were also significantly influenced by behaviourism's rejection of introspection. They believed that the open involvement of the researcher's self-introspection would prevent sociology from being accepted as legitimate science. Even so, introspective methods have remained in the field under the camouflage of other names. As noted by (Ellis, 1991, pp. 27–28), 'most researchers, and especially social constructionists, use data gathered introspectively at some point in their research, but camouflage them as behaviour, questionnaire responses, verbal reports, and laboratory experiment results'. Likewise, Levy (1996, pp. 172–173) argues that 'introspection is an inevitable part of consumer research used by all research workers ... Although we often strive for the appearance and security of objectivity, this should not obscure the fact that all our thoughts are introspective comments and stories about what we observed, what we did, what we thought, and why we thought it'.

In the last decade of the 20th century, with the increasing demand for understanding subjective experiences, scholars from psychology, sociology, anthropology, newly emerged cognitive science, and more applied consumer research reflected on their frustrations regarding their inability to completely comprehend subjective experiences caused by the sole use of objective research methods. As a result, re-examination and debate on the ontological and epistemological basis as well as the methodological value of introspection were developed. As one of the advocates of researcher's self-introspection in sociology, Ellis argued that, since emotion became a sociological concern, sociologists had primarily examined emotions through well-accepted research methods, such as surveys and laboratory observations, which only informed them about 'the surface public self' and forced them 'to talk to spiritless, empty husks of people who have programmed, patterned emotions, and whose feelings resemble the decision-making models of rational choice theorists' (Ellis, 1991, p. 45). Thus, she claimed that 'resurrecting introspection (conscious awareness of awareness or self-examination) as a systematic sociological technique will allow sociologists to examine emotion as a product of the individual processing of meaning as well as socially shared cognitions' (Ellis, 1991, p. 23). In the same year, consumer research scholar, Gould (1991, p. 194) complained that 'much of consumer research has failed to describe many experiential aspects of my own consumer behaviour' and developed his researcher introspection method. Later, Gould (1995, p. 720) reflected on and reconfirmed the value of this controversial method: 'In applying this method, I have had

immediate access to a vast amount of cognitive and sensory data that I could never obtain from other subjects, and I am able to discern clear patterns in my internal phenomena over time.’ Holbrook has also been playing an important role in the development of introspection in consumer research. He argued that when practising introspection, the researcher is engaged in an ‘ultimate participant observation’ (Holbrook, 1995, p. 209) that allows the researcher to record and analyse ‘his or her own consumption experiences and the relevant meanings or emotions that they evoke’ (Holbrook, 2006, p. 716). Therefore, introspection is ‘a phenomenological, private, self-examination of the joys and sorrows that infuse consumption experiences found in one’s own everyday communion with the human condition’ (Holbrook, 1997, p. 114). Around the same time, some criticised the use of introspection in consumer research. Nevertheless, its value has become well recognised through the debates, as Campbell, a critic of introspection, notes:

*‘... introspection is a legitimate method of inquiry open for use by any researcher or scholarly investigator, no matter what their discipline. To reject it out of hand on the pretext that it is “unscientific” strikes me as particularly churlish if only because it should be obvious that the study of a wide range of phenomena is necessarily dependent on such an activity. Those who wish to investigate topics as various as backache, daydreaming, nostalgia, creativity, and mystic enlightenment are all in the first instance dependent on reports that derive from introspection. To accept that such data are indispensable when originating from ‘subjects’ but to deny it any value when it originates from “researcher as subject” has always seemed to me to be a peculiarly inconsistent standpoint’ (Campbell, 1996, p. 100).*

### 3 *Reflection vs. introspection*

A similar historical pattern of methodology can also be seen in design research. In the 1950s and 1960s, the early attempt to establish design as a new scientific discipline pressed design researchers to employ objective research methods and develop rigorously structured design methods that they hoped would ensure optimised design outcomes (Cross, 1993). However, in the 1970s, this endeavour started losing its popularity and started to be rejected even by some of the previous advocates, such as John Chris Jones (1991, p. 22) who said, ‘I dislike the machine language, the behaviourism, the continual attempt to fix the whole of life into a logical framework’. In the 1990s, the rise of practice-led research in the art and design field (e.g. product, furniture, jewellery, fashion, textile and graphic design) prompted the design research community to rethink the fundamental tensions in ‘subjectivity versus objectivity, internal versus external, doing versus thinking and writing, intuition versus logic’ that arose from the unity of practitioner and researcher (Gray, 1996, p. 7). Since the turn of the 21st century, the practice-led approach has also been increasingly integrated into other

design-related fields, such as human-computer interaction (HCI) where it is more often called research through design (Gaver, 2012; Zimmerman, Stolterman, & Forlizzi, 2010) or constructive design research (Koskinen, Zimmerman, Binder, Redstrom, & Wensveen, 2011).

We consider embracing introspective methods for experience-driven design research a new step forward in the methodological liberation from the dominance of positivistic logic. In the current methodological discussion and development, we position ‘researcher’s self-introspection’ (for experience-driven design) as a mental process that is relevant to yet distinct from what is normally called ‘reflection’ in practice-led design research. In both cases, the researcher takes a dual role, being ‘researcher as subject’ and investigating from the first-person perspective. However, in practice-led research, the subject is a *practitioner* who freely and expressively creates and, in the meantime, documents and reflects on how their design ideas and concepts emerge, evolve, and eventually lead to the final creative outcome (Gray, 1996; Nimkulrat, 2007). Therefore, the foci of reflection and sources of research data in practice-led research are ‘designing (as activity) and designs (as outcomes)’ (Pedgley, 2007, p. 464). On the contrary, when introspecting on subjective experiences for design, neither a design process nor a new design outcome is prerequisite. The parallel role that the researcher takes is an experiencing *human being* (not necessarily a design professional) who not only directly lives the subjective experience under study, but also documents and analyses it. The focus may be exploring and structuring the experience of a specific activity (e.g. 3D film watching or mountain cycling), a life aspect (e.g. long-distance relationship facilitated by ICT) or some fundamental experiential concepts (e.g. the emotion of pride or the mood of grumpiness) in all possible or relevant real-life settings.

Of course, this distinction is mainly for conceptual clarity. There are always cases that intertwine the both in one research process. For example, a practice-led design study often inevitably requires the practitioner-researcher to engage in self-introspection into their sensory feelings, perceptions of meaning, and emotional reactions during the design iterations and evaluation of outcomes. Likewise, if a design researcher uses an introspective study to understand the experience of feeling passionate about designing or the enjoyment of design creation, there is hardly a clear cut between the researcher’s reflection on the design processes and introspection on their subjective experiences during the design processes.

#### 4 *Five categories of introspective methods*

Wallendorf and Brucks identify five categories of introspective methods (Figure 1) based on a comprehensive review of contemporary introspective methods used in ‘psychology (including social, cognitive, psychoanalytical,

	Researcher Introspection	Interactive Introspection	Syncretic Forms of Introspection	Reflexivity within Research	Guided Introspection
<b>Illustration</b>					
<b>Features</b>	Researcher as Subject No subjects other than the researcher are involved as the introspector.	Subjects as Co-researchers The researcher and subjects form a collaborative and mutually empathic introspecting group.	Researcher and Subjects as Individual Introspectors The researcher includes his/her own introspections as part of the data.	Researcher and Subjects as Individual Introspectors The researcher uses his/her introspections to enable contrasting comparisons.	Researcher as the Guide Subjects as the Introspectors The researcher does not introspect, but only guides the subjects to.
<b>Focus</b>	The researcher him/herself	Both the researcher and subjects	Both the researcher and subjects	The subjects	The subjects
<b>Epistemic Perspectives</b>	Researcher/Subject (R/S): first-person	Researcher/Subject (R/S): first-person & second-person Subject/Researcher (S/R): first-person & second-person	Researcher/Subject (R/S): third-person & first-person Subject (S): first-person	Researcher/Subject (R/S): third-person & first-person Subject (S): first-person	Researcher (R): third-person Subject (S): first-person
<b>Relevant Method Examples</b>	Autoethnography Self-experimentation Personal Subjective Introspection Confirmatory Subjective Introspection	Co-design Workshop Empathic Design Methods Experience Prototyping	All cases in which the researcher applies the same guided introspection process to him/herself as well as to the subjects without direct introspection exchange	Participant Observation	Verbal Protocol Analysis In-depth Phenomenological Interview Written Self-report UX Curve Drawing Sentence Completion Experience Survey

Figure 1 Five categories of introspective methods

and phenomenological), sociology (symbolic interactionism as well as other fieldwork-based studies), and anthropology (cultural and linguistic), as well as consumer research' (Wallendorf & Brucks, 1993, p. 340).

As briefly introduced before, *guided introspection* can be found in many widely accepted research methods (e.g. verbal protocol analysis, in-depth phenomenological interview, written self-report) in which, under the researcher's guidance, only subjects (other than the researcher) are invited to examine and report their experiences. It appears to be the least problematic from a positivist perspective since it makes clear a distinction between the researcher and subject, does not acknowledge the involvement of the researcher's introspection, and focuses only on the subject's reported experiences (Wallendorf & Brucks, 1993). In contrast, *researcher introspection* represents the other extreme, where the researcher serves as the *sole introspector* who takes their own relevant emotions, sensations, memories, thoughts, or imaginations as data for analysis; no other individual is involved (Wallendorf & Brucks, 1993). This form of introspection appears in many variants with different names in different disciplines, such as *autoethnography* (e.g. Chang, 2016b; Ellis, Adams, & Bochner, 2011) in sociology, anthropology, communication research and health science, *self-experimentation* (e.g. Corti, Reddy, Choi, & Gillespie, 2015; Roberts, 2004, 2012) in psychology, behavioural and brain science, and *subjective personal introspection* (e.g. Holbrook, 1995, 1997, 2005, 2017) in consumer research and marketing.

There are three types of introspection that involve both the researcher and subjects as introspectors that lie in between the two mentioned above. First, *interactive introspection* is identified according to three features: 1) both the researcher and subjects introspect; 2) they actively share introspective data and insights with each other; 3) the research process is highly emotionally engaging and empathic for both parties. When practising interactive introspection, the researcher and subjects work as equal partners, and the boundary between the two parties' observations is very much blurred. For this reason, the subjects are often referred by the researcher as 'co-investigators or co-researchers' (Ellis, 1991, p. 33). Second, *syncretic forms of introspection* also involve both the researcher and the subjects as introspectors, but without direct introspective data and insights exchanged between the two parties. The researcher simply includes their introspections as instances added to the overall data set for a richer, more detailed, and direct understanding of the phenomenon being studied (Wallendorf & Brucks, 1993). Third, *reflexivity within research* is often seen in ethnographic studies where participant observation is a commonly used method. In these cases, apart from recording the observational materials about the people from the cultural group under study, the researcher also generates reflexive data about their own experiences during the fieldwork. This type of introspection conducted by the researcher, along with the analysis of the other cultural group, enables a contrasting comparison between the cultural group being studied and the one the researcher belongs to (Wallendorf & Brucks, 1993).

## 5 *Autoethnography as one type of researcher introspection*

Except for guided introspection (which is not a focus of this paper), all above-introduced introspective methods more or less involve researcher's self-introspection, with researcher introspection as the most extreme and purest form. Since its ultimate status, we deliberately take researcher introspection as the cornerstone of our current methodological development.

Among the variants of researcher introspection, autoethnography is arguably the best developed and most broadly used, as illustrated by the recent explosive growth of literature on this method in multiple academic fields (e.g. Adams, Ellis, & Jones, 2017; Anderson, 2006; Bochner & Ellis, 2016; Chang, 2016b; Denzin, 2013; Le Roux, 2017). Autoethnography is defined as 'a qualitative research method that uses a researcher's autobiographical experiences as primary data to analyse and interpret the sociocultural meanings of such experiences' (Chang, 2016b, p. 444). This method stands at 'the intersection of autobiography and ethnography' (Adams et al., 2017, p. 2) and 'fractures the boundaries that normally separate social science from literature' (Ellis & Bochner, 2000, p. 744). Some design researchers, especially in HCI, have noticed its unique value for understanding experiences in human-design interaction processes and used it as a novel method in their

recent studies (e.g. Desjardins & Ball, 2018; Kennedy, 2018; Lucero, 2018; Rapp, 2018).

Taking autoethnography as the best practice of researcher introspection, its substantial development indeed has provided a great amount of knowledge to form a basis for our current methodological development. Nevertheless, we hope to avoid giving the readers an impression that autoethnography equals researcher introspection, but to establish a more balanced and open space and a more holistic and diverse agenda for our development of introspective methods in experience-driven design. For this purpose, we conceptualise researcher introspection as a family of methods through which the researcher investigates their self-experiences as the primary means to knowledge generation.

The scopes of autoethnography and researcher introspection differ in terms of ultimate focus, data form and presentation, and the temporal manner of practice. First, as rooted in ethnography, autoethnography is essentially about culture and social life. Taking the advantage of the illuminating effect of introspective investigation on culture, the ultimate goal of practising autoethnography is to explore the relationship of experiences to culture, and to understand the sociocultural meanings of experiences (Chang, 2016b; Jones, Adams, & Ellis, 2016). Researcher introspection, on the other hand, is a broader methodological concept whose focus can be any aspects of experiences, for example, the components or manifestations of a variety of mood states. Although such an investigation often needs to be situated in the researcher's sociocultural, temporal and spatial contexts, the contextualisation is a means to the end of capturing the experience holistically. Second, autoethnography takes the researcher's autobiographical narratives as the foremost form of data, and therefore its presentation relies on self-storytelling as much as autobiography (Ellis & Bochner, 2000). By contrast, in addition to autobiographical data, researcher introspection is open to the collection, analysis and presentation of all types of self-data (e.g. ongoing self-tracking of bodily sensations, concurrent metacognitive self-observation and analysis, future-oriented projections, unrealistic fantasies, quantified lifelogging and more), and some of them may have little narrative quality. Furthermore, researcher introspection does not even limit the self-data to be exclusively qualitative (although the most are so) but also embraces quantitative ones if they contribute to a more holistic understanding. Finally, autoethnography inevitably depends on the researcher calling on their memories of past personal experiences and transforming them into self-narratives. In contrast with the retrospective feature of autoethnography, researcher introspection may be applied in a concurrent, future-oriented or imaginary manner, as well as retrospectively.

In the paragraphs that follow, we focus our discussion on researcher introspection. By presenting and discussing its strengths and weaknesses, preconditions of use, suitable research purposes, useful techniques and tools, we hope to establish a foundation for the future methodological development of all methods transparently involving researcher's self-introspection for experience-driven design research.

## 6 *Strengths and weaknesses of researcher introspection*

The strengths and weaknesses of researcher introspection derive from its most important characteristic - the ultimate unity of the researcher and the subject. Below, we summarise the strengths of researcher introspection according to the arguments of its proponents (Gould, 1995, 2008, 2012; Brown, 1998a, 2012; Brown & Reid, 1997; Corti et al., 2015; Hackley, 2007; Holbrook, 2005).

- *Data accessibility*: It allows unique access to subjective experiential or phenomenological data that are inaccessible through other methods and enables a direct examination of subjective experiences as directly experienced by the conscious individual.
- *Data readiness and richness*: It gives 24-h unrestricted access to vivid and detailed experiential data of one's own stream of experiences.
- *Length of research*: The researcher-introspector can continuously observe and unfold relevant personal experiences over very long periods.
- *Depth of analysis and reflexivity*: It encourages enhanced reflexivity and more in-depth understanding of the emotions, experiences, and motives involved in the phenomenon being studied by mentally reliving, hypothesising, theorising, and retesting.
- *The presentation of research results*: The results of researcher introspection are often presented as intriguing, engaging, and thought-provoking narratives or experiential portrayals. This is particularly noticeable in autoethnography, as Adams and colleagues note (Adams et al., 2017, p. 8) that autoethnography 'humanizes research by focusing on life as "lived through" in its complexities'. Such a presentation of research results can engage readers and resonate with them, thereby justifying the results empathically in terms of their own direct experience.
- *Research ethics*: It involves minimal ethical concerns, for example, regarding other subjects' privacy and willingness to participate or reveal intimate information. Nevertheless, when the researcher's autobiographies are heavily involved, particularly in evocative autoethnography, ethical issues are not free, because 'other people are always present in self-narratives, either as active participants in the story or as associates in the background' (Chang, 2016a, p. 68).

With regard to the weaknesses of researcher introspection, Wallendorf and Brucks (1993) have made the most systematic and harshest criticisms so far.

Although this article seems to be dated, the criticisms remain incisive and relevant, and time has honoured its seminal status and significant contribution to the debate and development of all types of researcher introspection (Emile, 2011). In our search of criticisms, those of autoethnography also caught our attention. However, many of them focus particularly on the issues caused by autoethnography's mere reliance on the researcher's autobiographies (see Delamont, 2009 for a more detailed review), which may not be necessarily relevant to some other types of researcher introspection (e.g. those primarily focus on metacognitive self-examination). To review the common weaknesses shared by all types of researcher introspection, we choose to base our current discussion on the Wallendorf and Brucks' critical analysis, which includes issues listed below.

- *Data accuracy*: Researcher introspection has been most often conducted retrospectively, especially when it is practised as autoethnography. However, memory has been found to degrade over time, and the recollection of memory is reconstructive and distortive in nature. Thus, retrospective data is unreliable and should not be uncritically accepted as accurate descriptions of one's past experiences. In addition, since the memories of unusual and extreme events come to mind much more easily than those of mundane everyday experience, data collected through researcher retrospective introspection is very likely to overrepresent exceptional experiences and underrepresent ordinary ones.
- *Data documentation*: The researcher-introspector is very likely to draw conclusions according to 'a series of undocumented recollections employed while writing a manuscript rather than a systematic recording of experiences that was separately analysed' (p. 347).
- *Distance in data analysis*: 'During data analysis, a form of personal removal or distance from the particular perspective of the persons being studied is typically used as an analytic counterpoint' (pp. 349–350). Critics believe that the extreme closeness between the researcher and the subject leads to difficulty in generating a scholarly interpretation of a given phenomenon.
- *Generalisability*: In general, 'selecting oneself as a sample of one as is done in researcher introspection would appear to be the extreme form of convenience sample' (p. 348). The critics argue that if a researcher only investigates their own feelings and experiences regarding the topic under investigation, the research results inherently lack generalisability.

While these are all valid concerns, the issues of data accuracy and documentation in researcher introspection can be solved through a careful research design with appropriate techniques and tools. In terms of generalisability, follow many methodologists' (e.g. Hirschman, 1986; Lincoln, 1995; Walby & Luscombe, 2017) argument that it should not be seen as weaknesses per se,

but a result of inappropriate judgement according to the positivistic research standards only (i.e. validity, reliability, and generalisability). In this sense, to discuss how an introspective study can better meet humanistic research criteria (i.e. credibility, transferability, dependability, confirmability) may be more fruitful. The minimised distance between researcher and researched is the essence of researcher introspection. On the one hand, it is an innate and inevitable weakness. On the other hand, it is also where all the strengths derived from. After all, no research method is universally perfect. Therefore, we use the following two sections to form a clear understanding of under what preconditions and for what research purposes that the advantages of researcher introspection outweigh its innate and inevitable disadvantages, so that it is worth using; as well as what techniques and tools can maximise its strengths and ameliorate its avoidable weaknesses.

## 7 *Preconditions of using researcher introspection*

With regard to what circumstances researcher introspection could be employed, Gould (1995, p. 721) points out two necessary preconditions: 1) ‘the researcher as instrument-subject must be *knowledgeable* and *motivated* with respect to both introspection and the topic of study’, and 2) ‘the topic must be *susceptible* to introspection’. We concur with these two preconditions of using researcher introspection, yet endeavour to reinterpret them in the context of design research through elaborating four considerations that a design researcher should assess before employing researcher introspection for a particular study.

### 7.1 *Understanding diverse human experiences for design*

Introspection is particularly useful when the phenomenon under study is fundamentally subjective and experiential. Since one of the primary purposes of experience-driven design research is to help design professionals gain deeper understandings of multifarious human experiences that may result from or be influenced by human-design interactions, we argue that many research topics in this field are susceptible to introspection. In marketing and consumer research, where introspective methods have been better developed, researcher introspection has been employed in many recent studies to investigate, for example, film communication and consumption experience (Hart, Kerrigan, & vom Lehn, 2016; Wohlfeil & Whelan, 2008, 2012), travelling and holiday experience (Gountas & Gountas, 2015; Holmes & Rowley, 2015; Kozak, 2016; Montanari, 2013), wedding experience (Martin, 2015), museum visiting experience (vom Lehn & Heath, 2016), popular music consumption experience (Shankar, 2000), live concert experience (Earl, 2001), pet companionship experience (Holbrook, 2008), retailing experience (Maclaran & Stevens, 1998), and online consumption experience (Weijo, Hietanen, & Mattila, 2014). In most of these cases, experiential aspects (e.g. hedonic qualities, sociocultural or symbolic meanings, emotions and moods) are significantly more important than

instrumental and utilitarian aspects (e.g. usefulness, usability, efficiency). Therefore, it is reasonable to infer that design research studies that take experiential aspects as the primary concern can also use researcher introspection to achieve fruitful results.

### *7.2 The gap between the researcher and the target subjects*

[Holbrook \(1997\)](#) argues that researcher introspection is the ultimate form of participant observation in which the researcher directly experiences and becomes the phenomenon under investigation. This indicates that researcher introspection is appropriate and valuable if, prior to the study, the researcher can already be seen as a member of the target group to be studied. In this case, the social, cultural, and experiential gap between the researcher and the target group is small, and the researcher has naturally comprehended the group's norms and directly experienced what other members typically experience. For example, in a dramatic case, [Hirschman \(1990\)](#) explored how near-death experience might influence the perception of consumption through reflecting on her own near-death experience and its consequent impact. This precondition is consistent with what [Anderson \(2006, p. 379\)](#) claims to be 'the first and most obvious feature of autoethnography' – 'the researcher is a complete member in the social world under study'. The 'Complete Member Researcher' (CRM) status may be achieved through two strategies. First, opportunistic strategy guides the researcher to take a good advantage of their existing sociocultural enterprise and at hand knowledge and experiences. Second, a researcher may also convert themselves to complete immersion into a sociocultural enterprise for the sake of a specific research project ([Adler & Adler, 1987](#)).

Moreover, there are some phenomena that are believed to be universally experienced by human beings, but the conceptual nuances are not well comprehended by the general public. For instance, everyone experiences emotions and moods, but how the two concepts differ from each other is not precisely understood by everyone because the two terms are often used interchangeably in daily conversations. In this case, for a fruitful study, the researcher may well choose to use researcher introspection to take advantage of the conceptual clarity that they possess as a knowledgeable expert and the target experiences that they directly live as a human being.

### *7.3 The Researcher's passion*

Most design researchers do more than conduct research; they have other aspects of their lives. They are curious about many other areas of knowledge, engage in many other activities, and have meaningful relationships with a wide variety of people. Passions like these make investigative work highly and intrinsically motivated, and this is often sensed by the readers ([Frostling-Henningsson, 2007](#)). As noted by [Brown \(1998b, p. 141\)](#), by

reflecting on their own feelings and motivations, consumer researchers who are passionately involved in, for instance, skydiving, weightlifting, long-distance running, sexual sustenance, and obsessive collecting behaviours, can shed light on other people's experiences and motivations in these activities. Similarly, potential topics of experience-driven design research are rather diverse and inclusive, especially with the rapid evolution or extension of the concept of design itself. Thus, a design researcher may often find themselves investigating a phenomenon that is not only valuable for experience-driven design, but also associated with one of their spare-time passions. If this is the case, one indeed should consider leveraging the strong personal motivation derived from one's passion and utilise researcher introspection systematically, instead of struggling to be dispassionate in order to appear objective.

#### *7.4 Training for introspective expertise*

Introspection is technical and requires a learning process and expert guidance. There is a common misconception that introspection is as simple as 'just take a look' since it means examining one's own thoughts and experiences. However, the reality is that 'having cognition and having a capacity for reflective activity do not make you into a researcher who is competent in the use of introspection' (Vermersch, 2009, pp. 26–27). Regarding this issue, Gould (2006) introduced a series of introspective exercises that one could follow to comprehend directly the methodological value of introspection and also gradually enhance one's introspective capability. These exercises include 1) observing thoughts (e.g. their contents, developments and processes); 2) observing physical sensations and feelings; 3) observing emotions; 4) alternating the attention between extrospection and introspection, objectivity and subjectivity, 5) constructing self-focus introspectively, 6) finding a balance between narrative (i.e. telling one's own story) and metacognitive introspection (i.e. observing one's own thoughts and feelings). We believe these introspective exercises can well serve as a basis for the development of the training methods for introspection in experience-driven design research.

#### *8 Diverse ways to practise researcher introspection and useful techniques and tools*

Wallendorf and Brucks (1993) noted that researcher introspection could be conducted in three different temporal manners - *retrospectively*, *contemporaneously*, and as a *projection into a hypothetical future*. It is a useful observation that could potentially be developed to inform the design of introspective studies. However, Wallendorf and Brucks only used this classification to pave the way for criticising the inaccuracy of retrospective data. We argue that each of the three ways of practising researcher introspection has its unique value for different research purposes and is therefore worth developing systematically.

## 8.1 *Retrospective introspection*

When practising retrospective introspection, the researcher depends on their recollection of relevant life events occurred in the distant past. Because of the reconstructive nature of long-term memory (e.g. [Bernstein & Loftus, 2009](#); [Norman, 1976](#); [Schacter & Slotnick, 2004](#)), retrospective introspection has been criticised for its relatively high likelihood of containing memory distortions in the data ([Wallendorf & Brucks, 1993](#)). We agree that retrospective introspection is not ideal for investigating what a particular experience is really like while it is being experienced. But, we propose that it could be very useful for understanding how one's memories shape their present experiences, such as particular tastes or aesthetic preferences one has, the (re-)constructions of one's identity and existential meanings, or the perception of long-term well-being given one's current circumstances. In addition, creating 'memorable experiences' has been seen as a significant goal of many experience-driven design processes, especially in service-oriented industries ([Tung & Ritchie, 2011](#)). In these cases, the accuracy of retrospective data is not directly relevant, but the emotional residue of it is (i.e. Was it fun or unpleasant? Was it easy or difficult? And so forth.). What is more important is understanding what makes particular design-facilitated life episodes memorable; that understanding can then inform how to make future designs even more desirable. Clearly, retrospective introspection could be utilised for such research purposes.

Retrospective introspection has typically relied on conventional but efficient techniques and tools for data collection. For example, in the fields of sociology and experiential consumption, researcher-introspectors often find writing detailed essays or autobiographic narratives a good means for generating introspective data for analysis (e.g. [Sussan, Hall, & Meamber, 2012](#); [Wohlfeil & Whelan, 2012](#)). In addition to textual storytelling, Holbrook often integrates his personal or family photography collections as visually rich and thought-provoking data in his analysis and theorising (e.g. [Holbrook, 2005, 2008, 2017](#)). By leveraging unique, creative visualisation and interactive prototyping skills embedded in design research community, design researchers can make a new contribution to visual integration through generating and presenting multisensory and interactive formats of introspective data.

## 8.2 *Concurrent introspection*

Concurrent introspection refers to the case where the introspector records (and sometimes also simultaneously analyses) the stream of experiences immediately or after a small amount of time. The practice of concurrent introspection relies on the introspector's experiencing self, namely the self that describes how one is feeling at the moment ([Kahneman, 2011](#); [Kahneman & Riis, 2005](#)), to report, evaluate, and examine the experience that is being lived. By minimising the time lag between experiencing and data recording and initial analysis, concurrent introspection largely ensures that the immediate experiences are

accurately recorded with rich detail and examined from a first-person perspective with little distortion.

[Gould \(2006\)](#) makes a distinction between *metacognitive* introspection and *narrative* introspection. Narrative introspection approaches self-examination through macro-level autobiographical storytelling and generates narratives as data (e.g. in autoethnography). By contrast, metacognitive introspection represents a micro-level perspective from which the researcher observes their ongoing thoughts and feelings in real time. Because of the ongoing status of the experience under study, what concurrent introspection investigates is often not yet a complete narrative episode. Thus, the data generated through concurrent introspection are more likely to be metacognitive descriptions than autobiographies. However, there is often no clear separation between these two qualities, because both narrative and metacognitive aspects are essential, co-existing qualities in every introspective examination.

Experience-driven design researchers are often interested in some specifically predefined affective states or experiences, such as fascination, nostalgia, or stress. Studying these experiences in their natural settings is highly valuable, but the downside is that the researcher has little control over when, where, and with whom the experience under study happens. Practising researcher introspection in a concurrent fashion offers the researcher a way to utilise themselves as an around-the-clock measuring instrument that captures vivid samples of the experience as it is randomly and directly lived in everyday life. Thanks to the advancement of mobile technologies in recent years, an average smartphone contains all the tools needed for doing concurrent introspection. The researcher-introspector can take photographs or videos to document the life episode visually and at the same time record self-narrations and immediate self-examinations through audio recording or written notes. If such an immediate introspection turns out to be too intrusive and influences the ongoing activities, the researcher can also simply record the visual materials as powerful memory triggers and reconstruct the episode soon after it ends. As tested by [Kahneman, Krueger, Schkade, Schwarz, and Stone \(2004\)](#), such a narrative reconstruction of a recent life episode enables the introspector to relive it with vivid and accurate evocation of the affective (and even physiological) states that occurred during the episode.

Experience-driven design researchers can also use concurrent introspection to systematically explore new design opportunities through examining the dynamics and fluctuations of the stream of experiences over a relatively long period, such as probing one's own mood fluctuations for one month, trying out various mood regulation strategies, and recording and reflecting on relevant design opportunities. Techniques developed in, for example, ESM (Experience Sampling Method, [Csikszentmihalyi, Larson, & Prescott, 1977](#); [Hektner, Schmidt, & Csikszentmihalyi, 2007](#)) and DRM (Day Reconstruction

Method, Diener & Tay, 2014; Kahneman et al., 2004) can be adjusted for the systematic collection of introspective data. For example, the researcher-introspector can design a time-based (i.e. interval-contingent or signal-contingent) protocol in a personal digital calendar which will send reminders to ensure continuous self-examinations. Alternatively, one may also mentally relive and keep journaling about what relevant events and experiences have happened during the day. These techniques have long been used as legitimate ways to collect data. The only difference is that the traditional use of ESM and DRM is to have a *detached* researcher collect *quantitative* data from a large number of subjects; to adapt and use them for researcher introspection, the researcher-introspector implements these techniques on themselves to collect various types of self-data.

### 8.3 *Imaginary introspection*

In addition to understanding, describing, and evaluating experiences in past or current contexts, experience-driven design researchers also have a special interest in envisioning future design possibilities and in examining changes in experiences, concerns, and values according to different hypothetical technological, social, political, economic, cultural, and psychological circumstances. In this case, the researcher may develop hypothetical thought-provoking introspective narratives by situating themselves in and suspending disbelief about multiple future scenarios that may or may not become realities eventually.

We see imaginary introspection as directly related to the *design fiction* that has been recently developed in the field of HCI (Blythe, 2014; Lindley, Sharma, & Potts, 2014; Sterling, 2009; Tanenbaum, 2014). The process of producing thoughtful fictional works is similar to conducting thought experiments, where the researcher-introspector engages in a series of imaginative exercises to explore what things would happen, what experiences would be felt, and what meanings would be comprehended, if certain possible, or rather impossible, conditions were met. Similar practices have a long tradition in both philosophy (e.g. Foot's Trolley Problem, Nozick's Experience Machine) and science (e.g. Einstein's Imaginary Elevator, Schrödinger's Cat). Imaginary introspection, through simulating provocative narratives, could be used not only try out new design ideas or concepts, but also to expose conflicts, contradictions, dilemmas, or paradoxes in a variety of unfamiliar futures before one of them comes true. In addition, because communication and eliciting opposing opinions as well as emotional resonances from others are also important aspects of this method, there are many useful concepts and techniques from narratology, filmology, and ludology (e.g. cognitive estrangement, world-building, 'sense of wonder', interactive storytelling) that are worth being adopted, adjusted, and further developed for experience-driven design research.

## 9 *Discussion and conclusion*

Introspection, as a humanistic, interpretative, and naturalistic approach to understanding subjective experiences has a unique value for experience-driven design. In this paper, we have exposed this long practised yet doubted and concealed method to the HCD research community and established a foundation for its future development and systematic use in experience-driven design research. Our methodological discussion of introspection so far has centred on its most controversial and extreme form - researcher introspection. We have revealed relevant underlying epistemological concerns, reviewed its evolving history in several other disciplines, discussed its strengths and weaknesses, presented diverse ways of using it for different research purposes, and suggested techniques and tools that may be integrated for minimising its weaknesses.

Without depreciating the value of researcher introspection, we propose that, if possible, it is always better to engage more than one researcher in its practice and to combine multiple methods for triangulation, confirmation, or rejection. Based on a critical analysis of researcher introspection (particularly Holbrook's SPI), Woodside (2004) further developed researcher introspection into 'Confirmatory Personal Introspection' (CPI). He suggested a series of research techniques that could be combined in order to enhance the fulfilment of humanistic research criteria. These techniques include, for example, developing formal survey protocols for researcher's self-interviews, engaging one or more researchers as inside auditors, seeking comments from cohort auditors (non-researchers) who also lived through the same event or experienced what the researcher is introspecting, and using forced metaphor-elicitation technique to understand the unconscious associations. In terms of this point, we disagree with Holbrook (2005, p. 48) who depicts this methodical effort as a 'lack of self-confidence' which encourages 'a mechanical reliance on such self-imprisoning safeguards and such vision-restricting formulas'. Holbrook's introspective reports are stunningly inspiring; therefore, we understand why he is so confident about using researcher introspection as a solo researcher. However, to reach his level of introspective capability requires years of training and practice. Thus, a novice to this method should always secure the collaborative participation of academic peers and carefully integrate multiple methods.

Apart from these techniques advancing researcher introspection, we also see significant potential in employing interactive introspection for improved triangulation. Methods engaging interactive introspection often enable several reflexive iterations of self-examination, empathic sharing of self-knowledge, as well as confirmation and rejection within an introspecting team. A collaborative research process like this can facilitate not only collective data generation, but also a team effort on spontaneous data analysis

and on drawing initial conclusions. On the other hand, the challenges of employing interactive introspection are also notable. It requires a group of carefully selected and motivated people who have had or may have the experience under study. They need to be pre-trained for performing introspection effectively. They also need to be able to articulate, verbally or in certain more creative forms, the experience as it is lived and to also feel comfortable sharing personal and sometimes even intimate information about their lives and inner worlds. Therefore, a series of new research considerations, planning and facilitating expertise, shall be developed for the effective use of interactive introspection.

An important future step for the advancement of introspective methods is to develop a systematic process and materials for training introspective researchers. When practising introspection, the researcher uses themselves as the measuring instrument to investigate the subjective phenomenon under study. In this sense, the sensitivity of this measuring instrument (i.e. the researcher) and capability of reporting and communicating what is found are crucial. Moreover, HCD researchers have little experience systematically designing and reporting introspective studies. Thus, a general and practical guideline and exemplars shall also be offered to HCD researchers who are motivated to employ introspective methods. Although existing consumer research literature on introspection can serve as a decent basis for its effective use, more effort to develop consistent guidelines is needed from the experience-driven design community.

Recently, artificial intelligence (AI) or machine learning techniques have been increasingly used by psychologists to identify and predict emotion, behaviour and well-being related patterns from messy big data that researchers can hardly analyse otherwise (e.g. [Kern et al., 2016](#); [Yarkoni & Westfall, 2017](#)). Moreover, given the quick development of the Internet of Things, it is also reasonable to expect a future where people's physical surroundings are equipped with various sensors constantly and precisely recording unprecedentedly massive amounts of temporal, spatial, multisensory, and behavioural data of a large number of people's experiences. These data can be stored and later accurately retrieved for AI to conduct analysis from a perfectly objective third-person perspective. Such perfect objectivity is derived not from ever-improving algorithms and computing capacity, but from the impossibility of an AI to acquire a first-person perspective, to really live experiences like human beings, at least in the foreseeable future. Along with this trend, we predict that introspective methods will become more valuable for creating out-of-the-box, experience-driven design knowledge and innovations, because we are not just researchers who sometimes have to strive to be objective, we are also human beings who live, experience, think, and reflect on our experiences. Consequently, we advocate

that some, not all, of us become introspecting (or experiencing) researchers for experience-driven design, when it is appropriate or necessary.

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