3 Rich, Intimate and Immersive

Using Netnography for Educational Research in an Age of Technoculture

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Netnography for Educational Research

Digital platforms are changing how educational institutions, teachers and students gain access to and share information, as well as learn and build communities. The variety of digital technologies and their affordances—video, text, image, audio and media—offer a wide range of opportunities for ongoing personal and collective learning and professional development. Among digital platforms, social media have become increasingly visible within higher education settings as teachers move away from wholly face-to-face teaching to include more flexible learning opportunities afforded by digitally mediated applications (Howard, 2021). Such opportunities include YouTube, Facebook, LinkedIn, Instagram, Pinterest, Reddit and Twitter. These platforms are often mobile, allowing for autonomous connectivity to knowledge anytime, anyplace and anywhere (Howard, 2021). Moreover, since social media functionality is based on user-generated content, both teachers and students can construct, co-construct, share and edit any form of digitally mediated content, making social media a particularly rich and variegated territory of content production for educational purposes.

In higher education, research has largely investigated how social media and networked technologies have impacted scholarly and pedagogical practices. Studies have explored how educators utilise and integrate social media platforms for professional purposes like instructional design, curriculum support and classroom practice (Gikas & Grant, 2013; Roblyer et al., 2010; Tess, 2013). Other research has examined how social media are used to create communities of professional practice aimed at supporting students' university paths (Eaton & Pasquini, 2020). Additionally, studies have investigated how academics engage in networked participatory scholarship (Veletsianos & Kimmons, 2012) and conduct open educational practices within social media to gain intentional support and advice for professional needs (Cronin, 2017; Veletsianos & Stewart, 2016). Digital and social media platforms have become even more imperative as traditional modes of instruction shifted to remote and online learning due to the COVID-19 pandemic, demanding that education professionals seek advice and best practices to increase the efficacy of their

teaching efforts in times of global crisis, disruptive change and fast evolving technological and social scenarios (Muljana et al., 2022).

Alongside education, digital and social media platforms have become predominant and preferred sites of connection, commerce, consumption and creativity that contain rich and continuous streams of conversation and the exchange of cultural meanings (Kozinets, 2024). With so many people—teachers, students and citizens—denizens of complex media and technological realities that may involve switching between Twitch, Discord, TikTok, Instagram and Twitter in the same minute, researchers have a powerful need for methods that allow them to capture the rich reality of people's social media usage and its consequent cultural effects upon identity, performance and sociality (Kozinets, 2024), including practices such as teaching and learning.

This rich reality is based on pervasive technological media and their mediation of, interaction with and embeddedness in human life. This phenomenon has been termed 'technoculture' (Penley & Ross, 1991; Haraway, 1991). In a recent reconceptualisation of the term, technoculture has been held to refer to the contemporary blend of technologies, social forms and cultural experiences that happen through and with technologies (Kozinets, 2019) and that impact people's lives, how they build their identities, how they socialise and relate to the world and how they consume. This includes their vast and extended range of educational experiences, whether as teachers and professional educational staff, or as students, lifelong learners or learners and teachers in the wild.

Today, capturing life experiences that move between physical life, social media platforms, virtual and augmented realities, mobile and immersive technologies, and AI encounters calls for a research approach that is digital native, flexible and dynamic. Netnography is tailor-made for this purpose, being constantly on the move incorporating and reflecting the evolving manifestations of contemporary technoculture. In its latest definition, netnography has been conceptualised as an evolving approach for gaining cultural understanding that involves the systematic, immersive and multimodal use of digital traces, elicitations and observations (Kozinets & Gretzel, 2024). As a form of applied qualitative research that is an adaptation of ethnography, netnography follows a specific set of research practices to capture and articulate the meanings of discourses and interactions generated within and through digital and social media platforms and immersive technologies (Kozinets, 2020).

Netnography has been increasingly applied to study educational settings over the last 20 years (O'Reilly et al., 2007; Kulavuz-Onal & Vásquez, 2013; Harwati, 2019; Skukauskaitė et al., 2017; Eaton & Pasquini, 2020; Hammersley, 2021; Alnwairan et al., 2022). For instance, Kulavuz-Onal and Vasquez (2013), Saadatdoost et al. (2014) and Eaton and Pasquini (2020) used netnography to investigate educational communities of practice by gathering teachers, staff and students on multiple platforms to understand the culture of the communities, the roles played by their members and the type of content exchanged and negotiated. Along the same lines, Wallace et al. (2018) used netnography to both elicit and analyse online educational participation and

the creative elicitation strategies implemented to promote it through an online community of practice aimed at educating children about healthy nutrition.

Recently, Chen (2023) conducted netnographic research on the science education curricula and the overall interaction between students and teachers in a college of a national university in Taiwan, combining netnography of online educational content with ethnography and archival data analysis of campus space, campus history and school positioning and discourse. Other scholars have adopted a more reflexive approach and provided a meta-analysis of their application of netnography as a pedagogical method, discussing its benefits over other methods in supporting and enhancing student learning (O'Reilly et al., 2007; Hanell & Jonsson Severson, 2023). Among these reflective studies, Howard (2021) designed and implemented a novel process for conducting and interpreting auto-netnography in online teaching. As a reflexive online participant-scholar, Howard crafted netnography as a co-constructed journey where teachers, students and technologies recurrently interact and shape each other's experiences and actions.

Despite the growing body of netnographic research in educational settings, there are relatively few educational netnographies and only some (e.g., Wallace et al., 2018; Howard, 2021; Hanell & Jonsson Severson, 2023) that seek to develop the method for the purposes of educational researchers. The aim of this chapter is to encourage greater methodological innovation and enhance the revelatory potential of its investigative design.

Netnographic research in education would benefit from building additional bridges with other disciplinary domains whose trajectories may drive educational change, as they immediately resonate with technological innovation occurring in fields such as digital platforms, virtual and immersive technologies, AI and robotics. These disciplinary domains include consumer culture, new media anthropology and social media studies, influencer and creator economy studies, and emergent AI-based experiential technological consumption. These domains are altering, extending and advancing research boundaries to include a growing variety of novel technocultural phenomena that provide access to new environments, platforms, tools, devices and affordances. As sister fields and related topics, these areas and ideas could serve as important sources of inspiration for educational netnographers and educational social media researchers inasmuch as they bring to the fore technocultural phenomena as new fundamental components of contemporary educational culture that can strongly impact teaching, learning, interacting, operating and researching educational settings.

This chapter aims to provide thought-provoking examples of contemporary technocultural phenomena that could challenge and inspire innovation in educational netnography. After briefly illustrating netnography's research practices and how these reveal the rich, intimate and immersive nature of the method, the remainder of the chapter engages in a methodological reflection of the question, 'How is netnography on the move today?'. Notably, we provide a critical discussion of two emerging intertwined phenomena of contemporary

technoculture occurring in the interrelated domains of consumer culture, social media culture and influencers, and the creator economy that pose new questions and methodological challenges to netnography and that may inspire netnographers in education: (1) *emerging practices of visual technoculture* and (2) *increasing human–technology entanglements*. We discuss these phenomena as they involve and alter three fundamental components of the technocultural experience: content, relationships and agency. For both phenomena, we also highlight potential implications that bridge them with educational settings.

Netnography Research Practices at a Glance

Netnography is a collection of six distinct movements performed during a four-stage procedure (Kozinets, 2020, pp. 139–143) aimed at developing a deep and situated cultural understanding. The first stage is related to *problem definition*. This phase involves the researcher in considering themes, procedures and theoretical lenses to help them create and refine research questions that orient the netnographic study design. The second stage is focused on *data collection*. *Investigation*, *interaction* and *immersion* constitute the three research movements covered in the data collection phase.

During the *investigation* movement, the researcher looks for traces that are relevant to the research questions previously identified by utilising search engines and other automated means of information retrieval. Texting a combination of different keywords into search engines, the researcher identifies and sorts out relevant sites, as well as individual conversations, topics and subtopics, tags such as hashtags, and visual images or other nontextual representations (Gambetti & Kozinets, 2022). The investigation enables the researcher to highlight, examine and interpret these traces so as to single out meaningful data that can provide useful clues to include in the analytical process. Investigative operations permit the researcher to develop a wide 'telescopic glance' that maps out the contours of the phenomenon being investigated. During the investigative phase, a very large amount of potentially significant data is identified and scanned. This large amount of data can help reveal the variety of meanings, values, emotions, symbols, rituals, language and vocabularies that are exchanged and negotiated in the cultural flows of digital and social media platforms, as well as in immersive technologies. This surgical attention to considering the variety of details that compose a cultural experience embedded in online interactions and conversations qualifies netnography as a research method that is extremely rich and nuanced.

Interaction is an optional movement. It involves the researcher engaging directly with the research participants. The interaction phase comprises a direct form of contact with participants, in which the researcher elicits particular data. This is done typically through conducting interviews, often online. It may also include other interactional research activities, such as the creation of a purposive research webspace (e.g., a Facebook group, a YouTube channel or a TikTok account), the adoption of digital diaries or the use of mobile

ethnographies. The interaction enables the researcher to elicit particular material of relevance to the research question, which may prove fundamental when online traces gathered in the investigative phase do not provide a sufficiently thorough or accurate basis to develop an adequate level of cultural understanding. This is the case, for example, when online traces do not reveal certain topics of interest or when online interactions of relevance to research are short and elusive, requiring more clarity and deeper explanations.

Immersion involves the researcher engaging deeply with the technocultural context. This means that the digital traces, which are the remnants of individual posts, group conversations and threads, as well as various captured interactions, become reflected through the researchers' own captured notes and recorded observations. As is the case in ethnography, the netnographic researchers' immersion in the cultural context is key to cultural understanding, as the immersion journal—a netnographer's version of fieldnotes—captures the experience of becoming an informed cultural insider.

Immersion represents the heart of the data collection phase and is focused on identifying highly meaningful 'deep data'. Deep data include online traces that are relevant to the research question and that stand out as being particularly revelatory, rich in meaning and expressive of the cultural world of the research participants. Deep data can incorporate, for instance, a post on a social media platform that reveals intimate disclosures about a person's identity in terms of desires, values, beliefs and motivations that drive their behaviours and that shape their view of the world and their lifestyle. Deep data can include a revelatory short video on YouTube where a vlogger engages in a self-confessional, autobiographical storytelling about their gender transition to inspire their audiences (Kozinets et al., 2023) when the research aim is, for instance, to understand the cultural tensions between commodification and identity affirmation in social media. Deep data are related to the Geertzian notion of the 'thick description' (Geertz, 2008), which designates the work of the ethnographer who gets immersed in the research phenomenon and carefully 'inscribes' their encounter with the data, producing an organised, rich and meaningful written account that incorporates their own interpretations and systematisations of the reality observed.

Hence, deep data are not and cannot be a subset of big data, as they do not exist in reality as an autonomous act, item of content or object that can be found or captured by machines or software through a more precise, sophisticated or detailed automatic search than big data. The depth of a piece of deep data depends on the perceptions of the researcher-as-instrument, for deep data are co-constructed by a researcher who adds interpretive work and sensitivity to discover and highlight the cultural meaning of digital information. Deep data can take various shapes as they can refer to a particular social media post or a specific thread of conversations rich in emojis and emotional vocabulary. They can be a comment rich in ideological and speculative reasoning, or they can even be an expressive photo. Deep data can also be a section of the immersion journal of the netnographer (Kozinets, 2020), where they report in a personal

diary about a revelation they have had from a piece of data collected that has allowed them to make a new discovery, envision a pattern of behaviour, connect the dots of an investigated set of practices, grasp a hidden meaning or reveal a cultural tension. And no matter what shape the deep data take, they always incorporate a piece or moment of reality observed, which is then interpreted, organised and elaborated by the researcher according to their mindset and sensitivity in the form of a thick description.

In sum, deep data are dense and personal. They reveal identities, desires, needs, experiences and discoveries that shape people's language, lifestyle and sensitivities. Immersion engages the researcher in writing an immersion journal that elicits a personal, intellectual and emotional account of their encounters with data and their link with existing theorisations.

The fifth movement of netnography is *data integration*. Integration entails the combining of analytical and interpretive activities used by the researcher to develop the understanding needed to bring the observation of the field to the level required for its presentation as findings. In the integration phase, the researcher might collate data, perhaps code them, categorise them and also might apply interpretive lenses such as a humanistic, phenomenological, existential, discourse or hermeneutic analysis to generate cultural understanding that provides an answer to the research questions identified.

The sixth and final movement of netnography relates to the fourth netnographic stage, which is *research communication*. This stage is effected through an operation of *incarnation*, whereby abstract ideas are expressed in a concrete, tangible and accessible form. Incarnation can assume the more standard forms of a poster session at an academic conference or of a research manuscript addressed to scientific journals. But it may also assume the creative shapes of visual art, such as a painting, a sculpture or a videography, as indeed of textual art, such as a poem, or any other original form of art that is held adequate to convey the meanings of the research. In this regard, art-based research has become a prominent domain of scientific production. It entails the use of the artistic process, the actual creating of artistic expressions in all of the different forms of the arts, as a primary way of understanding, examining and reflecting on experiences by both researchers and the people involved in their studies (Kozinets, 2002; Sherry & Kozinets, 2021). The domain of art-based research, which has emerged as an extension of a significant increase in studies researching the nature of the art experience especially in the contexts of higher education and professional practice (McNiff, 1998, 2008), has now increased opportunities to thrive in and expand netnographic approaches aimed at investigating technocultural phenomena.

In the following subsections, we examine two emergent interrelated technocultural phenomena that suggest using these netnographic research movements to study the changing modes of human–technology interactions and their novel expressive capacities. For each of the two, we highlight potential implications for research in educational settings.

Emerging Practices of Visual Technoculture

Contemporary technoculture has increasingly become a visual culture. Consumers' cultural norms of self-presentation on social media platforms are relying to an ever-greater extent on assembling and curating collections of visual content, such as images, emojis, snapshots, selfies, memes, GIFs, stickers and reels (Gambetti, 2021). Sharing visual and audiovisual content via social media elicits the interaction of peers and serves as a means of self-construction and self-validation (Hjorth & Cumiskey, 2018). Thus, emerging visual identity practices, such as Zoom photo-taking, have become institutionalised norms of participatory culture and social interactions in digital contexts and have established novel aesthetic regimes and stylistic canons of individual and collective identity.

In Zoom and similar video communication platforms that are extensively used in educational settings today, the practice of taking a selfie—called zoomie-taking—has established a new and unpolished aesthetic that relies on comfy outfits, natural looks, carefree gestures and cheerful facial expressions that mark a simpler and more authentic modality of self-presentation and socialisation with others (Beccanulli et al., 2024) (see Figure 3.1). In educational settings, this comfy lifestyle and aesthetic enacted by the zoomie may be part of a trend that creates new opportunities to craft the technologically mediated relationship between teachers and students as more horizontal, empathetic and comfortable.

How does the emerging visual practice of the zoomie challenge netnography? While taking a zoomie, users live an embodied experience, where

Figure 3.1 A zoomie snapshot during a meeting.

Source: Photograph by the authors

the body, mind and even spirit become involved in the aesthetic process of photo-taking and sharing (Kozinets et al., 2017, p. 9). Moreover, they live a social experience as the visual content they produce becomes the central element of a thick sociality and a connective flow of interactions. Netnography practices of data collection enable the researcher to capture the embodied and social experience of posting and sharing these novel visual snapshots.

While scouting, selecting and scraping zoomies, netnographers collect the multifarious formats of these new visual contents, allowing the researcher to reconstruct their material variety and stylistic canons. Moreover, a researcher would probably not consider the zoomie to be a stand-alone visual piece of data, but instead view it as a cultural trigger of meaningful interactions, whether they are visual through emojis and likes or textual through flows of conversations. This cultural glance would allow the researcher to develop a deeper and more comprehensive understanding that incorporates the whole range of meanings, gestures, symbols, rituals and values in which a zoomie is embedded and that tie it to the emotional, social and symbolic worlds of the user who posts it. Thus, the comfy and unkempt aesthetic provided by the zoomie and uncovered by netnography depicts that a visual trend as a lifestyle marker is a carrier of unique meanings and interplays between individual and collective identity that differs in intriguing ways from the established selfie culture.

If a visual practice like zoomie-taking has challenged netnography to capture a cultural shift that illustrates the rise of new unpolished aesthetic canons and more authentic practices of self-presentation, other visual practices are emerging that are the result of increasingly sophisticated technological innovations involving graphic design and software applications. Novel visual practices, such as motion graphics, 3D illustrations, sci-fi typography, neon palettes, glitch-style effects and AI-generated art (Influencer Marketing Hub, 2023), are transforming digital and social media experiences. They are creating occasions for ludic escape and spectacularisation that add a new twist to the visual realism of zoomies.

As technology advances, the line between the physically embodied world and its digital and other representations is becoming increasingly intertwined and conceptually blurred. Aside from the juxtaposition of real-world elements and illustrations, contemporary technoculture is providing instances of 2D and 3D graphics being used in tandem. By combining realistic with fantasy 2D and 3D elements, users can add a layer of playfulness, spontaneity and humour to their self-presentation and lifestyle, making their sociality more fluid, funny, phatic and rapid.

The growth of AI and AI-image software like OpenAI's DALL-E image generators exemplifies how these technologies are being applied. DALL-E is used to generate new and unique images from textual prompts that users can utilise in various channels, such as social media platforms. In addition to speeding up how designers and artists create images, this generative AI technology may improve workflows and provide opportunities for creativity and marketing. It can be altered, edited and reproduced in many versions and variations
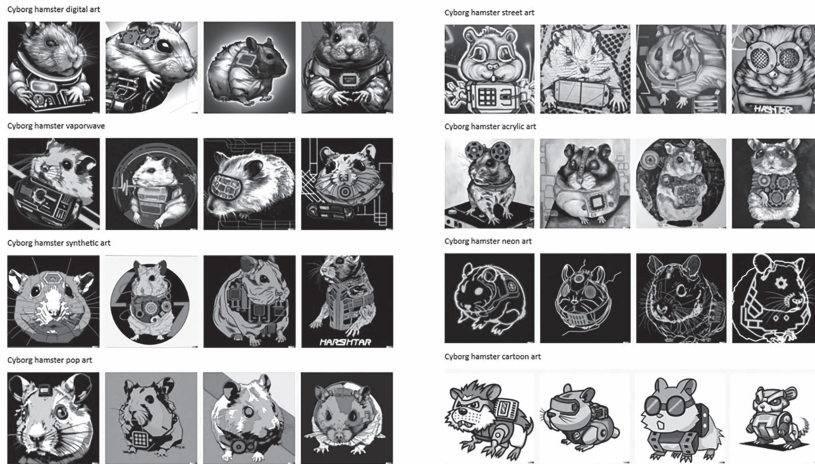
Figure 3.2 DALL-E 3-generated artistic versions of a cyborg hamster.

Source: Photograph by the authors

and can be leveraged by influencers, content creators, ordinary consumers and educators alike to build branded assets and craft evocative self-presentations, representing experiences that range from ludic to educational and professional ones.

Let us consider, for instance, the case of a primary school art teacher who wants to create something novel with which to approach her young students: a hamster influencer. Perhaps it is a cartoon hamster, or a cyborg hamster, to emphasise the technology of its virtual influencer aspect (see Figure 3.2). Figure 3.2 shows a plethora of DALL-E 3-generated versions of a cyborg hamster with which we have exercised using different artistic movements (e.g., digital, vaporwave, synthetic, pop, street, acrylic, neon and cartoon) to generate funny variations.

How might these images be used in an educational setting, precisely in an online educational setting? The case of the cyborg hamster influencer holds significant educational potential as it illustrates how the advancements in current visual technoculture may be used at the service of children's imaginative work to improve their cognitive and language abilities, stimulate their fantasy and provide an experiential environment that is entertaining, visually attractive and socially stimulating. Hamsters are very popular animals among children because of their small, furry bodies, gentle nature and delicate movements. As well, the cyborg imaginary has a long-established transmedia pop culture tradition as a form of children's and teenage entertainment. Generative AI visual programs like DALL-E offer endless opportunities to play with art as they draw from an extensively rich directory of artistic styles. These styles are also often showcased in the sample pages of the software to suggest users' novel, imaginative

textual descriptions with which to play and customise their artistic creations to enhance their amusement while improving their knowledge of the world of art. A primary school art teacher could then use programs such as DALL-E to offer their young students an intriguing, rich representation of art movements and styles to exercise with. Doing so, students could use their favourite animal avatars such as hamsters in an attractive technological form such as a cyborg to prolong their learning excitement. Moreover, teachers could also enhance the linguistic skills and breadth of the children's vocabulary by encouraging them to play with words and textual descriptions on DALL-E to obtain an array of amusing variants of their cyborg hamster visual creations.

DALL-E allows users, teachers and students to play with the endless universes of artistic imagination, where art, fantasy, emotions, meanings and dreams interact in a type of collaboration between human imagination and machine learning. Using netnography, an educational researcher can apply the six movements of netnography—initiation, immersion, investigation, interaction, integration and incarnation—to understand how an educational discourse and its responses might be affected by these new technocultural objects with novel customisable, flexible aesthetics.

As netnography engages with endless new visual forms of avatars and self-presentation constructions that are the result of the programmed collaboration of humans and machines, netnographers dive deeply into the cultural complexities of understanding the effects of how human cognition and feelings are expressed. How these human and machinic elements coexist and interact in a technologically mediated space to create novel technocultures constitutes one of the most important challenges today for netnography and netnographers in many fields, including, we would assume, education—which is currently reeling from the effects of generative AI such as ChatGPT.

Discovering and grasping these linkages could also help educators gain a better understanding of and adapt to a new generation of students who are increasingly crafting their self-presentations, avatars and original visual creations with the help of generative AI. Moreover, netnographers themselves can now play with DALL-E creations to craft endless visual representations of their deep data, vignettes and research contexts, and even use DALL-E in their data elicitations and projective techniques, inviting their research participants—whether they be educators, students or consumers—to use the software for representing their moods and their emotional and symbolic worlds.

Increasing Human–Technology Entanglements

Evolving technoculture also reveals the increasingly intimate entanglements between humans and machines. In this context, entanglement draws on Bruno Latour's (1993, 2005) actor–network view of the entangled relationship between humans and things as a dialectical codependence (Hodder, 2012, p. 94). The degree to which humans and things are entangled reveals 'the deep interlacing of the material, the biological, the social, the cultural

dimensions with the whole suite of ways in which humans and things depend on each other' (Hodder, 2011, p. 164).

Extending this notion of entanglement to the realm of contemporary technoculture allows us to embrace the increasingly sophisticated linkages and dependencies between humans and machines. These linkages and dependencies may take different forms, including variously anthropomorphised and humanised embodiments of machines, the cognitive and emotional capacities of virtual characters and the agentic properties of robots. For instance, intelligent virtual assistant devices and software applications such as Apple Siri and Amazon Alexa are becoming anthropomorphised as they are imbued with voices and personalities (Hoffman & Novak, 2018). Social robots are distributing information such as trending news items, videos or images. They have the potential to influence which information is presented when and to whom in social media spaces (Lugosi & Quinton, 2018, p. 301). Automated online bots governed by algorithmic automation autonomously perform actions such as posting, re-posting, liking, following, unfollowing or direct messaging other accounts.

Current generative AI developments are extending the capabilities of virtual assistants and chatbots. With its ability to understand and generate human-like language, ChatGPT can make virtual assistants and chatbots more effective at answering questions, providing customer service and entertaining users. In educational contexts, it can support educators and students in crafting and accessing quality educational content assembled from multiple reliable sources. Or, on the other hand, it can complicate and deceive, providing opportunities to cheat alongside hallucinatory fake information that confounds the learning process.

Virtual influencers provide a vivid example of human–machine entanglements. They are digital characters created in computer graphics software, virtually embodied in human-like or nonhuman-like bodily forms, then given a personality and made accessible on media platforms for the purpose of influence. Virtual influencers today include a variety of fantasy bodily forms. Figure 3.3 provides a selected overview of the variety of current virtual influencers' embodiments. These include (1) hyperreal virtual characters such as Kami, the first virtual girl with Down syndrome; (2) the anime-like pigtailed teenage pop icon Hatsune Miku; (3) more imaginative characters such as the bad bunny Guggimon; (4) the computer-generated cat Banbo Kitty; and (5) the funny animated sausage Nobody Sausage. The variety of virtual characters responds to people's increasingly sophisticated and diversified needs and desires. Virtual influencers were originally designed as fancy, beautiful creatures inhabiting the realm of fashion, beauty and lifestyle, intended to elicit aspirational identification in consumers (Kozinets et al., 2023).

Today, an increasing number of virtual influencers are generated with an educational purpose. Their appearance is less fancy and more creative, whimsical, light-hearted and funny. This is the case with Kami, for instance, the first virtual girl aimed at a cultural normalisation of Down Syndrome in social media discourse.

Figure 3.3 A variety of virtual influencers' embodiments.

Source: Photograph by the authors

Kami is the brainchild of Down Syndrome International (DSi), which teamed up with the creative agency Forsman & Bodenfors (F&B) and the global digital modelling agency The Diigitals. With the introduction of Kami, the educational idea was that of making the metaverse a space for everybody. And creating Kami also represents an educational challenge for brands to think into the future and follow her groundbreaking example of making the digital space a more inclusive and friendly place where disability finally becomes valorised and normalised. Kami is ultimately the result of a collaboration driven by the Down syndrome community. In this regard, for Kami to offer a credible representation of real women with Down syndrome, a panel of over 100 young women volunteers with Down syndrome from 16 different countries were consulted to collaborate on her creation as a virtual model—acting as the faces, physiques, gestures, voices and personalities that Kami would embody (Kozinets et al., 2023, p. 331).

Another educational example is Maria, the first Mexican virtual influencer. Her posts aim to inform people about environmentally responsible consumption, interspecies love and inclusive behaviours. A final example is provided by Bee, a virtual insect. She is the first virtual influencer bee and is dedicated to educating Gen Zers to embrace consumption practices that protect bees from extinction. Through the creation of Bee, the French NGO Fondation de France has undertaken a global acculturating attempt to teach young consumers in the world something positive and valuable about respect, acceptance and diversity. With Bee, the lessons are structured to highlight the threats to the natural world and its endangered animals and insects in an entertaining, simple and imaginative way. This is achieved through the use of straightforward

storytelling and a visually attractive narrative performed on social media platforms by a photorealistic 3D rendering of a large bee that draws from the cartoonish tradition of humanising bees.

Educational virtual influencers open up opportunities for extending the study and the use of virtual characters. For instance, virtual influencers could be introduced as virtual assistants to teachers used to carry out and interact with students on routine tasks, or also to support teachers in delivering complex or boring content in an entertaining modality. Research could explore these contexts and applications, providing better guidance on their usage and building upon the rising stream of literature (Daley & Pennington, 2020; Gubareva & Lopes, 2020) that has opened the stage for investigating the application of AI-based virtual assistants in educational settings for aspects such as student advice (Currie et al., 2016), personal learning management systems (Nenkov et al., 2016) and gamified learning (Subhash & Cudney, 2018).

But which challenges do these increasingly intimate entanglements between humans and machines pose to netnography? To understand these new technocultural worlds extending into metaverses inhabited by computer-animated humans, animals and other digital avatars of all kinds, netnography might embrace a more-than-human approach (Kozinets, 2024; Lugosi & Quinton, 2018). More-than-human designates an ontological approach recognising the agency and impact of nonhuman actors in influencing social phenomena. In addition, a more-than-human ontology conceives of structures such as social media platforms, roles such as influencers and creators, narratives/stories and posts, emotional resources and systems such as factories and markets as being coconstituted with the processes, flows and relations that create, sustain or undermine them (Kozinets, 2024, p. 5; Kozinets et al., 2021).

Embracing a more-than-human approach turns netnography into an agentic research force, 'an energised, electrified research force that incorporates both human and nonhuman shapes and sensitivities, senses and sensibilities' (Gambetti & Kozinets, 2022, p. 7). This type of research force establishes increasingly meaningful and expanded connections with the many contexts surrounding it and in which it is embodied. A more-than-human approach allows netnographers to capture the meanings and the expressive capacities of the new bodily forms, personalities and sensitivities of novel virtual embodiments, such as social robots, virtual assistants and virtual influencers. As Kozinets argues (2024, p. 4), a more-than-human netnography is equipped to respond to the following questions: How do various digital representations of life replace actual manifestations of life? How do these representations elicit people's desires, passions and fantasies? How is capitalism and commercialisation involved and how is it baked into technological processes such as algorithms and platforms? What effects do these have on education and society?

Finally, a more-than-human netnography is also challenged to adjust to the novel agentic capacities of nonhuman actors and machines. Netnographers are increasingly studying technologically mediated social spaces wherein

human actions and conversations are intertwined or even replaced by nonhuman ones. Given the deeply human essence of netnography, this means that netnographers need to adapt their sensitivities so as to understand these new cultural norms, new rituals and new emotional vocabularies (Gambetti, 2021, p. 312). For instance, netnographers might consider diving deeply into the extensive transmedia science fiction culture tradition to be able to capture the cognitive and emotional nuances of the interactions between humans and technological forms, such as cyborgs, machines, robots and even aliens. This knowledge could prove very useful in equipping netnographers with a sensitivity that allows them to grasp effects such as the 'uncanny valley', which explains why and how people are both attracted to and repulsed by humanised machines and robots (Arsenyan & Mirowska, 2021). Netnographers might also study and share the various 'tells' that AI chatbots seem to manifest, like ChatGPT's annoying need to end written entries with 'in conclusion' or using the word 'intricate' to describe almost everything.

Conclusion: A Call to Leave the Comfort Zone

An unprecedented new range of technocultural phenomena is emerging and having an impact on how people connect, learn, build their identities, socialise and educate one another and themselves. As they do so, new avenues of innovation are arising for netnographers conducting research in educational settings. Teachers, students, professional staff and educational institutions overall are increasingly affected by new digital and social media platforms and devices. Educational practices are co-evolving alongside these technologies and technocultures. As they do so, netnography and its rigorous six-movement approach provide education researchers with a means to investigate these important changes.

Netnography offers educational researchers a novel toolkit allowing them to move beyond the traditional boundaries of extant educational settings and examine the important new realms of educational technoculture. Applying netnography in education may help develop fresh insights that can lead to a deeper and more nuanced understanding of the vast variety of contemporary educational phenomena. As learning institutions become increasingly technological, as teachers adapt and use various technological and online tools and as students and lifelong learners increasingly expand their educational experiences within, between and beyond traditional modalities, netnography will be there to help researchers keep pace with these rapid and thrilling changes to the realm of education.

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