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Learning to Walk and Talk (Again):

What Developmental Psychology Can Teach Us About Online Intersubjectivity

Abstract: Since the advent of the internet, researchers have been interested in the intersubjective possibilities and constraints that digital environments offer users. In the literature, we find some who argue that seemingly disembodied digitally mediated interactions are severely limited when compared to their embodied face-to-face counterparts and others who are more optimistic about the possibilities that such technologies afford. Yet, both camps tend towards offering what we see as static accounts of online intersubjectivity – accounts that attempt to determine the very possibilities and constraints of digital platforms based upon their design. What we think these approaches fail to take into account is how users' intersubjective capabilities on digital platforms can evolve and change over time. Developmental psychology emphasises the way in which intersubjective capabilities build upon and are interrelated to one another, allowing for more sophisticated styles of intersubjectivity to emerge only once earlier stages are already in place. We find this suggestive for analysing intersubjectivity online as it provides a framework for thinking about how various an individual's intersubjective capabilities might develop. We argue that in some cases this can happen through gradual adjustments of our basic intersubjective capabilities to digital spaces, especially those that strive to mimic established forms of offline interaction (e.g., Zoom). In other cases, this can involve more substantial processes of learning to walk and talk again online. Consequently, determining the possibilities and limits of online intersubjectivity is, at least in part, relative to a user's skill, history, and familiarity with the technology in question.

Keywords: online intersubjectivity; digital spaces; developmental psychology; social cognition; phenomenology

1. Introduction

Our ability to understand other people is something that develops early and continues to refine over time. We inhabit a social world populated by other people with all manner of intentions, worries, hopes, interests, opinions, etc., and our intersubjective relations are shaped by our bodies, cultures, histories, and norms. We engage in all manner of social interactions from listening to jointly attending to sharing experiences to acting together. The intersubjective competencies required to navigate this complex social landscape are as manifold as the different social spaces and contexts that make up the landscape itself, and are, in large part, learnt through exposure, experience, and guidance.

Developmental psychologists have argued that basic social capabilities usually emerge in early infancy, and many present intersubjectivity as something that progresses in stages over the first few years of our lives (e.g., Fuchs 2015; Gallagher 2008; Hobson 2002; Stern 2010; Tomasello et al. 1993; Trevarthen 1979; Trevarthen and Hubley 1978). While there are discrepancies in how these early junctures of intersubjectivity are defined and partitioned, what these conceptions of human intersubjectivity have in common is a view of social capabilities as something dynamic that develops over time from the more basic (e.g., recognising expressive behaviour) to the more sophisticated (e.g., joint attention, mentalizing). These approaches present general developmental accounts of the basic building blocks of human social capabilities, often by foregrounding, at an individual level, the essential role of bodily, dynamic, and temporally extended engagement with others for progressing through these foundational intersubjective stages. Of course, as lifespan developmental psychologists point out, our social development does not stop here, but continues to mature, refine, and adapt throughout our lives (Goulet & Baltes 2013).

The rise of digital technology prompts questions about if and how our social capabilities acquired in early infancy, and refined throughout our lives, operate in these digitally mediated social spaces. Over the last decade, research concerned with online social encounters has exploded (e.g., Aagaard 2022; Bizzari 2022; Bortolan 2023; Dolezal 2020; Ekdahl & Ravn 2022; Elliot 2023; Fuchs 2014; García et al. 2023; Gräfinfelde 2022;

Horenstein et al. 2023; Osler 2020, 2024; James & Leader 2023; Vidolov 2022). While enriching our understanding of online social spaces and experiences in many ways, such accounts have primarily been concerned with the question of whether digital platforms can support specific forms of online intersubjective interaction (e.g., empathy, intercorporeality, interaffectivity, shared experiences). As such, research into online intersubjectivity has generally attempted to determine whether certain forms of social capabilities can or cannot be supported by digitally mediated environments. While analysing the design of digital platforms is important for understanding online intersubjectivity, claims and results based on such approaches risk leaving out of the picture important temporal and dynamic considerations regarding how users, over time, and in different, subtle, and nuanced ways, learn to navigate digital social environments. As such, these approaches can be described as adopting a relatively static picture of online intersubjectivity.

The practical consequences of adopting a static approach are significant. For, in doing so, we risk drawing conclusions about the very possibilities and limitations of online intersubjectivity without considering how the users' historic experiences shape such possibilities and limitations. On the one hand, if analyses are based upon non-habituated subjects' accounts of online intersubjectivity, a fuller picture of online intersubjective possibilities might fail to come into view. On the other hand, if we focus only on the accounts of subjects with relatively developed online social skills, we risk neglecting the significance of what it can mean to first move into an online social space, leaving out how those social capabilities arise, how they interlink, and how they might build upon one another in different digital contexts.

Our aim is to show how turning to developmental psychology can be fruitful for analysing intersubjectivity online. To be clear, we are not setting out to revise or revolutionise developmental psychology by arguing for the inclusion of new general developmental stages to be established in relation to online intersubjectivity, nor consider whether using digital technology impacts the acquisition of social cognition skills in early infancy. Instead, what we are interested in is the way in which accounts of early intersubjectivity emphasise that intersubjective capabilities are interrelated and emerge through dynamic interactions

with others. We suggest that these frameworks are suggestive for thinking about how an individual might develop increasingly sophisticated intersubjective capacities when they are no longer interacting in physical co-presence but mediated via digital technology. We argue that, in some cases, this might happen through an acclimation of our intersubjective capabilities to digital spaces; in others, this might involve more substantial processes of learning to walk and talk again online.

Theorising about online intersubjectivity through a dynamic developmental lens, we argue, allows a clearer picture to emerge about what it means to socialise online, and account for the great disparity between how different people (and researchers) describe online social life. Moreover, it reveals that using a digital platform not only might lead to an individual refining one particular intersubjective capacity in that context but points to the way that, through use and interaction, increasingly sophisticated forms of intersubjectivity might arise, even potentially allowing for new and creative styles of interactivity. Note that we intend to construe ‘online intersubjectivity’ broadly here and use it to refer to social interactions that are mediated via digital technology. Importantly, in construing this term so broadly, we are not suggesting that there is a unified account of online intersubjectivity. Indeed, in attempting to understand how digital technology shapes our social encounters with others, we think it essential to adopt platform- and even user-sensitive analyses. However, we think this term is warranted as we are advancing a methodological approach that can be applied to various platforms.

In the following, we first introduce an analogue (i.e., non-digital) developmental approach to intersubjectivity. Next, we motivate applying this to online contexts. We do so by turning to concrete examples of online sociality that showcase the promise of using this developmental strategy to illuminate online intersubjectivity. We conclude by discussing several implications of our claims for future research into online intersubjectivity.

2. An analogue developmental approach

The idea that certain basic intersubjective capabilities of humans develop in early infancy in a stable manner is supported by a wide array of developmental research (e.g., Fuchs 2015;

Gallagher 2008; Hobson 2002; Stern 1985, 2010; Tomasello et al. 1993; Trevarthen 1979; Trevarthen and Hubley 1978), often based on models outlining distinct, relatively uniform, stages of early life. For our purposes, two features characteristic of these developmental accounts of early intersubjectivity are worth emphasising. First, they often revolve around bodily *interaction*, focusing on the progression through these intersubjective stages through our *corporeal*, *dynamic* and *temporally-extended* engagement with the world and others around us. Second, these developmental accounts are typically *hierarchical*, viewing our early intersubjective capabilities as acquiring new layers of texture and complexity over time. The stages of development identified are generally not treated in these models as upgrades *replacing* the foregoing layers, but as something that expands on, refines, and depends on earlier developmental layers of intersubjectivity.

Let us look at an example of such an approach. Based on a wide array of developmental research spanning over forty years, including a range of phenomenological and enactivist literature (De Jaegher & Di Paolo 2007; Gallagher & Zahavi 2008), Thomas Fuchs (2015) outlines a useful developmental model of early intersubjectivity. As Fuchs' account already contextualises a range of developmental literature, it will here serve as a general framework for an analogue developmental model. Parallels to additional developmental research will also be highlighted to further contextualise the kind of interactive, hierarchical approach to our basic social capabilities we aim to explore in the context of online spaces.

According to Fuchs, our early social capabilities roughly develop in three distinct stages or layers. The primary layer generally matures during the first year of life, and is characterised by an increasingly refined, pre-reflective, bodily attunement to others. This stage is characterised by so-called proto-conversation and simple forms of dyadic reciprocity – two-way interactions between the infant and the other, typically a caregiver (Tomasello 2001). The infant learns to elicit its caregiver's attention, to share pleasure, etc. In this regard, the infant learns to interactively respond to, partake in, and grasp the meaning of *expressive behaviour*. That is to say, the infant learns to understand the behaviour of others as dynamic phenomena that express intentions and emotions in the world. Developmental psychologist Daniel Stern (2010), in this context, emphasises the centrality of the infant's

ever-refining sensitivity to others' *forms of vitality*, or expressive styles, for the development of the child's affect attunement capabilities. Doing so, Stern (2000) argues, is intrinsically bound up with the infant's early evolving sense of a bodily self.

The maturing of our early, pre-reflective, largely embodied, social capabilities is essential, Fuchs argues, for the development of so-called secondary intersubjectivity, which begins taking shape as the child reaches approximately one year of age. In this secondary stage, the young child begins engaging in a shared, social manner with surrounding objects. In this way, the child's dyadic and reciprocal manner of relating to others continues to refine, eventually culminating in the ability to engage in triadic interactions, characterised by *joint attention* and relating to others as intentional, world-directed, bodily beings (Tomasello 2001). It is also around this time that the act of pointing notably begins to develop (Fuchs & De Jaegher 2007; Vygotsky 1978). Last but not least, it is characteristic of this secondary layer of intersubjectivity that language begins taking shape (Fuchs 2015; Stern 2000).

With the above range of capabilities in place, the final layer of early intersubjectivity develops. At this stage, the child, usually around the age of four to five years old, develops the more inferential social ability of *mentalizing*; of understanding others as mental agents with beliefs that might differ from their own. It is at this stage that the child usually begins passing so-called *false-belief tests*, able to grasp that other children can be mistaken about states of affairs that the child itself understands.

The developmental model of Fuchs, like many other similar accounts, is committed to the idea that our intersubjective capabilities mature and refine in the early years of our lives in a relatively uniform manner. In this way, the above developmental story of our basic intersubjective capabilities ends around the age of five, reaching a sort of pinnacle in the form of the child's mentalizing or theory of mind-oriented capabilities. Based on this repertoire of intersubjective capabilities, the child then continues to deploy these forms of social know-how throughout their life, across the many different social spaces they come to inhabit.

Yet, the ability to deploy these developmental capabilities later in life in contexts beyond familiar dyadic and triadic settings, often depends significantly upon individual degrees of acclimation or attunement to the concrete social interactive spaces one navigates throughout life. In the world of competitive team sports, for example, learning to read and understand the body language of others, and to understand the place and role of one's own expressive body, within this competitive context are integral parts of successful performance. The intersubjective capabilities of a football player in grasping an opponent's emotional state of mind or their practical intentions, based on the way they move and act with their physical body, can be as integral as one's ability to feint emotions and intentions with one's own moving body before one's opponents. That is to say, mastering the social space of a competitive team sports means learning to deploy basic intersubjective capabilities established at a young age in a specific, new context.

Something similar might take place when we travel from one socio-cultural context to another. While our social competency across different contexts remains underpinned by our basic intersubjective capabilities acquired in the defined developmental stages, the dynamics and norms governing these engagements can differ. When we first move into a new social situation, before we have adjusted to these new styles of interaction, we might experience social doubt, uncertain about whether we are understood and how to understand others (Roberts & Osler 2024). However, as the traveller adjusts to these new dynamics and styles, their intersubjective capabilities can successfully be enacted, and, ideally, their ability to successfully engage in reciprocal interaction, and so on, is reestablished.

While the case of the footballer and the traveller do not involve progressing through new developmental stages, learning to deploy one's fundamental social capabilities effectively in contexts like the above requires dynamic acclimation and attunement over time through interaction. In other words, it pertains to the individual's continuing social development.

3. Motivating a developmental approach to online intersubjectivity

When it comes to research on online intersubjectivity, we, broadly speaking, find a divide in the literature. On the one hand, we see researchers who claim that when we ‘go online’ we predominantly engage in disembodied communication with others via symbols and images (e.g., Bizzari 2022; Dreyfus 2008; Fuchs 2014; Turkle 2017). As a result, many of the social interactions and skills that we engage in and rely on from the offline world reportedly disappear or are severely constrained. For instance, we find concerns about the lack of: bodily engagement with others (Bizzari 2022; Collins 2020), eye contact (Friesen 2014), a shared world (Svenaesus 2021), embodied empathy (Fuchs 2014), and emotional vulnerability with one another (Turtle 2017). Some go as far to imply that we do not actually encounter others online but only our own projections, imaginations, and representations (e.g., Fuchs 2014). Not surprisingly, such accounts are often quite pessimistic about the possibilities for meaningful and successful social encounters and typically highlight the drawbacks and limitations of engaging with others online.¹

On the other hand, we find researchers who suggest that a rich array of social encounters and interactions can and do take place on digital platforms, including: perceiving (bodily) expressivity (Kekki 2020; Osler 2024), experiencing togetherness online (Eickers 2024; Osler 2020, forthcoming; Svenaesus 2021), intercorporeal interactions (Ekdahl & Ravn 2019, 2022; Elliot 2022; Vidolov 2022), joint attention (Tanesini forthcoming), and experiencing virtual environments as social spaces (Osler & Krueger 2022). Moreover, while many accounts have focused on how offline styles of interaction can also take place via digital mediation, there is also a growing interest in the way that online environments can offer different *kinds* of social encounters (James & Leader 2023; Osler & Zahavi 2022). Such accounts tend to be more positive about the ability to engage with and understand others when participants are digitally mediated, often making specific distinctions between the different kinds of social possibilities that various digital media can support or facilitate.

Interestingly, it is not possible to account for the split between the two ‘camps’ simply by pointing out that researchers are looking at different online platforms, for many of those on

¹ Notably, some analyses of online intersubjectivity stress that seemingly disembodied aspects of online intersubjectivity can be a positive social feature (e.g., Bortolan 2023).

either side of the debate reach conflicting conclusions regarding the same technologies. Nevertheless, while the two camps seem to hold little in common, there is a trend across much of this research in presenting relatively static accounts of online intersubjectivity; typically focusing on whether a certain kind of intersubjectivity either *is* or *is not* possible online, or the concrete (dis)embodied impact of one virtual practice or another. In other words, the focus is on the technology itself, asking what kind(s) of social interaction can or can't be supported for a supposedly universal subject. The user as an individual, therefore, is not thematised.

Approaching online intersubjectivity statically, in our opinion, leaves out of the picture how one's engagement with, understanding of, and experience of others in various digital contexts can dynamically change over time, including how these changes might depend on learning how our basic social capabilities might function in online spaces. Adopting a developmentally-inspired approach to online intersubjectivity can, we suggest, help capture the nuances of these processes. Doing so not only enriches our understanding of these changes, it also helps unpack the seemingly conflicting reports about experiences of socialising online without denying the broad spectrum of experiences people have when using digital technology for social purposes.

Notably, some researchers have explored how virtual acclimation or attunement can impact one's experience of online sociality. For instance, Ekdahl & Osler (2023) point to expertise as an important factor in pro-gamers' perception of other people's avatars as expressive, describing this in terms of an acquired social know-how. James & Leader (2023), too, highlight how the development of 'digital tact', involving an increased sensitivity to the norms and values of digital spaces, leads to increased skilful interaction and involvement in online social spaces. Skill is also highlighted as underpinning various digital divides between those who are comfortable and not comfortable using digital technology for a variety of purposes in one's life (e.g., Van Deursen & Van Dijk 2011). Nevertheless, how these capabilities arise over time and their impact on agents' online social interactions in particular, have yet to be fleshed out.

4. Taking social development online

Drawing on the framework and concepts introduced above, we illustrate how bringing a developmental perspective to online intersubjectivity might work. In doing so, we hope to showcase the promise of an approach that captures how online intersubjective capabilities can (re-)emerge, build upon, and enrich one another. Again, we are not claiming that this amounts to a new developmental stage that needs to be added to an evolutionary picture of humankind's psychology. Rather, we want to put to use insights drawn from developmental psychology about the interactive and hierarchical way in which social capabilities relate to one another.

For simplicity, we have based our analysis of online social development on the intersubjective stages set out by Fuchs. While we think that there is promise in doing so, we should be careful to not assume that the developmental story always progresses in the same *manner* online as offline. Our analysis, therefore, does not aim to be definite but rather exemplary of the proposed approach.

4.1. *Old faces, new spaces*

Zoom, like many other video-conferencing platforms, in putting us in digitally mediated 'face-to-face' with one another, seemingly facilitates forms of intersubjectivity that resemble in-person interaction. Yet, when Covid first hit, Zoom meetings struck many as socially uncanny compared to in-person meetings. Reports of Zoom "just not being the same" and a new research focus on *Zoom fatigue* became commonplace (e.g., Aagaard 2022; Shoshan & Wehrt 2021). This led some to suggest that Zoom, in disrupting our bodily social capabilities, hinders pre-reflective bodily dynamics, leaving us increasingly reliant on inferential mentalizing to understand others in these digital contexts (e.g., Aagaard 2022; Collins 2022), something that is likely more cognitively onerous and thus tiring.

Criticisms of Zoom meetings as incapable of living up to face-to-face standards or unable to facilitate analogue social fidelity are incomplete, as James and Leader (2023) note, because for in-person meetings, the bodily social know-how needed to support offline meetings are

already established. That is to say, such accounts have not explored whether further attunement and extension of our established social capabilities are needed to properly support these online interactions. Rather than solely accounting for these experienced social discrepancies during Zoom statically, that is, as resulting from necessary limitations of the platform itself, we might with a developmental perspective in mind, apply a more longitudinal analysis.

So, what might a developmental approach to Zoom interactions reveal? Clearly, when we begin to interact with people on Zoom, we are not thrown back to our neonatal selves, needing to acquire basic intersubjectivity from scratch. Even digital natives are using digital technology alongside face-to-face interactions. Nevertheless, our basic social capabilities as acquired in the offline domain, may need to be adjusted to this digital setting. We suggest that thinking about our adjustment to Zoom through the three basic intersubjective stages is helpful for thinking about how this comes about and might be achieved in new ways.

Mirroring the primary stage of intersubjectivity, we might point to the way that, through use, we learn how we appear to others on-screen and come to adopt more obvious expressive behaviours from the shoulders up and use more explicit gestures to signal, for instance, listening (e.g., nodding, smiling, thumbs up, using the clapping emote) as a way to more easily establish dyadic reciprocity. Following Stern (2000), we might say that this involves becoming aware of oneself as a digitally mediated bodily self. From here, establishing joint attention and co-ordinating more sophisticated forms of bodily reciprocity and attunement, for instance, might be possible. While the dynamics of Zoom interactions are different to face-to-face interactions, over time our capabilities, and importantly our expectations, adjust as we get better at navigating these digital spaces. Indeed, for some people, these new dynamics of interaction may, in fact, aid social cognition (Bortolan 2023; Osler 2024).

Interestingly, users also can creatively employ new ways to achieve basic forms of intersubjectivity on video calls. Think, for instance, of the way in which bodily orientation might be threatened on Zoom, where it is difficult to perceive who is addressing whom in

group calls (Pawlett-Jackson 2022). However, one might use in-Zoom chat or other texting platforms to communicate with another person in a Zoom room to orient each other's expressive behaviour. When you are texting with someone behind the scenes and they break into a smothered laugh, you not only recognise the other's expressive response but understand that it is directed at you (rather than all the Zoom room participants). Adjusting to a Zoom environment, then, may go beyond simply adapting to new dynamics and norms of interaction (perhaps akin to our footballer or traveller examples above), but also involve learning new ways of inhabiting and using a digital environment to support the emergence of intersubjective interactions like joint attention in new ways. Crucially, this seems to rely upon the user first coming to appreciate how they and others expressively appear and occupy these spaces together before this more sophisticated form of intersubjectivity emerges.

Whereas mentalizing might at first play a central and important role for our intersubjective understanding on Zoom (Aagaard 2022), from a developmental perspective, we might expect over time that, as our basic intersubjective capacities re-emerge in this online context, this overreliance lessens. Moreover, one's ability to mentalize becomes enriched, for it is now underpinned not only by attunement to social bodies in offline spaces but to these spaces' social interactive patterns and styles. This dynamic picture matters, because it reveals how the intersubjective possibilities that a person experiences Zoom having, at least partially, depends on how far along this journey they happen to be.

4.2. Learning to walk and talk again

What, though, about forms of social interaction that are digitally mediated but that do not seem to have the kind of high fidelity to face-to-face encounters that video-conferencing technology has? Intersubjective encounters that take place via avatars or text might not look appropriate for the kind of analysis that we are offering, as they do not allow for the bodily expressivity that seems to underpin the developmental story offered by those such as Fuchs. Remember, however, that an important developmental step involves the infant learning to grasp the expressive meaning of the behaviour of others – something that then

further matures and refines throughout the infant's interactional history with those around them. We suggest sufficiently proficient users of various online spaces can, through temporally-extended online interactions, acquire a sensitivity to the more basic forms of expressivity of other users and, thus, the potential to acquire increasingly sophisticated intersubjective capabilities.

Consider the refined sensitivity to the expressive vitality contours of other players identified in the case of competitive video gamers. Initially, when entering a gaming world, the avatar body that we and others use, as well as the virtual world itself, might appear minimally expressive, even nonsensical (Klevjer 2012). Indeed, we may be too preoccupied with working out how to move our own avatars and navigate the virtual space to even attempt to grasp what other players are up to. However, evidence suggests that the way player avatars move through and orient in the virtual world can come to acquire new layers of social salience for habituated practitioners (Ekdahl & Osler 2023). That is to say, for proficient gamers, the avatars' movement styles of other players can come to be immediately expressive of intentions and affective states – including in ways of strategic relevance to the players themselves. The players' history with and mastery of the particular range of avatars' interactions that characterise the game go hand-in-hand with the achievements of our basic forms of social capability.

Avatarial expressivity in any game will, on our account, be less socially salient for untrained players than it will be for trained players. Thus, accounts of, e.g., avatarial interactions that stress their syntheticism and lack of social fidelity compared to analogue interactions (cf. Svenaeus 2021), while in one sense accurate, might only reflect one end of a broader developmental spectrum of avatar interactivity. Indeed, part of the developmental story might be moving away from expecting avatarial interactions to look like face-to-face ones and experiencing them as meaningfully expressive in, developmentally speaking, familiar ways, yet through radically different expressive means. Conversely, accounts that paint rich but relatively static portrayals of avatar embodiment (Ekdahl 2022) risk overlooking the different degrees of social saliency that can characterise avatarial interactions for different people.

As another example, take the way in which we might, over time, become more attuned to the expressive style of others when texting. At first, users might experience instant messages as vehicles for conveying information. Thus, texting might seem to allow for communication but not, properly-speaking, social *interaction*. Yet, over time, users may grow more sensitive to the style with which someone texts – e.g., in long thought-out messages versus quick fire responses – which can vary from context to context and person to person. Our understanding of others is enriched as we adjust to and adopt new norms of expression (e.g., around response time, capital letters and emoji use, conversational back-and-forth rather than email length messages) (Allan & Budd 2023). We might also become particularly attuned to the expressivity of those we know well and who we've interacted with often. Note that not only might one develop a sensitivity to another's vitality style, this can also shape how we ourselves text. For instance, we might tend towards expressing excitement over a close friend's good news in short, fast messages, rather than sending a block text. Again, through use, one might develop a sensitivity to others' expressive behaviour, an increased awareness of how oneself appears to others in this online space, and the ability to engage in reciprocal interaction.

As in the case of offline development, we suggest that the achievement of basic forms of social capability in these new contexts can ground the emergence of more complex forms of interactivity. This includes being able to participate in triadic interactions involving the participants jointly attending to objects in their shared worlds. Thinking of our gaming example, as players become better at understanding the expressive styles of their co-players' avatarial behaviour, we might suppose that they are more easily able to engage in something that looks like joint attention in the virtual gaming world. Consider, for instance, how, as one's ability to move and use one's avatar improves, players can draw one another's attention to virtual objects in the gaming world by running up to them or around them, or merely signalling one's attention to them by standing in front of them. Thus, players can learn to reveal their attention and draw the other's attention to the shared world around them and come to coordinate their actions and activities (Ek Dahl & Ravn, 2022).

On WhatsApp, and other text communication apps, through joint indications such as “X is typing” and the blue ticks to confirm that a message has been seen, someone with sufficient social habituation to the platform may come to experience themselves and the other as socially *present*.² As messages are sent back-and-forth, this may support the experience of not only apprehending the expressive tone and style of the other, but also a sense of sharing in a dynamic and reciprocal conversation with them. An important part of this stage may involve acclimatising to the (typically) longer response times that occur when we are texting with one another compared to the immediacy of a face-to-face interaction. This involves developing a sensitivity to the rhythm of reciprocal interaction that takes place in the context of text communication, as opposed to offline interactions, or even other forms of digital interaction (e.g., on Zoom). Moreover, by sharing GIFS, photos, or videos, users may triangulate their joint attention to these shared virtual objects, creating a sense of sharing (at least partially) social space with one another.

Even where digitally mediated interactions present as substantially different to offline interactions, there is still a developmental story to be told. Where the case of Zoom may look more like an adjustment of bodily interactivity to new digital spaces, the cases of avatar and text-based interactivity more clearly involve learning to walk and talk again. We are not suggesting that this involves new developmental stages per se. Rather, seeing how individuals progress through these hierarchical stages once more in these new contexts, gives us a more nuanced framework for analysing how intersubjective capabilities can (re-)emerge in digital domains. To put it another way, it might be worth considering how intersubjectivity emerges in its own right, in a developmental manner, in these new spaces, rather than purely in terms of how well or not our intersubjective capabilities translate to these spheres. Again, this highlights how the limitations of a digital technology for social interaction are no longer simply pegged to the design of the platform (and how different or not they are to offline interactions) but are impacted by the user’s place in their individual developmental story.

² Note that it is now possible to disable some of these features. One might suggest that this is precisely to avoid appearing as present in shared space with others.

Implications and conclusion

We have explored the idea that insights from developmental psychology can play an important role for understanding online intersubjectivity. What we propose is a dynamic and temporally sensitive approach to online intersubjectivity; one that pays attention to the developmental story prior to and ahead of any one individual's perspective on the internet. Doing so will have considerable implications for future internet studies. Most obviously, it highlights that research on online intersubjectivity is significantly impacted by a researcher's or their informants' degrees of acclimation to the concrete virtual practice explored. Practically, depending on one's research scope and focus, at times it might be necessary to work with more experienced and habituated informants' experiences before drawing universal conclusions about online intersubjectivity, as one's informants might well have acquired forms of social capabilities inaccessible to novice users. At other times, simply being mindful of developmental, temporally sensitive dimensions when making sense of online intersubjectivity might suffice. For instance, it is important not to suggest that social possibilities are available on various digital platforms without first considering whether a certain degree of familiarity and habituation is required for these social capabilities to emerge. Our proposal also provides a lens for understanding the interrelatedness between different developmental layers and how they connect and arise in online intersubjectivity, e.g., the potential relationship between a sensitivity to vitality and the emergence of shared attention on an online platform. This highlights the value of explicitly researching these interconnections.

In arguing that insights from developmental psychology are important for a fuller picture of online intersubjectivity, we do not mean to imply that a developmental story online will always play out identically. While classic developmental accounts broadly aim at a universal story of how social capabilities develop, learning to deploy these capabilities online if we are right, is complicated by the diversity and context-specificity that characterise online intersubjectivity. Most notably perhaps, the developmental story might be different for those who started interacting online later in life compared to so-called *digital natives* – people who have grown up with the internet from a young age, and whose

intersubjective skills more often develop alongside digital technology use. One might speculate that digital natives need not learn to walk and talk *again* but acquire basic social intersubjective capabilities in offline and online contexts simultaneously, even in an interwoven, blended manner.

Relatedly, while our analysis focuses on the development of intersubjective capabilities on specific platforms, we do not want to suggest that we could or should neatly silo off online social encounters on different platforms. A fuller picture will be messier than this, as our experience and understanding of digitally mediated others are likely shaped and influenced through cross-platform use. That is to say, the (re-)emergence of basic social capabilities online may be mutually enforced by our use of different digital platforms and tools, or they may even come into tension with one another. Thus, any one individual's developmental picture will be shaped by the specific contours of their online activities and exposure. More broadly still, we should take care not to silo off online social encounters from offline ones, as these too will likely influence and shape one another over the course of our lives. Adopting a developmental approach to online intersubjectivity, then, involves being mindful not only of what we can learn from offline developmental accounts but reflecting on how these emerge differently across online contexts, allowing for the possibility of new kinds of intersubjective capabilities arising.

On this note, we have not pointed to nor claimed the existence of new categories of social development in our analysis of online social spaces. Yet, we remain open to the possibility that such categories might emerge exactly in these contexts. For instance, learning to use digital tools to compensate or scaffold various social capabilities could involve not only re-establishing the possibility of, say, joint attention, but new ways of being and acting together that are radically different to the current range of capabilities identified in developmental psychology.

Furthermore, we suspect that *exposure* to online spaces alone does not facilitate social development. *How* we engage with online spaces and *how* we interact with others online matters. While adjusting to online norms is important, part of any online developmental

story is that its users are finding new ways to coordinate attention, express themselves, understand each other, etc. In this regard, we suspect that open-ended, playful, and creative engagements with the spaces afforded by the internet and other people online, not dissimilarly from early aspects of analogue social development, will be important aspects to consider.

Note, too, that developmental accounts highlight how important interaction is for developing intersubjective capabilities. As such, how we are perceived, recognised, and responded to by others is an essential part of coming to deploy social capabilities online. Socio-cultural and political factors, then, need to feature in a broader picture of online intersubjectivity – critically engaging with questions about how issues of non-recognition, stereotyping, and stigma feed into, shape, even harm, one’s possibility for rich intersubjective encounters and development.

To close, we want to highlight that we are not advocating for either an overly optimistic or pessimistic account of the role of digital technology in our social lives. We have not made claims about how common complex forms of social interaction online are, nor commented on normative questions about whether using digital technology is inherently “good” or “bad” for us, e.g., in terms of authenticity, connection, mental health, etc. On our account, the story is dynamic and complex, and, in drawing attention to developmental considerations of online intersubjectivity, our approach might instead act as a bridge for bringing optimistic and pessimistic accounts of online social interaction into dialogue with one another.

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