

Digitization and Digitalization – Where we come from

MARJO MÄENPÄÄ IN CONVERSATION
WITH JAAKKO SUOMINEN

<Research and Discussion>

Digitality appears in all human activities – as the call for papers for this issue indicates. Entire industries and sectors are changing rapidly and, with them, so are the conditions of work, leisure time, and the consumption of art and culture – film, music, and literature, not to mention other sectors of the creative industries. When we think about digitalization, it might mean anything from artificial intelligence, big data, social media, and other digital phenomena that reconfigure social patterns of action, to infrastructures and processes of artistic production, distribution, and reception in the mind. At the same time, new technologies in the cultural field influence common research methods and may bring about new research designs. For the consumer, digitalization means audiobooks, music and movie streaming services, art and stories accessed also through mobile devices, and maybe virtual visits to the museum. For the artist and producer of culture, digitalization offers an enormous number of ways to produce, reproduce, and distribute work and to engage in dialogue with audiences. As for cultural policy actors, digitalization has placed them in a situation where a whole new playing field needs to be traced out. This work could start from, for example, seeking definitions for the different aspects of digitalization and digitality.

However – whenever I set out to define digital culture, digitalization, or digital cultural policy, I always get stuck on one and the same question: What is and what isn't digital? Is there some kind of dichotomy that needs to be overcome before we can get anywhere near the heart of the matter?

Luckily, I have the opportunity to discuss this question with a long-time colleague who knows the concept of digital culture as thoroughly as only the formulator of a concept can. Jaakko Suominen, professor of digital culture and dean of the Faculty of Humanities at the University

of Turku in Finland, was one of the founders of a degree program in cultural production and landscape studies (as part of the university's School of History, Culture and Arts Studies). When we touch upon the subjects of digitalization and digitality, we find ourselves – the early adopters – recalling a time when all this was something new. We had a nice chat – online via Teams, of course – and Jaakko also kindly sent me a link to his article written from a very personal perspective (SUOMINEN 2013). We ended up discussing the question of how digitality has affixed itself to both of our work and research. Jaakko went on to specialize in digital culture, while I have drifted into the terrains of new media and digital cultural policy.

Jaakko Suominen: *I don't really support the idea that digital and analog are opposites. Or they can be that only in a very limited environment. I would rather see non-digital as the opposite of digital, if one needs to have a dichotomy at all. Digital and analog both refer to ways of storing and presenting information. In a digital framework, phenomena are coded into symbols, whereas in an analog framework, the method of storage is analogous (!) in relation to the depicted subject: in a digital thermometer, the liquid pillar expands and contracts according to the temperature, and on an LP record, the distance and depth of the grooves show the alteration of frequencies and dynamics. But it's true that people have started to call 'analog' the opposite of 'digital' – as something that is not computer transmitted (although, actually, there were analog computers in the 1950s, where the computation was based on, for example, a summation of electrical voltages). This dichotomy is also apparent in scientific journals like Analog Game Studies, which concentrates on things like board games and role-playing.*

<Digitalization and Me>

Whenever one thinks about digitalization, one feels tempted to look back in time. There were many expectations attached to digital culture before the turn of the millennium. We were fascinated by the non-Aristotelian narrative, the democracy of hypertext, the unlimited information highways of the Internet, the communality of social media during the early years of the new millennium. Is our world in fact more closed now, or can we really use all the information we can get in a civilized and proper way?

For me, as a researcher of literature, digitality has meant new opportunities to dive into a story and the network of meanings and explanations connected to it. Digitality increases the power of both the storyteller and the reader. As a literary person, the way I saw it back in the day was that the linked (HTML) text created a hole in the paper that could take us both to the past and to the future. Digitality also means multitasking, broader perspectives and diving deeper into the offered information, more possibilities to obtain more information, and faster and more broadly networked communication.

Jaakko – were you a Commodore kid or a nerd dad in the garage? How did you end up in this field? You have a humanities background, don't you?

Jaakko Suominen: *I do have a background as a computer enthusiast, as a kid growing up in the 1980s. What slowed me down, though, was that in the early 1990s, I didn't have access to the newest computers. But then I was accepted to study history and information processing at university, after which I got to upgrade my equipment at home and also use the university's computers and data networks. My dream was to come up with a mix of history and information technology. And I managed to do that somehow. Throughout the 1990s, as people started using computers more and more, my practical programming knowledge and HTML coding skills proved useful in the fields of history and other humanities. However, the whole time I was also interested in the cultural and societal significance of information technologies, and I didn't restrict myself to just practical knowledge. Bringing the two areas together offered me, then, a special niche in the academic world.*

<Roots and Definitions>

In the field of arts and culture, people have tried to define digitality within the intersection between old and new media as it appeared at the end of the last millennium. New media or cyberculture is just digital data controlled by programs (WIKIPEDIA 2021c).

In the 2010s, media art and interactive art based on digital technologies was still called new media art. Digital technology was a tool for telling a story in a new way. The fragmentary narrative and hypertextuality of new media were believed to bring down the arc of the two-thousand-year-old Aristotelian narrative. On the other hand, people will

always tell stories – it’s just the tools that change. Like Roland Barthes has written, a story can be told similarly with all media: the discourse changes, but the plot stays the same. According to Barthes, the narrative prevails throughout the media changes, whether it is set in literature, a stained-glass window, or a film (MÄENPÄÄ 2013: 43; BARTHES/DUIS-IT 1975: 79).

Like the pioneer of digital culture Lev Manovich, I too found my own ways to analyze the stories of new media through the models provided by the structuralists and semioticians. Digitality presupposes structure, codes, flowcharts (MANOVICH 2017), and Manovich writes, “Rather than trying to understand signifying elements, their interactions and effect on the viewer in single artworks in old media such as paintings, I started to think about the new artistic dimensions of new media. This term emerged around 1990 to refer to computer-based cultural artifacts” (MANOVICH 2017: 2).

Jaakko Suominen: *That is typical in the sense that everybody started to perceive and analyze the new in relation to the old, reflecting it against their own backgrounds and experiences.*

True! In a way, we had to find an explanation for a new way to study media and other creative productions through the learned, existing models. I imagine there must be quite a large number of theories and models for explaining the world behind the study of digital culture.

Manovich refers to the Russian semioticians and structuralists Yuri Lotman (LOTMAN 1977), Mihail Bahtin (BAHTIN 1991), and Vladimir Propp (PROPP 1968) as his sources of inspiration. He saw their theories and descriptions of the structure of content as perfectly suitable for describing the visual aspects of new media. The ideas of polyphony and dialogic interaction (BAHTIN 1991) and the narrative structures and morphology of fairy tales (PROPP 1968) were for me the philosophical basis for understanding interactive narratives and digital media. I got to know these thinkers myself as a publisher, when publishing studies by the Russian structuralists in Finnish in the early 1990s (WIKIPEDIA 2021d).

Sherry Turkle is for me the first author who wrote about digital culture, technology, and artificially intelligent devices from the human perspective. Turkle writes, “The first thing missing if you take a robot as a companion is *alterity*, the ability to see the world through the eyes of another.” The idea to this came to her from Emmanuel Lévinas (LÉVI-

NAS 1999). She continues: “Without alterity, there can be no empathy” (TURKLE 2011: 55).

Jaakko Suominen: *Turkle’s way of thinking has been criticized, but it’s interesting how her oeuvre oscillates between highly critical and near exalted. This becomes visible in, for example, Second Self (TURKLE 1984) from the 1980s, Life on the Screen (TURKLE 1995) from the Internet age, and her more critical and pessimistic works of recent years.*

Turkle has a background in sociology and psychology. She approached the change brought about by computers and technology in a way that appealed to the so-called ordinary humanist. She writes about feelings and users: “Computers call up strong feelings, even for those who are not in direct contact with them. People sense the presence of something new and exciting. But they fear the machine as powerful and threatening” (TURKLE 1984: 13). Ten years later, *Life on the Screen* already reflected on the identity of people who spend the whole day at the computer, working or playing computer games (TURKLE 1995: 12). Perhaps the same thing happened to Turkle as has happened to many other disappointed souls: visions of an information highway have crumbled under the environments of rage, conspiracy, and fake news that prevail on social media.

<Cultural Policy, Digital Culture, and Digital Cultural Policy>

As far as know, digitalization has been among the goals of cultural policy makers for more than twenty years now. I myself have approached cultural policy through digital culture. I took a leap from literary studies and, later, from the academic research of digital culture with a strongly practical approach, first to serve as a cultural policy actor myself at the Finnish Ministry of Education and Culture and, after that, as a researcher of cultural policy actors and measures at CUPORE, the Finnish Foundation for Cultural Policy Research.

I see that cultural policy is having a central role in supporting culture and art, and in this way enabling meaningful human life. Cultural policy is often understood as referring to activities in society that are connected to culture. Culture itself is perceived in varied ways within the world of cultural policy. Culture can be defined more narrowly, with an emphasis on the arts and cultural heritage, or more broadly, as human action

with sociopolitical implications beyond the boundaries of administrative sectors. The cultural policy goals prevalent in current societal discourse are especially connected to the arts, the promotion of creativity, cultural heritage, well-being, and the economic significance of the different fields of culture.

Jaakko, you wrote that it's better to speak about *digital cultures* than one subject called *the digital culture* (SUOMINEN 2013). According to you, digital cultures could be defined (if definitions are allowed) as all the other concepts of cultural studies are – as multifaceted, mobile, futuristic, and also as providing a media archaeological point of view to contemporary culture. Maybe it would be good to speak about *cultural policies* in this context.

Digital cultures are not as such at the center of cultural policies, at least in Finland. The word 'digitalization' is of course present in governmental cultural policy programs, strategies, and decisions in principle, but from the viewpoint of digital culture, the conception of digitality seems quite narrow – regarding it merely as a tool, a platform economy with the purpose of speeding up economic growth, a computer in a classroom. I wonder if it's even possible to combine topics like digital, culture, and policy together? Maybe in a flexible or layered way that can take into account societies that are becoming more and more multifaceted, supporting and promoting culture for sustainable development.

Bjarki Valtysson's recent book (VALTYSSON 2020)¹ is a welcome effort to define the boundaries and multiple levels of digital cultural policy. Digital cultural policy needs, in his words, to be defined through two poles, as

a view that accounts for the cultural policy in shaping citizens' communicative on-line environment on a *micro* level – the level at which citizens enact their agency within the communicative structures provided by various hardware and software, as well as on a *macro* level – the level characterized by the communication infrastructure of cross-mediated digital communication and how this relates to communication, media and cultural policies. (VALTYSSON 2020: 2)

In Valtysson's definition, state cultural policies view digital culture mainly through the macro level.

By the end of the 1990s, people had started to define digital culture as a union between machines and communication. For example: "Digital culture is action and communication that takes place in the world of in-

1 See the review of Bjarki Valtysson's *Digital Cultural Politics. From Policy to Practice* on p. 187–191.

formation networks, computers and other innovations of (digital) technology, through them and shaping them” (JÄRVINEN/MÄYRÄ 1999: 7)

Against this background, I ask you, Jaakko: Where do the roots of the research of digital culture lie? Is the starting point digitality or is it culture? How is digital culture changing – what is important to research, and what kind of phenomena are emerging?

Jaakko Suominen: *It starts from culture in the sense that researchers with different backgrounds in the humanities and social sciences started, in the late 1990s, to increasingly study the technological environment from a human perspective. They had backgrounds in, for example, media studies, literary studies, sociology, history, and cultural research more broadly. Their interests ranged from practices of use in information technologies to digital gaming cultures and online cultures, and so on and so forth. Over time, these interests have partly diverged and, for example, the study of online culture, the study of gaming culture, and social technology studies have all established their own academic communities and institutions.*

In some respects, the research keeps chasing after the newest, and even avant-gardist, phenomena of digital culture – after ever newer social media environments, new games, new multisensory and augmented reality solutions, and things like that. On the other hand, we are also seeing more permanent research themes, like the ones concerning, for example, the immersiveness of the media experience. Recently, the material dimensions of digitality have started to gain emphasis. At the same time, people have started to realize that digitality is not just confined to the present time or to the future: it’s starting to have its own history, memory, and heritage, which are also researched increasingly. I regard the rise of this history and the consciousness of this history as one element that allows us to also speak of a kind of post-digital phase.

What does *digitalization* mean? Is it just about using digital tools? Is that what the digital leap means – that these tools are increasingly being used?

Jaakko Suominen: *The way I see it, digitalization is a societal-political-technical term that refers to how so many areas and activities of society are becoming computer and information-network based. Perhaps it would be better to ask: What is wanted from digitalization? In policy texts, the term digitalization is often used as a synonym for effi-*

ciency and, for example, the search for new business opportunities. Of course it should also mean much more, especially when we are moving in the realm of cultural policy.

<Digitality>

The potential of digitality: to infinity and beyond? What additional value does digitality produce? Does it give rise to changing structures in consumption and production by paying attention to the audience in a new way? Could an inclusive digital experience be something other than just a Facebook-like environment?

Jaakko Suominen: *I'll answer your questions with a question: Should digitality be perceived as additional value, or just as value as such? Why does it need to be 'additional' value?*

Good question. Could it be that digitality brings value into production or quality of life, or that it brings something more into the consumer's experience – a better availability of arts and culture and increased accessibility?

Here I'm thinking about, for example, increasing the accessibility of museums with digital applications and installations based on digital technologies. At the beginning of the 2000s, I took part in the conferences of the international MuseWeb (<<https://www.museweb.net>>) network in Canada and the US. In North America, there was more competition over the development of digital services for museums. Multimodal, multisensory user interfaces make museum visits easier for people with visual impairment and people who are hard of hearing. Touchscreens, haptic interfaces, sensory technology, eye tracking, voice-activated interfaces, and so on. Currently, most of the major digital innovations are made for the sense of sight, but the potential of digital materials is practically unlimited. This was understood already in the technology's formative years, in the early 1990s. An email that transmits scent molecules was invented a good while ago (WIKIPEDIA 2021a), and transmitting touch digitally is also old news (WIKIPEDIA 2021b).

It is also possible to transmit tingling sensations and shivers digitally. For example, autonomous sensory meridian responses (ASMR) can be induced digitally to produce pleasant, calming feelings (TURTIAINEN 2019: 29). On ASMR videos, sensory responses are triggered by dif-

ferent kinds of sounds, such as whispering, and slow hand movements. In these videos, the performers play the part of hairdresser or masseuse, the listener gets a chance to relax and to sense the touching and caressing through the images produced by the video. From here, there's just a short – but expensive – leap to that immersive media experience. Which is something that you, Jaakko, mentioned: extended reality – often referred to as XR – is the umbrella term used for virtual reality (VR), augmented reality (AR), and mixed reality (MR), as well as any future realities that immersive technologies might create. For instance, now, in the time of the COVID-19 pandemic, VR glasses allow tourists to experience places like Lapland in spite of it all.

In a way, these digital productions also increase the accessibility of arts and culture. Video connections, like VR glasses, make it possible for people to get to places that would be inaccessible to them otherwise. This has certainly become evident to us all, now that we're in the grips of the pandemic, if hadn't before.

<Post-Digital>

To build on recent public discussions around the notion of *post-digital*: I'm interested in the distinction between 'old' and 'new' media, and this concept of post-digital seems to combine the old and the new, applying network cultural experimentation to analog technologies, which it reinvestigates and reuses. Digitality is in a way ubiquitous, mundane – part of the same that has always been.

Jaakko, you mentioned post-digital development several years ago in your article about digital culture. You wrote then that we are moving toward a post-digital phase, which means that digitalization is already deep in our everyday routines and that digitalization is not new and intangible and futurist any more than are material objects like digital artifacts, tangible digital memories, digital trash, and body-digital hybrids. (SUOMINEN 2013: 14)

For me it seems like the *post-* prefix often refers to an old phenomenon that has risen to a dialectically higher level. This is how I interpret the definition of *post-digital* offered by Florian Cramer. According to him different cultural agents are (re)positioning themselves in a post-digital context where the digital has not been left behind, but rather where digitalization is embedded in all spheres of life and profoundly marks cultural shifts. He asks what new, unforeseen challenges emerge for the cultur-

al sector in a post-digital context? (CRAMER 2020/see also: CRAMER 2015).

Post-digital, once understood as a critical reflection of *digital* aesthetic immaterialism, now describes the messy and paradoxical condition of art and media after digital technology revolutions. It merges ‘old’ and ‘new,’ often focusing on the experiential rather than the conceptual. It looks for do-it-yourself agency outside a totalitarian innovation ideology, and for networking outside of big data capitalism. At the same time, it already has become commercialized (ANDERSEN/COX/PAPA-DOPOULOS 2014).

<COVID-19 and the Digital Leap>

The aim of this issue of *JCMCP* is to delve into the multifaceted questions concerning digital culture, explicitly. Especially during the COVID-19 pandemic, the potential of digitality has been addressed frequently. An old phenomenon has been harnessed into a new context, in addition to serving normal interaction and acting as a tool. A digital leap has taken place in working life and leisure, in communication between families and work communities. People’s jobs are guided by Zoom or Teams and digital calendars, video conferences have replaced meeting in person, and we find ourselves packing suitcases only in our dreams.

Jaakko, what is digital everyday life like? Will we live in the web forever from now on?

Jaakko Suominen: Digital touch (concretely and also in the emotional sense) and contact are more difficult, or at least different, than situations where people are physically face to face. Digital technologies can narrow the interaction. One problem that knowledge workers have is that, for them, everyday life goes on as one single endlessly monotonous web flow without breaks, densifications, calm moments, or high-lights. People become bored and numbed. Then again, we might realize that certain things happen more efficiently and in a more meaningful way without constantly coming together in person. This means that the practices of working and spending leisure time will change. The keyword here, too, is *hybrid*: a combination of digital and non-digital, either in a certain moment and place or by, for example, taking turns between the two.

Since 2020, the COVID-19 pandemic has affected production, consumption, and participation in the arts, culture, and the creative industries around the world in many ways. Cultural life and all artistic expressions were all of a sudden forced to retreat in the middle of March 2020. Very soon after that, however, we were presented with new ways of consuming art and culture. Artists and producers started to use online streaming and other digital tools in innovative ways. Some of these ways to produce and engage with art will likely remain, while others will have to be reevaluated in order to generate a sustainable income and, especially, to secure copyright income for artists (MÄENPÄÄ 2020).

<Digital Cultural Production in the Time of Pandemic>

I started to seek out new initiatives and productions that have actualized during this time when we are not allowed to go to the cinema, concerts, festivals, museums ... the list is long and sad. But I dove into a world of short film festivals, like My Darling Quarantine Short Film Festival. This festival was organized already on March 16, 2020, by a network of the *Talking Shorts* online film magazine, and “lasted for 11 weeks, was programmed by 66 programmers from all around the globe and screened 77 films by 87 filmmakers that were all kind enough to share their work for free” (TALKING SHORTS TEAM 2021).

During the pandemic, music streaming services have become a lifesaver for many music lovers, and for musicians, of course. How often are musicians and the producers of music “kind enough to share their work for free”? The Berlin Philharmonic shares some of its concerts free of charge, and for others it sells tickets. The viewers of the free concerts are, however, required to register as users – there is no such thing as a free lunch, and hopefully no such thing as free work of art, either (BERLINER PHILHARMONIKER 2021).

There is presently little data available on to what extent people have been resorting to digital presentation channels in their thirst for culture. How many visitors have the virtual museum tours received? How much music and film has been downloaded on home computers? All this needs to be studied and explored in terms of both quantity and quality.

Digital culture was in some ways born in the domain of arts and cultural production. It is therefore quite natural that, during the pandemic, it has been especially in the domain of culture that the practice of producing and consuming content digitally has become increasingly common. Cultural enterprises have historically been among the first to experiment with and adopt digital technologies (digital photos, digital carriers such as DVD and Blu-ray, CDs, digital film technologies, streaming, virtual reality, online platforms, and so on). Cultural content has fueled the growth and development of the Internet from the very beginning, and it still represents a high share of broadband consumption (DESI 2021). The qualitative changes in the production and consumption of culture and art have not necessarily been huge, but they may be permanent.

The *Rebuilding Europe* report (2021: 18) remarks that digitization has accelerated cultural productions: “Culture and creative works now occupy a central place in the digital economy, increasing the visibility of the entire value chain of authors, performers and business partners, and embracing new ways to enlarge audiences. Between 2013 and 2019, the turnover generated by online cultural content, services and works increased by 92% (+12% per year).”

The capacities for the digital publication, production, and consumption of the arts already exist. The challenge lies in the usability of digital production methods, the accessibility of services, and the fairness of the revenue logic. In terms of cultural policy, this means that reflection will certainly continue to be given to how *digitality* is defined. Jaakko, you have suggested that we use the plural form: *digital cultures* (SUOMINEN 2013). Valtysson (2020) in turn defines digital cultural policy through various levels: the micro and the macro. My take on it is that the phenomenon is multidimensional, multivocal, and changing.

References

- ANDERSEN, Christian Ulrik/COX, Geoff/PAPADOPOULOS, Georgios. (2014): Postdigital research-editorial. *A Peer-Reviewed Journal About* 3(1).
- BAHTIN, Mihail (1991): *Dostojevskin poetiikan ongelmia*. (Trans. Nieminen, P.; Laine, T.; Peuranen, E.) Orient Express, Helsinki (Original: *Problemy poetiki Dostoevskogo*, 1963).
- BARTHES, Roland/DUISIT Lionel (1975): An Introduction to the Structural Analysis of Narrative. – In: *New Literary History* 6(2), 237–272.
- BERLINER PHILHARMONIKER (2021): Digital Concert Hall <<https://www.digitalconcerthall.com/de/home>> (18 Jan. 2021).

- CRAMER, Florian (2020): A keynote in the 2020 ENCATC Digital Congress on 3rd November 2020 (introduction available <<https://www.encatc.org/en/news/149-florian-cramer-to-keynote-the-2020-encatc-digital-congress/>> (18.11.2020).
- CRAMER, Florian (2015): What Is 'Post-digital'? – In: Berry D.M., Dieter M. (eds.), *Postdigital Aesthetics*. Palgrave Macmillan, London <https://doi.org/10.1057/9781137437204_2> (18.11.2020).
- DESI (2021): Digital Economy and Society Index (DESI); Business Sector Profile, Eurostat. – In: *Rebuilding Europe – The cultural and creative economy before and after the COVID-19 crisis* (2021) Statistics, Eurostat <https://1761b814-bfb6-43fc-9f9a-775d1abca7ab.filesusr.com/ugd/4b2ba2_8bc0958c15d9495e9d19f25ec6c0a6f8.pdf> (25 Jan. 2021).
- JÄRVINEN, Aki/MÄYRÄ Ilkka (1999): "Kulttuuri muodonmuutosten ajalla" – In: *Johdatus digitaaliseen kulttuuriin*, ed. Aki Järvinen, Ilkka Mäyrä. Tampere, Vastapaino.
- LÉVINAS, Emmanuel (1999): *Alterity and Transcendence*. London: Athlone Press – trans. Michael B. Smith.
- LOTMAN, Yuri (1977): *The Structure of the Artistic Text*. (Trans. from Russian by Lenhoff, G. and Vroon, R.). (Michigan Slavic Contributions 7.) Ann Arbor: University of Michigan.
- MANOVICH, Lev (2017): Visual Semiotics, Media Theory, and Cultural Analytics. Introduction for Lev Manovich, *Teorij soft kulturny* - [Theories of Software Cultures] Nizhni Novgorod, Krasnaja Lashtotzhka 2017 <https://www.academia.edu/36533869/Visual_Semiotics_Media_Theory_and_Cultural_Analytics?email_work_card=reading-history> (24 Jan. 2021).
- MÄENPÄÄ, Marjo (2013): *Co-Created Mobile Narratives*, Annales Universitatis Turkuensis, SER. B 361. University of Turku.
- MÄENPÄÄ, Marjo (2020): Digital Arts and Culture: Transformation or Transgression? An interview in *Compendium of Cultural Policies and Trends* <<https://www.culturalpolicies.net/2020/07/13/digital-arts-and-culture-transformation-or-transgression/>> (19 Jan. 2021).
- PROPP, Vladimir (1968): *Morphology of Folktales*. Trans. From Russia Scott Lawrence. 2nd edition. Revisited and ed. Louis A Wagner. University of Texas Press. Orig. (1928) *Morfologija skazki*.
- SUOMINEN, Jaakko (2013): Kieltäydyn määrittelemästä digitaalista kulttuuria [I refuse to define digital culture]. – In: *WiderScreen* 2-3/2013 <<http://widerscreen.fi/numerot/2013-2-3/kieltaydyn-maarittelemasta-digitaalista-kulttuuria/>> (24 Jan. 2021).
- TALKING SHORTS TEAM (2021): Talking Shorts – My Darling Quarantine Short Film Festival <<https://talkingshorts.com/festivals/my-darling-quarantine-short-film-festival?fbclid=IwAR1BLdW7r7BWYRWUkux9sggLIz9UcO4QcmBENwSZhSzjRcyHaNu72Ic5-Fnc>> (18 Jan. 2021).
- TURKLE, Sherry (2011): *Alone together*. New York: Basic Books.
- TURKLE, Sherry (1995): *Life on The Screen. Identity in the Age of the Internet*. New York: Simon & Schuster.
- TURKLE, Sherry (1984): *The Second Self. Computers and the Human Spirit*. New York: Simon & Schuster.
- TURTIAINEN, Riikka (2019): Leikitäänkö kampaajaa? Digitaalinen koskettaminen ASMR-roolileikkivideoissa. – In: *LÄHIKUVU* 3/2019, 26–45 <<https://journal.fi/lahikuva/article/view/87956>>.

VALTYSSON, Bjarki (2020): *Digital Cultural Politics. From Policy to Practice*. Palgrave Macmillian, Springer Nature.

WIKIPEDIA (2021a): DIGITAL SCENT TECHNOLOGY. – In: *Wikipedia* <https://en.wikipedia.org/wiki/Digital_scent_technology> (29 Jan. 2021).

WIKIPEDIA (2021b): HAPTIC TECHNOLOGY. – In: *Wikipedia* <https://en.wikipedia.org/wiki/Haptic_technology> (29 Jan. 2021).

WIKIPEDIA (2021c): NEW MEDIA. – In: *Wikipedia* <https://en.wikipedia.org/wiki/New_media> (25 Jan. 2021).

WIKIPEDIA (2021d): TAIFUUNI (publishing house). – In: *Wikipedia* <[https://fi.wikipedia.org/wiki/Taifuuni_\(kustantamo\)](https://fi.wikipedia.org/wiki/Taifuuni_(kustantamo))> (24 Jan. 2012).