



A framework for presence in digital contexts

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Abstract

The aim of this paper is to offer an explanatory framework for affirming that one can be genuinely present in digital contexts. This is a challenging task because it is often assumed that no such framework can be successfully articulated. Presence is commonly studied through the experience of being present, that is, through the sense of presence (SoP), and this experience is often characterized as a kind of illusion. Although studying presence through SoP is entirely reasonable, my proposal requires defusing the main theoretical reasons for treating SoP as illusory. Objections come from phenomenological-based theories and some assumptions on the structure of mind within Human Computer Interaction research. After providing an independent argument (based on attention-based digital cooperation) for the need to appeal to genuine presence in digital contexts, I assess both phenomenological-based theories and Human Computer Interaction assumptions that support the illusion view. Against this background, I offer a framework in which presence is not an illusory phenomenon. This framework delineates presence in terms of a theory of attention and its connection to task resolution. On the framework I propose, a subject is present in a digital context insofar as they can exercise attention there, and this attentional exercise is constituted by digital objects, tasks, and normative structures.

Key words: sense of presence, joint attention, digitally mediated experience, task-oriented attention.

1. Introduction

In this paper, I examine how digitally mediated presence has been theoretically framed in recent literature and propose an alternative framework for explaining how subjects can be genuinely present in certain digital contexts. The search for such a framework faces a challenge that must be addressed. Across psychology, philosophy of mind, and human–computer interaction research (HCI), presence in digital contexts (also often discussed under the label of “telepresence”) is commonly approached through the psychological category of *sense of presence* (SoP), often described as the feeling of “being there.” This way of approaching the phenomenon is productive, but it often carries a further assumption: that in digitally mediated scenarios this feeling is illusory (Slater et al. 2022; Pianzola et al. 2021; Svenaeus, [Empathy and togetherness online](#); O’Shiel, [The phenomenology of virtual technology](#)). If that assumption is right, then a framework based on a concept of genuine presence in digital contexts becomes theoretically untenable.

To elaborate the framework, I do not reject SoP as a useful category for the study of digitally mediated presence, nor do I seek to examine how it works in all possible digital mediated cases. Methodologically, I rather retain SoP as a way of describing presence in those contexts while revising



how the category functions at least for a restricted class of digitally mediated contexts: computer- and screen-mediated encounters in which subjects cooperate on attention-demanding tasks (Oittinen and Räisänen, [Coordinating multimodal and screen-based actions](#)), here termed non-immersive attention-based cooperation (non-immersive ABC). The paper, therefore, is not only about digital presence as such, but also about the conceptual and methodological assumptions through which presence has been studied in intersubjective contexts across philosophy, psychology, and HCI. Developing this framework requires working through a tension between two claims: reasons for positing genuine presence in non-immersive ABC and reasons for holding that SoP is illusory in digital contexts. Let us unpack this tension.

Let us start with what I call attention-based cooperation (ABC). These are ordinary situations (e.g. when participants sit at the same table in the same room and cooperate on an attention-demanding task) in which each participant must be present within the activity so that their attention and agency can guide and constrain those of the others (Magnusson, [Establishing jointness](#); Campbell, [An object-dependent perspective on joint attention](#)). If this is true of ABC in general, I argue that it should also hold for non-immersive ABC. This inference, however, appears to be undermined by a deep-seated folk assumption about perceptual experience: namely, that technological and digital mediation compromises perception, such that seeing something or someone through a screen is not really seeing it. This assumption is reinforced by both phenomenological and empirical considerations that are often taken to show that digitally mediated experience fails to meet the requirements for non-illusory experience (O'Shiel, [The phenomenology of virtual technology](#); Dokic 2024; Slater et al. 2022; Skarbez 2016). The strategy to elaborate my framework, then, is to defuse the theoretical assumption that motivate the view that SoP is illusory. A closer exam helps show how to defuse them.

On phenomenologically informed views, the claim is that experience of digital objects (whether on a screen or in VR) can count as non-illusory only if, among other things, it can be construed as a spatial experience that presents its objects as located at some position in the subject's perceptual field (in front of, above, to the right of, and so on) (O'Shiel, [The phenomenology of virtual technology](#)), and as a non-mediated experience that presents its objects without presenting its enabling conditions (Andrada 2020; Facchin, [Phenomenal transparency](#)). According to this view, experience of digital objects lacks the relevant spatial and non-mediated structure.

On the empirical informed views, SoP is often treated as a qualitative feature of the experience of "being there" (Pianzola et al. 2021:6). Slater, for instance, describes presence as "the qualia of having a sensation of being in a real place," even though "the participant knows for sure that they are not 'there' and that the events are not occurring" (Slater 2009:1). Maneuvrier and Westermann ([The phi angle](#)) similarly characterize SoP in terms of its intrinsic subjective nature, likening it to qualia. Once SoP is framed in this way, empirical work tends to privilege some measurement strategies aimed at registering how much presence is felt. Although there is ongoing debate about how best to measure SoP (through questionnaires and neural measures [Grassini and Laumann, [Questionnaire measures](#)], bodily markers [Wang et al. [Assessing virtual reality presence](#)], or behavioral proxies such as Slater et al. 2022 "break in plausibility") for present purposes it is enough to note that much of this empirical work still treats SoP as a quale, and therefore tends to regard questionnaire-based measures as sufficiently reliable. As Skarbez argues, if "presence is what the philosophy literature calls a quale (plural qualia)", then it is reasonable "to use one or more post-experiment questionnaires to measure presence" (Skarbez 2016:2).



My strategy for defusing the illusion claim is to reassess the received explanatory framework within which SoP is typically understood. I do so by revising prevailing theoretical construals of digital experience and, by extension, of SoP. These revisions are meant to show that (i) screen-based digital experience can still count as non-illusory without having to resemble the experience of material objects, and (ii) SoP is better understood as an intentionally and normatively structured feeling than as a mere quale.

The rationale for (i) is that similarity requirements typically arise when immersive or full-VR settings are treated as the benchmark and those digital experiences are accordingly expected to resemble experiences of material objects. My concern, however, is with screen-mediated cases (non-immersives), where there is no reason to assume that digital experience must resemble the experience of material objects to count as non-illusory. The case for (ii) is more complex, since a qualia-based understanding of SoP seems appealing from the outset. In the framework I seek to develop, the feeling of being there is better understood in terms of affective experience (not reducible to qualia) in which the subject is connected to the place they occupy. The reason for this is that philosophical and empirical researchers are not usually concerned with a merely spatial or minimally experiential sense of “being there”, one that would allow subjects to feel “there” while remaining distracted or *unresponsive* (Turner, [Affect, availability and presence](#)). Indeed, much empirical research on SoP, especially in VR, has proceeded by refining the simulation or imitation of the ordinary interaction subjects undergo in material environments to reproduce adequately the experience of being there in digital contexts (Pianzola et al. 2021; Thorp et al. 2024).

What is at stake, then, is not merely a psychological descriptive issue, but whether the category of SoP can play an explanatory role within interdisciplinary research of intersubjectivity on digital environments: one that does not, in line with (i), presuppose that digital experience must replicate the experience of material objects, while still, in line with (ii), preserving the kind of affective connection we ordinarily have to material places.

At this stage, the relevant experiential sense in the claim (ii) remains unclear. I therefore propose a working formulation that will be used in this paper and is based on the following claim: your non-illusorily experiencing an object as *present* depends on experiencing it, so to speak, as ‘sharing the same *there*’ with you. Dokic has argued that “the feeling of presence depends on the experience of the perceived object and oneself being *co-located*” (Dokic 2024:541). If so, there is no experience of an object as present to you (as being there) without experiencing yourself as present to the object (as being there), and *vice versa*. The two “theres” must, at a minimum, be connected (if not, in a broad and relevant sense, be the “same there”). In any case, co-location is not merely a matter of relative spatial position or a matter of the object’s being available for action; it involves moreover an affective connection to oneself as an agent. Dokic writes “what makes the feeling of presence a truly *affective* experience (a genuine feeling) is that it is rooted in the motor and affective systems of the living body” (Dokic 2024:544). On this rationale, the expression “feeling of being there” rather must capture how subjects (using a Colombetti’s expression) *feel toward* places, situations, or tasks in virtue of how they affectively experience, attend to, and respond to their environment (Murphy and Skarbez 2020).

In this paper, I develop a theoretical framework for non-immersive ABC within which the category of SoP can be understood as designating an object-centered and mediated experience (Kelly, [The normative nature of perceptual experience](#); Dokic, 2024), one that can therefore be studied as a



non-illusory. To defuse the deep assumption that blocks the inference to the non-illusory character of SoP, I reassess both phenomenologically informed and empirically informed approaches to the experience of digital objects and, by extension, to SoP in digital contexts. On the phenomenological informed views, I argue that the spatial features of experience of objects are better described in terms of an *agential space* constituted and structured by the object, whether digital or material (Merleau-Ponty 2012); moreover, on this account, the difference between the experience of material objects and that of digital objects can be explained in terms of how *mediation* figures in experience (Andrada 2020; Facchin, [Phenomenal transparency](#)). On the empirical side, I argue that empirical evidence suggests that SoP in experimental settings is better explained as strongly shaped by *top-down* affective influences, especially by the task's affective constraints (Thorp et al. 2024; Pianzola et al. 2021).

If this is right, then nothing blocks the inference that, in non-immersive ABC, SoP designates a non-illusory experience. On the framework proposed, SoP designates a non-illusory experience of being there with a digital object during a digital task. This is so, in part, because, on this account, the subject's experience during task resolution is constituted by the technological setting that enables it: technical media and the digital object itself form part of the cognitive system employed to resolve the task (Chalmers 2019). If so, the fact that one feels oneself to be in a digital place while resolving a task may entail, on the present view, that one is genuinely present, at least to some degree, at the locus where the task is being resolved.

The paper contributes to ongoing debates about how experiential categories are framed and deployed across interdisciplinary research on digital environments. My claim is that the explanatory power of SoP changes significantly once it is situated within an attentional, task-oriented, and digitally mediated account of presence. This shift matters not only for philosophical clarity, but also for how digitally mediated social interaction is described, operationalized, and studied.

To argue for this framework, I proceed as follows. Section 2 characterizes non-immersive attention-based cooperation (ABC) and explains why its account calls for a realist notion of presence. Section 3 draws on phenomenological claims about the experience of material objects to argue that SoP is a mediated, object-centered feeling. Section 4 reviews empirically informed accounts of SoP to show that it is strongly shaped by the task's top-down influence. Together, these considerations allow me to outline the framework proposed here for defusing objections to the non-illusory character of SoP. Section 5 then sets out the framework and discusses its limits and prospects.

2. ABC and non-illusory presence

In this section, I argue that any adequate account of attention-based cooperation (ABC) must appeal to genuine presence. The reason is that the overtness of joint attention does the central explanatory work for ABC, and it directly involves the presence of the participants. If this is right, then, by parity, the same requirement should apply to non-immersive digitally mediated ABC. The point is not merely to extend an existing description to a digital case, but to pave the way to present a case for claiming that illusory reading of SoP is insufficient for explaining these forms of digitally mediated cooperation.



2.1 Basic case of ABC: *collaborative writing*

Episodes in the ABC category can be illustrated by the following case. Consider this collaborative decision-making task involving three teenagers who must propose an idea for a company anniversary celebration. The decision counts as made only once it is written down on a sheet of paper, and only one participant is allowed to write (here, David). The interaction is organized around a shared “writing space” (the paper on the table) toward which David, Cecilia, and Albin orient their contributions and coordination.

The episode begins when David introduces a proposal about an outdoor option for the celebration (by saying “...coffees and easy home meals”) while fiddling with the marker and hovering it over the paper. Cecilia initially rejects the idea by echoing “coffee” and starting a reply, but David interrupts “what, outside?” and Cecilia answers, jokingly, “or there are outdoor cafés.” David agrees. At that point, Albin and Cecilia shift their attention to the writing space; Albin instructs, “Just write ‘outdoor cafés,’” and David positions the marker and begins writing “outdoor seating” (“uteserveringar” in Swedish). As he writes, Cecilia and Albin keep their gaze on the paper; Cecilia reacts enthusiastically, and Albin adds, in the same tone, “party, like” (see [Figure 1](#)).

This excerpt from Magnusson ([Establishing jointness](#)) captures a real-time shift from uncertainty to a jointly settled proposal, which rests on joint awareness and *group-level commitment*, providing the basis for the task to proceed (e.g., planning the anniversary event). This example illustrates what I call attention-based cooperation (ABC). It qualifies as such because the participants’ contributions are intelligible as parts of a joint activity governed by shared awareness and joint commitment (Gilbert, [Walking together](#)). All this coordination would not be possible without *overt* attention: because participants must have joint access to what all subjects are attending to –that is, joint attention (Seemann, [Joint perception](#)). What matters is that they attend jointly, sustaining a shared field that makes their adjustments mutually answerable. Here, no individual proposal can count as *the* group proposal unless it is taken up as such by all participants, in line with Margareth Gilbert’s notion of joint commitment.

This overtness is a trait of attention that puts participants in a position to know what the other is attending to (Campbell, [An object-dependent perspective on joint attention](#)) and to coordinate accordingly (Seemann, [Joint perception](#)). Attentional overtness is available only if the other is *genuinely present* in the attentional experience; otherwise, each subject would have to *infer* the object of the other’s attention via individual mindreading, undermining the jointness at issue (León, [Joint attention](#)). It thereby helps explain how group indeterminate proposals *become* a determinate group decision. Accordingly, the success of ABC is not intelligible without the others’ genuine presence, the one’s genuine presence and therefore without a non-illusory SoP.

2.2 Non-immersive ABC: *digital mediated collaborative drawing*

I now turn to a second episode of collaborative decision-making to introduce *non-immersive digitally mediated ABC*. In Oittinen and Räisänen ([Coordinating multimodal and screen-based actions](#)), building on Magnusson ([Establishing jointness](#)), participants designed an imaginary city by jointly creating a name and logo. Unlike the basic ABC case, this interaction was mediated via Zoom with a shared digital whiteboard. Only one participant could control the drawing tool, yet all subjects



coordinated through the shared on-screen writing space under a common instruction: agree on the city's logo. The interface is shown in [Figure 2](#).

The interaction unfolds as follows. The participants are Heli (the drawer), Leni, and Meri, all closely attending to the shared screen as they refine a city logo featuring a car. Leni proposes adding “a rainbow over the car,” gesturing as he speaks, while Heli sharpens the car roof with the drawing tool. After a brief pause, Leni continues, but Meri and Heli overlap. Meri affirms (“yeah”) and Heli echoes (“like a rainbow”) while finishing the car door. Heli then selects a blue color; Leni reinforces the choice (“a blue... just blue”), and Heli draws a blue line over the car, narrating the action (“over the car, like this”). As the line appears, Leni and Meri align enthusiastically “yeah, like that”, marking joint acceptance as Heli completes the stroke.

Oittinen and Räisänen's screen-based analysis shows that, in screen-mediated collaborative drawing, joint proposals are built through coordinated on-screen action. The joint decision about which mark or color *should* count as the city logo is secured only insofar as participants sustain overt attention to publicly available on-screen events (cursor movements, color selections, and the emerging line) so that these digital objects and the others' actions can anchor coordination. *By parity*, if non-immersive ABC relies on attentional overtness to explain how the group settles on the relevant color or mark, then it also requires the others' presence and one's presence within the shared attentional episode. That presence must be genuine; otherwise, coordination would have to proceed via individual inference about others' attention, undermining joint decision, joint activity, and joint commitment by reintroducing the doubt about whether others have noticed the same as you (León, [Joint attention](#)).

The examples support the claim that non-immersive ABC involves genuine presence, only if these cases are best described in terms of attentional openness. As it stands, however, the inference may fail, since the conditions for attentional openness might not obtain. The deep-seated folk assumption about digital experiences implies that all attention in this case is illusory, and therefore it does not follow that subjects are genuinely there (O'Shiel, [The phenomenology of virtual technology](#)). The experience in digital contexts seems too weak to ground the attentional openness required to explain non-immersive ABC. The challenge, then, is to assess what motivates this folk assumption. This is the task of the next two sections.

3. Phenomenological approach to non-illusory SoP

The claim that SoP is illusory can seem well motivated. On some phenomenological approaches, experiencing a material object as *present* (in the flesh), places it within a horizon of possible exploration (Dokic, 2024). This exploration is non-mediated insofar as it does not depend on awareness of its enabling means (O'Shiel). In this way, such approaches treat a spatial dimension and non-mediation as central features of SoP, features that appear to be absent from non-immersive digitally mediated experience. The aim of this section is reassessing the explanatory role that those features in cases involving digital objects in non-immersive ABC.

3.1 Spatiality of SoP

On phenomenological views, spatiality does not merely describe object-perception; it is the medium through which perceptual normativity is expressed (Kelly, [The normative nature of perceptual](#)



[experience](#)). In Husserlian terms, this normativity is articulated through the present/concealed structure of perception and, in Merleau-Ponty's terms, through its reversibility (Ferro 2024). This structure is action-guiding, in the sense that it constrains how an agent must explore what is perceptually given. Spatiality, in this normative sense, specifies how the subject's exploration must unfold toward the object (Kelly, [The normative nature of perceptual experience](#)). As I hope to show below, this normative structure is preserved even though digital items often appear as flat and therefore seem to lack the "present/concealed" structure characteristic of genuine object-perception. This is worth noting, since many phenomenologically informed accounts of digital experience conclude that such experiences are not genuine cases of object-perception, but rather something closer to phantasy. Accordingly, in some of these approaches (i.e., Husserlian ones) digital items are often taken to belong instead to what is called image-consciousness, that is, an experience more adequately described as a hybrid of phantasy and perception (see chapter 1 in O'Shiel, [The phenomenology of virtual technology](#)) or to something closer to the experience of the phantom limb (Horenstein et al. [Intercorporeality in virtuality](#)).

However, it seems that not all forms of spatiality in object experience are alike. The "present/concealed" structure need not satisfy the same specific requirements in every case; maybe not every object of non-illusory experience must literally have a "backside." The general reason is that the structure of presence and concealment is not uniform across all material experiences. Moreover, invoking that structure alone is not enough to describe adequately the whole experience of a particular object; such a complete description must also refer to the object itself. Merleau-Ponty makes this point in his well-known discussion of artworks in a gallery, where he suggests that the artwork itself determines how it is to be agentially explored. He emphasizes that sensorimotor "perceptual laws" are not the whole story about object perception: they secure only "the unity of the perceptual process" (Merleau-Ponty 2012:315). A fuller account must also include the object's own contribution (an open-ended, normatively structured "history" in that the perceived object itself partly sets). Merleau-Ponty expands this when characterizing the spatial dimensions of object perception as a felt tension: "The distance from me to the object is not a size which increases or decreases, but rather a *tension* that oscillates around a norm. The oblique orientation of the object in relation to me is not measured by the angle that it forms with the plane of my face, but rather *experienced [felt] as a disequilibrium*, as an unequal distribution of its influences upon me" (Merleau-Ponty 2012:316, emphasis and square brackets added).

Spatiality is primarily given as a normative field of tension(s). This tension is felt as a disequilibrium that guides adjustment toward an optimal mode of access to the object, because informs what is a good or bad way of experiencing the object. This is an experience that could not be elaborated with no mention of the relevant objects in the experience. In many cases, with material objects, this normative tension structure is anchored in the object's determinate material features or location in material space which helps determine some particular ways to explore the material object.

This suggests a useful way to rethink experience of digital objects. Screen-based items can likewise generate a felt "tension" toward optimal access (through zooming, resizing, repositioning, selecting, or otherwise manipulating what is on display) without requiring a literal backside or a fully bodily "walk-around" profile. Thus, the present/concealed structure (and the felt "tension" toward optimal access) can also be used to describe key aspects of screen-based digital-object experience. Consider a digital letter-token on a display (e.g., an A-token). The token is presented in its current position, while what remains concealed includes its alternative positions and manipulable properties: its



modifiable color or size, and even its deletability (Ferro 2024). Because these possibilities are disclosed through exploration, the experience involves a standing tension toward further discovery and improved access. Now consider the digital objects that structure the non-immersive ABC episode reported by Oittinen and Räisänen (for instance, a blue color-token or a rainbow-shaped token). Here the present/concealed structure partly consists in public visibility and joint manipulability (e.g., repainting the rainbow token blue).

Spatiality in experience of objects is structured by a present/concealed profile and by felt tensions toward better access. This can be characterized with the normative notion of *agential space* of possibilities, instantiated differently across kinds of objects. With material objects, the relevant agential spatiality is defined by the object's materiality and therefore anchored in bodily exploration within material space. With digital objects on a screen, agential spatiality is defined mainly by the interface and software: what can be done *here* (select, drag, resize, recolor, delete) and what can be done *further ahead* (or *simultaneously*), or what cannot be done. The spatiality of digital experiences is governed by object-determined norms, in the same sense as experiences of material objects: they inform us about what can and cannot be done with those objects. As Ferro highlights: "[d]igital objects are thus real objects, which are made of bits and are perceivable by us" (Ferro 2024:72). Their bit-based nature does not define them completely (as in the case of material objects and its atom-based structure). For that reason, she points that "As [Yuk] Hui specifies, digital objects are better defined as *being in a network of relations*. Even [in my terms, *material*] analogue objects are related to each other and to the world; however, their transcendence is perceived by us as strong (they are difficult to destroy or modify). On the other hand, digital objects are perceived as having a weaker form of transcendence (they can be easily modified or destroyed), but their relationality is more articulated and pervasive" (Ferro 2024:72).

Given their fragility, digital objects may appear to be objects of pure imagination or fantasy, as Husserl sometimes suggests (O'Shiel, [The phenomenology of virtual technology](#); Ferro 2024). However, Ferro insists that "[t]he imaginative nature of digital objects applies only to the initial stage of their genesis, when they are in the mind of their creators. Once they are translated in bits and run by a program, they can be perceived by us" (Ferro 2024:73). It is then reasonable to insist that experience of digital objects therefore has its own present/concealed structure and its own tensional structured specified in terms of its own spatial-agential organization, realized within a coupled bodily material-digital circuit. These factors help explain how digital experience guides the agency toward digital objects, and how they diverge from experience of material objects.

The experience of digital objects in non-immersive contexts can count as non-illusory insofar as it is reconstructed within a different explanatory framework, namely, in terms of the normativity of an agential space structured by the nature of the digital object itself. According to Ferro, such an object is mind-independent with respect to the subject precisely because it is bit-dependent. On this reconstruction, the spatial dimension of digital experience need not resemble that of a material environment. Rather, it can be understood through the present/concealed structure of digital objects themselves, albeit under a weaker form of transcendence, as expressed in screen-mediated contexts. It is therefore unwarranted to require, by default, that screen-mediated digital experience emulate the experience of material objects. This proposal is broadly consistent with empirical findings showing that subjects learn how to deal with digital objects. As Slater et al. note, in a 3D chess scenario, "when participants touched a chess piece it would fly to its next location [...] No



participant found this odd, and when asked about it, one said that: *In this world that is the way things are*” (Slater et al. 2022:3, emphasis added).

3.2 Non-mediation in SoP

Non-mediation is often used as a central feature in theoretical accounts of SoP in digital contexts and, in turn, to explain why SoP is taken to be illusory there. It is typically characterized as an experiential feature produced “by means of the *disappearance of the medium* from the conscious attention of the subject” (Riva et al. 2015:74). On this view, non-mediation helps explain why ordinary experience involves a full, non-illusory sense of presence. As Smyth and colleagues put it, “presence is the sense of non-mediation; it is the sense of ‘being there’” (Smyth et al. 2015:241). Framed in this way, the same concept can then be used to support the assumption that SoP is illusory in digital contexts. In HCI, digital experience is, by definition, technologically mediated, and the medium is often difficult to ignore: we feel the VR headset or gloves, see the edges of the screen, or hear the keys as we type (O’Shiel, [The phenomenology of virtual technology](#)). Hence, on this line of thought, there would be no SoP in such contexts properly speaking; but when subjects do report it as non-mediated, it is treated as a “perceptual illusion of nonmediation” (Murphy and Skarbez 2020:4), because the subject “fails to perceive or acknowledge the existence of a medium in his/her communication environment and responds as he/she would if the medium were not there” (Lombard and Ditton 1997:9).

My proposal is to reassess the explanatory role assigned to nonmediation in accounts of digitally mediated presence. The point is that this conceptualization of SoP is misleading. Although they restrict their thesis to human-made mediation, it is plainly clear that experiencing enabling media does not make a SoP illusory: seeing through binoculars, speaking through a megaphone, or sensing the environment with a stick does not imply that subjects are not there. And they could agree, because technological media can “function as would a large open window, with the medium user and the medium content (objects and entities) sharing the same physical environment” (Lombard and Ditton 1997:9). What is relevant here is that the reason of this failure. In my view, it helps understand how SoP is embedded in digital experience. Contrary to this account, my strategy for defusing the assumption against non-illusory SoP in digital contexts is arguing that mediation is what explains how SoP is embedded in experience.

It is worthy start with the concept of transparency in experience. The experience of blind subject’s stick provides a canonical case. When a blind subject is engaged in the task of waking, attention is no longer directed *at* the stick (as an object attended) but *through* it (as an instrument), so that the environment is disclosed “at the tip of the stick, not at the tip of their fingers or the palm of their hand” (Carijo cited by Andrada 2020:3). In this account, the stick becomes part of the subject’s perceptual machinery (their body or more general, cognitive system) and is therefore out of the attentional consciousness. In this sense, the stick becomes *transparent*. I will refer to this as the nonmediation-as-transparency claim: the thesis that an experience is non-mediated insofar as it is transparent in this sense. Accordingly, all mediated experiences are *opaque*.

The first point is that nonmediation is not needed to explain mediated experience. I argue this by relating it to the notion of transparency in mediated experience. What is the transparency for? Recent reconstructions of the debate suggest a motivation: transparency explains the subject’s experience when the commerce with the environment is *quick, easy, and effortless* in ordinary



skilled activity (Andrada 2020). The account states that enabling media are not part of attentional experience. This trait of skilled activity often grounds that, under normal conditions, the body is neither an object of attention nor a tool. Ratcliffe argues that in the case of healthy body, “when one feels ‘at home’ in the world, ‘absorbed’ in it [...] the body often *drifts into the background*. It is that *through* which things are experienced” (Ratcliffe 2008:112, emphasis added). He adds that “the healthy body *is not an instrument used* but [...] underlies all dealings with instruments” (Ratcliffe 2008:118, emphasis added). If it is not an object or an instrument, then the body is transparent in ordinary skilled engagement. And therefore, the mind-brain-body circuit is treated as the default unit of analysis for cognition.

This criterion also be extended to experiences that are officially labelled as “mediated”, those enabled by an extra-bodily device: sticks, glasses, hammers, or computers used for playing Tetris or Neurofeedback (Facchin, [Phenomenal transparency](#)). If the *quick*, *easy*, and *effortless* trait of some skillful activities motivates an appeal to transparency, the same should hold for this (extra-body device) tools or technological devices in mediated experiences of skillful activities. The account says that such devices are opaque during novice use (i.e., during learning), or when use breaks down (e.g., through malfunction). And, after mastery, skilled performance invites the claim that those media recede from attentional experience and are *integrated* into the embodied cognition itself. For example, in “cases in which a brain circuit is replaced by an external silicon [or paper-notebook, aluminium-stick, iron-hammer, keyboard-screen] circuit that is connected [...] to the rest of the brain so that it plays the same role as the original brain circuit” (Chalmers 2019:11, square brackets added).

As I will argue, there are two reasons for claiming that skillful mediated experiences do not require transparency, they are opaque. This is relevant for assessing the explanatory role of SoP in mediated experiences. First, in the case of skillful tool-mediated experience, as Andrada (2020) notably highlighted, experts do not remove attention to tools; in a better interpretation, they attend selectively, guided by the task, an economical monitoring of only those features (grip, pressure, timing, contact) that matter for fine control, unlike the novice’s diffuse and unstructured focus. On this understanding, the guitar (i.e., the medium) cannot be transparent, even if the experience is skillful, and the overall experience remains opaque in the relevant sense.

Second, a similar point applies to skillful mediated experience in complex technological contexts, where the task is felt effortful through a more complex ‘mind-brain-body-technological-device’ circuit. Consider the following technology-mediated experience: speaking via a speech-generating device (SGD). Merleau-Ponty (2012) insists that speaking and thinking are not separated by a gap. Fluent speakers do not typically think about speaking. By contrast, SGD users “must use an SGD to speak their thoughts aloud” (Howery cited by Andrada 2020:17) and, as a matter of fact, communicate at rates reported of 15–25 times slower than natural speech (Beukelman and Mirenda cited by Andrada 2020:9). As Andrada suggests, the altered temporal profile can *reshape* how the task is felt: what is usually immediate (expressing their thoughts) may instead be experienced as *effortful* and *cumbersome*. If so, in this kind of mediation, transparency is unnecessary. Some aspects of the hybrid circuit mind-brain-body-SGD-system remain salient in attentional experience *as* something to be managed in the task-space. The overall experience of speaking with an SGD is opaque in the relevant sense.



The aim of this subsection is not only to argue that technologically mediated experiences are better described as opaque, but mainly clarify the theoretical resources needed to redescribe them in those terms. I draw on those resources to show how SoP must be understood if it is treated as embedded in technologically mediated experience. This claim forms the core of the framework I introduce in the final section to explain SoP in non-immersive ABC. The next subsection offers an initial outline of that framework.

3.3 SoP in artifact-mediated experience

The description of skilful experience as selectively attending to relevant features for fine control is the key. Subjects attend to the “object” or “objective” of the task (e.g., the melody being played, or what is being said in the case of an SGD) and to the media through which the task is performed (e.g., the guitar itself and the SGD). They distribute their attention to *what* they are doing and to *how* it is done, but not necessarily in the same way (Maneuvrier and Westermann, [The phi angle](#)). How should this difference be described? The guiding idea is that the task’s “object” or “objective” must figure in technological-device-mediated experience as something singular, in the sense that it must be picked out while performing the task (Merleau-Ponty 2012). Playing a particular melody (as in the guitar case) or producing a particular sentence (as in the SGD case) is precisely the point of each activity. However, if subjects had to singularize the enabling media by continually bringing them to the fore in experience through demonstratives (“this,” “that”), their performance would become clumsy and would likely fail (Dreyfus, [The myth of the pervasiveness of the mental](#)). On this rationale, the enabling media of experience need not be experienced under the same singularization constraint.

A full account of this difference exceeds this paper. For present purposes, one point suffices: technologically mediated activity, especially once we distinguish novice from expert performance, typically begins with uncertainty about *which* environmental features are task-relevant and *how* to use them, and shifts, during and after training, toward greater (not full) determination. In this sense, mediated experience involves rather continuous monitoring of internal/external resources (e.g., bodily states), the means of performance (e.g., a guitar or an SGD), and task-relevant outputs (e.g., the sound produced, the sentence being formed) in order to reduce uncertainty and determine the task’s “object” or “objective”. If we treat the relevant cognitive circuit as extended in a Chalmers-style sense (mind-brain-body-technological-device), these tasks require *attentional effort* to determine what matters within that large circuit through *distributed attentional* monitoring. This kind of attentional effort on the cognitive circuit is part of the overall experience of task performance in technologically and digitally mediated contexts (Maneuvrier and Westermann, [The phi angle](#)).

The distributed character of attentional monitoring across the circuit is crucial for explaining SoP in these contexts and its relation to the opaque/transparent character of experience. When attention ceases to be distributed, or when this movement breaks down, more attention and determinacy may be directed to mediational elements (e.g., the body or the technological device). Opaqueness then increases, transparency is lost, and it becomes implausible to say that the subject remains present in that task in the relevant sense: they disconnect from it, and SoP becomes practically negligible.



If this is correct, SoP in technologically or digitally mediated tasks depends on a balance between opaqueness and transparency, more precisely, on a balance between attention to enabling media of the experience (the how) and attention to environmental aspects (the what). In Andrada's terms, technologically mediated activity is best described as the integration of "inner and outer elements as a single problem-solving ensemble." This is illuminating because task success requires not only "motor skills... but also... interpretative skills related to the cognitive task" (Andrada 2020:10), that is, an understanding of what the task demands. If attentional monitoring across the inner-outer elements of the circuit (mind-brain-body-technical-device) is sustained throughout the task because (i) experience must remain opaque to some degree (the enabling media are ever-present in experience) and because (ii) determination (or singularization) need not be complete once and for all, then transparency in technologically or digitally mediated contexts is not an all-or-nothing phenomenon. The greater the opaqueness, the weaker the SoP; and if opaqueness/transparency comes in degrees, SoP plausibly does as well. This is part of the framework I propose for SoP in non-immersive ABC. The next step is to articulate this conceptualization of SoP with an empirical account.

4. Empirically informed accounts of SoP

This section reviews a selected set of empirical approaches to SoP to defuse the assumption against a non-illusory SoP in digital experience. The evidence suggests that SoP is a structured experience, (not a mere quale), and aligns closely with the phenomenologically informed descriptions. Although the empirical literature on SoP is enormous (since the 1990s), I focus here, for reasons of space, only on one broad and influential approach that is especially relevant to the present debate: the immersion-based accounts.

Much of the empirically informed theoretical literature frames SoP as a sensory, experience-based phenomenon tied to what the subject feels and does. Yet these same accounts also rely on what I will call the *Top-Down claim*: the idea that SoP is cognitively penetrable by prior knowledge, task expectations, emotional arousal, and normative framing, often introduced by experimenters (Slater et al. 2022; Pianzola et al. 2021). This is important because it reveals that, even within ostensibly experience-centered approaches, SoP is not treated as explanatorily insulated from broader cognitive and normative factors. As Slater et al. and Pianzola et al. note, even when a digital experience is subjectively compelling, reported SoP can diminish once participants are told that the apparently "realistic" experience is technologically mediated.

This is also true for immersion-based accounts. This concept is not univocal, operates at several levels. At the device-system level, "immersion" refers what the technology objectively delivers, implying what I call the *immersion hypothesis*: the more faithful the system's sensory stimuli/presentations are, the more immersive it will be felt. At the psychological level, other authors offer a bottom-up construal of immersion, as a feeling of being enveloped or surrounded by a multisensory virtual environment; meanwhile others offer a top-down construal, as a diegetic and affective absorption in fictional worlds and narratives or as a challenge-based, nondiegetic engagement with a task (Nilsson et al. [Immersion revisited](#)).

We can distinguish different levels of analysis of immersion: the system level (device-based features), the sensory level (the feeling of being enveloped), and the cognitive level (narrative or task-related challenge). Immersion-based explanations can then be framed in terms of how the



relations among these analytical levels support (or challenge) the immersion hypothesis. On one possible path, one may accept the immersion hypothesis by claiming that, if a VR system reproduces the experience of feeling surrounded by virtual objects, it thereby yields a basic SoP. On another path, however, one may reject the immersion hypothesis by linking the feeling of “being there” to what makes a place intelligible, for example by relating the sensory and cognitive levels of SoP (Slater et al. 2022; Pianzola et al. 2021). In what follows, I argue that taking distance from the immersion hypothesis has greater explanatory force.

There are two ways to take distance from the immersion hypothesis. First, based on Makransky et al.’s report ([Adding immersive virtual reality](#)), one can claim that SoP does not vary in intensity level between immersive and non-immersive conditions in tasks that require spatial experience (feeling of being in space) while, contrary to expectations, performance in such tasks can even be better in non-immersive setups. As Thorp et al. report, “placing objects in the environment and in relation to each other is easier to complete in a non-immersive environment, allowing for a better overview of the environment and object relations” (Thorp et al. 2024:8). This suggests, against the immersion hypothesis, that the experience of immersion and SoP are *not straightforwardly* related in any simple way: more immersion does not always imply more SoP.

A second way to take distance is through cybersickness (CS), the experience of feeling unwell when immersive setting becomes salient. If experience of immersion is modelled on the immersion hypothesis, CS should reduce SoP, yielding an inverse CS-SoP relation. However, the evidence reviewed by Weech et al. ([Narrative and gaming experience](#)) seems inconclusive, since reports of CS do not always eliminate positive reports of SoP, for they may also depend on variables beyond immersion alone: namely, on the narrative structure of the task. Indeed, “immersion alone cannot account for the positive correlations between CS and sense of presence” (Thorp et al. 2022:10). To account for this, they suggest that the positive correlation is hold “for the contents of the simulation” (Thorp et al 2022:10), that is, if participants are attentively and affectively engaged with the task. Merz et al. (2025) conducted cross-device studies of asymmetric collaborative settings: one subject with VR-setting and the other one with a laptop. SoP and co-presence reports were similar for both subjects, plausibly because cooperative demands were held constant (participants had to sustain the conversation). In this scenario, immersion device-setting did not alter the felt sense of “being there *with the other*.” They stress that “this task characteristic likely led to the diminished effect in the social presence of the asymmetric device configurations in this specific scenario” (Merz et al 2025:536).

Both reasons go against the simplistic reading of the immersion hypothesis. What seems centrally in explain the intensity of SoP are the cooperative demands of the task and, relatedly, what participants are attending to. Attentional exercise (what participants attend to: their doings, and thus the content and organization of the task or game) may better predict positive SoP outcomes. Immersive experience does *not* significantly affect conversation quality or social experience. However, it is worth noting that Merz et al. (2025) also report that when the task changes (e.g., not conversing but jointly sorting objects in a cross-device scenario), the immersion hypothesis may hold in a nuance understanding. Thus, greater immersion tends to yield higher SoP, but *only relative* to the changing task background.

Taken together the comparisons in Weech et al. ([Narrative and gaming experience](#)), Thorp et al. (2022) and Merz et al. (2025), these findings suggest that a *plain* interpretation of immersion



hypothesis is false. It is not only what the digital systems delivers in terms of how realistic the placement/location experience could be what explains the SoP in digital contexts. On the contrary, and being consistent with the Top-Down claim, the immersion–SoP relation is *sensitive to* an additional variable: the task and the factors that connect agents to it, such as *attentional focus* (Murphy and Skarbez 2020; Maneuvrier and Westermann, [The phi angle](#)). This supports a kind of normatively or task-based approach on SoP.

If so, SoP is better described as an experience more sensible to its own normative traits and only modulated by its spatial traits. A fuller story should grant a role to felt location as a scaffold, especially with longer exposure in richer immersive environments (Thorp et al. 2024), but not as a more basic or independent driver of SoP. This view explains why the felt spatial immersion can increase SoP, but typically only against an already established task-normative structure; why SoP need not to vary always on immersive and non-immersive setting, and why the non-immersive contexts can still sustain a strong SoP.

According to this rationale, SoP is a structured feeling of “being there” that should be understood through the conjunction of two claims. On the one hand, SoP varies in intensity depending on how system-based immersion enhances experience, as suggested by more nuanced interpretations of the immersion hypothesis. On the other hand, such variation is intelligible only against the background of the task’s normative framework, with which subjects are affectively engaged, as the Top-Down claim suggests.

The next step is to integrate the phenomenological discussion with the empirical findings on SoP in order to address the paper’s central challenge: to defuse the deep-seated assumption about digital experience that blocks the inference to a non-illusory SoP in non-immersive ABC, and to articulate a framework within which presence can be studied as a genuine, rather than illusory, phenomenon in non-immersive social interaction. The central contribution of the paper is thus to reinterpret SoP in non-illusory terms.

5. A framework for (non-illusory) presence: final remarks

The paper defends the inference that, if ordinary ABC involves a non-illusory SoP, the same should hold for non-immersive ABC. It does so by attempting to defuse the idea that SoP is illusory in digital contexts and by motivating an alternative framework within which SoP can be understood as non-illusory and presence as genuine. This effort begins from a minimal point of theoretical agreement: that SoP is adequately captured by the formula “feeling of being there.” What remains disputed is how this formula should be unpacked. The proposal advanced here can be clarified by contrasting that formula with the received account of SoP. On the received view, “there” refers to a region of material space in which the subject’s biological body is located. “Being” refers to the functioning of the perceptual-cognitive system as it becomes sensorily and informationally coupled to what occurs around the body, responds to sensorimotor contingencies, and yields the sense that what is registered is real, or at least plausible (Slater et al. 2022). “Feeling,” in turn, is treated as the qualitative aspect of the ownership of experience, which some empirical accounts take not to be constituted by the “being” or the “there,” thus allowing it to occur without them (Maneuvrier and Westermann, [The phi angle](#); Skarbez 2016). On this picture, SoP is the sense of bodily perceiving, or being sensitive to, the environment in which one’s material body is located. For that reason, SoP in digital contexts is treated as illusory.



Against the received view, my proposal rests on a phenomenologically informed and empirically motivated reading of the formula. It emerges from the mutual support between these two approaches. In phenomenological reflection, SoP is not merely the experience of occupying a place, but of being an agent within an agential space. This space is structured by the nature of the object of experience (whether material or digital) and sustained by affective engagement with the means through which the task is pursued (whether the body or a wider mind–brain–body–technology circuit). If so, this supports rejecting both a simplistic reading of the immersion hypothesis and Slater et al. (2022) claim that sensitivity to the environment in which one’s body is located is sufficient for full SoP. Conversely, empirical findings that support for the Top-Down claim reinforce this phenomenological proposal. Phenomenology likewise suggests that SoP is mediated and gradable, depending on how opaqueness/transparency is experienced. This fits and helps motivate the conjunction of a nuanced immersion hypothesis and the Top-Down claim: SoP varies with immersion only against the background of affective engagement with the task and is shaped not only by the structure of digital environment but also by the task’s normative conditions as they figure throughout experience.

The core of my framework lies in a reinterpretation of the formula “feeling of being there,” one that reallocates the explanatory roles of “feeling”, “being” and “there.” On this reinterpretation, “there” refers to agential space. As argued throughout the paper, this space is shaped by the digital or material character of the experienced environment and by the structure of the task in which the subject is engaged. Together, these determine what can be done, what cannot be done, and what must or must not be done for the task to be successfully carried out. “Being”, in turn, consists in being an agent who exercises attentional capacities to carry out a task to which they are affectively connected. In doing so, subjects attempt to determine *which* features of the environment are relevant to task completion, thereby reducing uncertainty about how the task is to be completed. To achieve this, the agent moves through tensions constituted by the constraints imposed by the task, the object, the environment, and their own exploratory activity. “Feeling” names the affective dimension of this attentional activity: it connects the subject’s point of view and sense of mineness (Dokic 2024) with the broader mind–brain–body–technological device–digital environment circuit. Unlike the received view, this affective dimension has an immanent intentional structure (akin to Colombetti’s notion of *feeling toward*) because it cannot be specified independently of the object’s features and the task’s constraints, which partly constitute it. What is affectively felt, then, is the tension that attracts the subject’s attentional activity and coordinates the different aspects of that broader circuit during task resolution. In this sense, *feeling* is the cognitive effort involved in singling out aspects of an environment that resists determination.

On this framework, SoP is an affective-attentional experience of an agential space structured by the digital object, the task’s constraints, and the subject’s engagement with both. This space is partly constituted by the broader ‘mind–brain–body–technological device–digital environment’ circuit and is experienced as organized by an open-ended tension concerning which features of that circuit are relevant to task resolution. This affective-attentional experience is neither fully transparent nor fully opaque in the relevant sense. In digital contexts structured by this kind of circuit, SoP unfolds through a fragile dynamic of determination and indetermination (or what has been called ‘presence-concealment’ structure) which varies according to the degree of resistance presented by the relevant features of that circuit. Since such resistance is itself gradable, SoP is graded accordingly. In this sense, in this framework SoP unfolds wherever there is a task to be resolved.



5.1 Limits of the framework: joint sop and displaced presence

This framework makes room for the inference to genuine presence in non-immersive ABC. But it does not yet amount to a complete account of presence in such cases. On the present view, subjects in non-immersive ABC can be *genuinely* present insofar as they are engaged in an embodied, affective-attentional effort to resolve a task within a digital environment constituted by the structure of the task and the digital object. But this alone does not explain how another subject may non-illusorily experience other's presence, or how both forms of SoP may amount to joint SoP with some kind of overtness in that affective attentional effort. Recent work on digital joint attention may help provide the basis for extending the framework in that direction (Chambliss, [Attending together in digital environments](#)).

This framework is compatible with the idea that, in digital contexts, SoP may be *felt as displacing* toward the digital environment. On this view, the “there” in the *feeling of being there* is not merely the location of the biological body, but the “site” of affective-attentional engagement where task-resolution is at stake. In digitally mediated cases, although the subject remains bodily *here* in material space, their (sense of) presence may be felt as *displaced* toward the “there” where attentional effort is concentrated: the digital environment itself. This displacement is not complete, but *ongoing* and *gradable*. Because attentional effort remains distributed across the broader ‘mind-brain-body-technological-device-object’ circuit, presence is never fully displaced. Rather, it is felt as displacing by degree depending on the tension felt in task resolution and on the opacity of the mediating means.

A remaining question, then, is how to explain this sense of “being displaced there” without reducing it as merely metaphorical or illusory by default. At this point, the paper only points in the direction of an enactive-ecological reading of predictive processing (Bruineberg et al. [The anticipating brain](#)) as a possible way of sketching how subjects can be present in non-immersive ABC, and how such presence may be felt as displaced: not as metaphor, nor as illusion by default, but as a mode of agency enacted under technologically mediated constraints.

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