H-ermes. Journal of Communication
H-ermes, J. Comm. 19 (2021), 293-321
ISSN 2284-0753, DOI 10.1285/i22840753n19p293
http://siba-ese.unisalento.it

The algorithmic imaginary of cultural producers. Towards platform-optimized music?

Massimiliano Raffa, Riccardo Pronzato

The prominent role played by algorithmic platforms in people's everyday lives has in recent years triggered a growing interest towards algorithmic imaginaries, intended as worlds of experience users make of the algorithmic media, thereby building up their own awareness of the platform and in turn moulding the algorithm itself through their performativity. Today, part of the construction of individual cultures takes place on streaming platforms, media environments where subjects access cultural materials and cultural exchanges occur. Platforms, such as Netflix or Spotify, have become privileged sites for studying the platformization of cultural production and the construction of algorithmic imaginaries by users and developers. Despite this, to date little has been discussed about cultural creators' algorithmic imaginaries. This paper intends to discuss how to include algorithmic imaginaries in research regarding platforms and cultural production, by focusing on the case of music platforms. Specifically, the main goal of this contribution is to address the following issues in the light of existing literature: i) The role of algorithms as cultural gatekeepers and how they may affect the creative disposition of music producers, as well as their strategies to relate with the broader environment of cultural production and consumption. ii) The optimization of culture, i.e., how cultural producers may attempt to create platform-optimized products adapting their creative efforts to platforms' affordances, thus fostering processes of product homogenization. Finally, suggestions will be made for future investigations regarding how all the actors in the music industry relate to streaming platforms.

Keywords: algorithms, imaginary, cultural production, platformization, music.

1. Introduction

Although the 'imaginary' is a recurring theme in sociology and anthropology, as well as in media and cultural studies, the sheer range of often contradictory definitions that have been applied to it also render the notion as one of the most arcane and open. Significant speculative premises for a theoretical framework of the imaginary can be traced back to the inter-war years, when, drawing on the Durkheimian view of collective subjectivity as moulded by narratives derived from political, religious and institutional power (Tarot, 1999), intellectuals such as Mauss, Kojève, or Benjamin acknowledged that the categories of myth and the unreal, entrenched in a given society, would contribute to the regulation of shared everyday life (Ragone, 2015, pp. 63-75), hence furthering the idea of 'collective representations' as "the way in which the group conceives of itself in its relationships with the objects which affect it" (Durkheim, 1964, p. 42). However, it is from the 1960s onwards that an extensive literature

emerged, and key concepts related to the imaginary were crystallized. When the awareness of the myth-making power of media productions, as capable of constructing a shared memory within popular culture, became established, the imaginary started being conceived as something able to produce specific symbolic forms, which then underpin subsequent media discourse.

There tends to be agreement about the foundational works on social imaginary in its own right. Durand (1960) — a founder of the first research centre dedicated to the imaginary — was perhaps the first to attempt an exploration of the structures of contemporary mythologies within an anthropological framework. Back around this time, Barthes (1957) had already been discussing the degree to which contemporary value systems generate new mythical categories. Over the same years, Morin (1962) discoursed with an admirably acute degree of lucidity the capacity of the cultural industry to produce allegories for collective identities that were constantly reprocessed through media consumption. Castoriadis (1975) was responsible for what was probably the most thorough delineation of the concept, understood in terms of a body of symbolic representations, often spectacularized as in the case of creative and media productions, that pervade any social institution. Since the mid-1970s, contributions on the imaginary have grown by leaps and bounds, with valuable accounts capable of outlining the hermeneutic complexity of the stream, amongst which it is certainly worth recalling those of authors such as Abruzzese (1979), Thompson (1984), Maffesoli (1988), Taylor (1989), Appadurai (1996), or Žižek (1997).

Over the last two decades, a number of investigations have arisen with the aim of reconsidering the structures and functions of the imaginary in the digital age. Indeed, digital environments have remodeled the social and symbolic spaces within which individuals shape and reshape their perspectives, views of the world and feelings, thus reframing the dynamics underlying the media ecosystem role in producing stereotypes for the collective unconscious. The impossibility of identifying coherently developed streams of research into the interrelation between social imaginaries and new media[1], rather than disputing the validity and

[1] By ‘new media’ we mean ‘digital interactive technologies’, such as mobile devices and algorithmic platforms, in order to theoretically distinguish them from traditional mass media (tv, radio, newspapers, etc.).

application of now-classic studies, has resulted in the retrospective reappraisal of certain authors of the past who were improperly sidelined from the debate.

This article aims to discuss how imaginaries can affect cultural production. Specifically, this process can be framed in terms of a social creativity influenced by a social imaginary, as well as in a more individual sense where imaginaries are meant as occurring in a personal experiential dimension (Herbrik and Schlechtriemen 2019). For this reason, in addition to the aforementioned work of Morin, which is already considered to be a classic in imaginary studies, it is also worth bringing up two other specific authors who are more seldom referred to in this sort of discussion: McLuhan and Moles. Through McLuhan (1964), we can understand the imaginary's tendency to morph and adapt to media environments, thereby conceiving the imaginary as something dynamic, intertwined with the manifestations of creativity, and interpretable according to an ecological perspective, all the more so in a markedly despatialized communicative context. On the other hand, Moles (1967) — an author still in need of proper reconsideration — argued that the media system had the potential to shuffle information and transform it into cultural facts, following a logic that sees the individual as a subject who receives and assimilates this irregularly sampled information into his own cultural environment. In a 'sociodynamic' perspective, consequently, imaginaries are not only an unreal dimension within which consumer-subjects are enmeshed, but rather the creative sphere within which symbolic creators operate.

Today, any consideration of the cultural production-consumption dialectic can hardly be advanced regardless of the part played by machinic mediation in the process of constructing individual and then collective cultures (Couldry and Hepp, 2017). Indeed, a considerable part of cultural interaction occurs within specific media environments, namely the algorithmic platforms. The ubiquity of algorithms and their embeddedness in people's everyday lives assuredly foreshadow a scenario dominated by new sociotechnical dreamscapes (Janasoff

---

Although scholars question whether the term 'new media' can still be applied to digital devices— as the discussion regarding 'new' media has been going on for more than two decades now (McMullan, 2020) — we use this term to highlight that there is little research regarding the interrelation of the social imaginary and these types of media.

and Kim 2015). Their ostensive invisibility and unknowability make them appear as abstract entities, subject to imaginative efforts by those who experience them, but their ability to generate and categorize identities do not pertain to the realm of virtuality or intangibility: algorithms take part in material culture. Digital platforms intervene: they "have distinct consequences for what users are able to do" (Gillespie, 2015, p. 1), as well as what they see, read, think, feel, dream (Bucher, 2018). Algorithms are not unbiased and neutral entities that regulate the functioning of a digital platform, but rather the products of precise choices and values that become proactive actors in moulding social life. Thus, they need to be considered as "contingent, ontogenetic, performative in nature and embedded in wider socio-technical assemblages" (Kitchin, 2017, p. 16). Algorithms dramatically contribute to shape our economic and social life; hence, they must be taken into account in studies aimed at diagnosing social and cultural change (Gillespie, 2014).

The role of the imaginary in how algorithms are designed and implemented by software engineers, as well as in the ways in which they are described and perceived by users, is striking. Given this scenario, in recent years different authors have used the term "algorithmic imaginary" to describe this intertwinement between human perception and algorithmic emergence in social reality.

In the next section we will discuss the concept of algorithmic imaginary. Then, the paper will focus on how to include algorithmic imaginaries in research regarding platforms and cultural production, by focusing on the case of music streaming platforms. Specifically, we will discuss the potential implications of algorithmic gatekeeping and the connected algorithmic imaginaries on cultural production processes, as well as the ways in which these may foster processes of product homogenization. Finally, suggestions will be made for future investigations regarding how music producers may adapt their productions and diffusion strategies in accordance with their platforms' 'imagined affordances' (Nagy and Neff 2015) and algorithmic imaginaries (Bucher, 2017).

2. Defining the algorithmic imaginary

The notion of algorithmic imaginary has been applied to the designers of algorithmic media, as well as to the users of digital platforms. Drawing on the concept of sociotechnical imaginaries (Jasanoff, 2015), Mager (2015) use the term "algorithmic imaginaries" to describe "techno-euphoric interpretations of Internet technologies as driving forces for economic and social progress" (p. 6) that are common among employers and employees in social media and web companies. This view is supported by Williamson (2018), who interprets algorithmic imaginaries in the sense of imposed ideological devices, based on a "Silicon Valley ideal of calculating, predicting and pre-empting human behaviours and social institutions through technical platforms that are increasingly automated and data-driven" (p. 223). According to this perspective, individuals employed in technology companies share specific ideas, objectives and visions of the future that lead them during the fabrication process of software technologies. The same ideals are, in turn, materialized in those same technologies, which aim to govern specific ways of life and to shape social behaviour in accordance with particular forms of social order. As Kitchin and Dodge (2011) put it: "the code created is the manifestation of a system of thought – an expression of how the world can be captured, represented, processed, and modelled computationally with the outcome subsequently doing work in the world" (p. 26).

Although this view sheds light on the role of human biases and ideas in the design of code, we support that it is also overly techno-deterministic. Indeed, such a perspective may overlook the fact that the social power of algorithms is conveyed through intersubjectivity, and through the interface between environment and user performativity on the platform (Beer, 2017).

A better balanced and cogent idea seems to come from Bucher (2017; 2018), who intended the 'algorithmic imaginary' as the world of the experience users make of the algorithmic media, thereby building up their own awareness of the platform and in turn moulding the algorithm itself through their performativity. The author does not consider algorithmic imaginary to be a fetish or an ideology, but instead as "the way in which people imagine, perceive and experience algorithms and what these imaginations make possible" (Bucher, 2017,

p. 31). At the same time, Bucher adopts the concept of the imaginary merely as a metaphor, without drawing on the speculative frameworks that have been elaborated within the sociologies of the imaginary, but rather relying on other sources — such as Merleau-Ponty's phenomenology of perception (1945) or Deleuze and Guattari's theory of 'affects' (1980), which more solidly support the author's practical, grounded approach.

More specifically, Bucher highlights that users can have a proactive role in their relationship with algorithmic media as "algorithms do not just do things to people, people also do things to algorithms" (2018, p. 94). Indeed, users contribute to reconfiguring algorithms with those actions, perceptions and strategies adopted when using a platform. What users perceive and believe regarding the functioning of the platform, i.e. the algorithmic imaginaries, influences the way users would behave within that environment. Then, given the feedback loop mechanism underlying digital platforms (Airoldi and Rokka, 2019), users' activities play an important part in shaping how the machine works and the overall system - and, hence, users' behaviour.

This mechanism highlights that algorithmic imaginaries have a productive function. They shape how individuals experience social reality, they produce different moods associated with the use of digital platforms, and they "play a generative role in moulding the algorithm itself" (Bucher, 2017, p. 41).

Furthermore, from a phenomenological perspective, people's beliefs about algorithms can be a gateway for a better understanding of "how and when algorithms matter" (Bucher, 2018, p. 98) and how algorithms are enacted in everyday life (Seaver, 2017). Indeed, researchers can observe the emergence of algorithms in everyday life algorithms by analysing the affective encounter between human and non-human actors (Bucher, 2017).

In sum, algorithmic imaginaries can therefore be interpreted in a twofold way: both in terms of intangible representations and worldviews, such as the one by the producers of algorithmic media, and as worlds constructed by users' perceptions, which then have multifaceted consequences on how users behave and algorithms react within a recursive logic.

When it comes to cultural content industries such as recorded music, however, the issue becomes more complicated, since the subjects involved are not only users, but also symbolic creators. Artists and music do not only use platforms to access contents, but they produce contents for the same platforms. Today, most of the musicians distribute their products on music streaming platforms, such as Spotify, Deezer, Apple Music and so forth. Their algorithmic imaginaries, thus, might influence the creative and production process. This aspect has not yet been sufficiently investigated and may need a reappraisal of the aforementioned 'classics', which have acknowledged a role for the cultural industries in the process of construction of the social imaginary. First, however, it is necessary to shed light on some basic features of the current scenario of cultural production.

3. Algorithms as cultural gatekeepers

In light of what has been outlined thus far, we identify the intermediary subjects of the process of cultural exchange as having a crucial role in defining the structures of the imaginary. That role Morin (1962) had identified in the cultural industry, today can be found elsewhere, considering the current crisis of the industrial system of culture, replaced by the model of algorithmic platforms. Nevertheless, the function of gatekeepers has not changed, but only been transformed. Indeed, the gatekeeping practices established through online social network services and streaming platforms have now forced further reflection on the reticular nature of the relationships that trigger the information transfer processes from production stages to the public. Moreover, the issue has acquired additional complexity in view of the increasingly evident gatekeeping power exerted by algorithmic platforms.

As early as in the 1960s, Moles (1967, pp. 77-85) identified gatekeepers as having a pivotal role in the process of shaping the imaginary (though he did not use this concept explicitly). In the author's view, society is constituted by an extensive network of continuously intersecting cultural circuits. In this context, a cycle of reaction is established between cultural producers and consumers, which reduces cultural objects to commodities. Such issues would be of particular

concern as culture flows through mass media, which are controlled by a restricted number of individuals: the 'cultural gatekeepers', who hold power over the evolution of society and the definition of the imaginary.

Cultural exchanges always imply a set of practical activities located in specific historical and cultural contexts, supported by relatively stable relations of power and relatively changing conditions of access to material and symbolic resources that allow the exchange to take place. Therefore, cultural reception activities are compressed within practices that are often spontaneous and ordinary, but at the same time can spark off processes of technical and semantic reworking of received symbolic materials among the cultural consumers (Thompson, 1995, pp. 10-43).

Both Moles and Morin seem to concur in affirming that in our contemporary world individual cultures — which can be interpreted in a sense that is not so dissimilar from that of 'cultural capital' (Bourdieu and Passeron, 1977) — are influenced not only by the information acquired in everyday experience and from educational institutions, but also (and above all) by all those fragments of knowledge (which Moles calls '*culturemes*') disseminated by the media system. For this reason, the cultural landscape and its foundational myths can be more thoroughly understood by considering the role played by intermediary figures such as cultural gatekeepers, who operate as filters and determine which cultural materials should be included in the mediasphere. The control and selection of cultural objects is not possible in the same ways as it used to be throughout most of the last century, especially in the age of the Internet. Yet, the role of cultural gatekeepers has certainly an influential impact both on the environments inhabited by cultural consumers and on the artistic predisposition of symbolic creators, who have to cope with the gatekeeping barriers to disseminate their creative products.

The role of gatekeepers has been capturing the interest of communication studies since after World War II (Lewin 1947; White 1950). It has long been observed exclusively in relation to the screening systems of news coverage in traditional media (Tuchman 1978), particularly television (Altheide 1976). Such processes do not only concern the movement of information goods, but are also crucial with regard to the circulation of objects marketed by cultural industries. As

far as the recorded music industry is concerned, the process of materials selection and filtering has always been interpreted through the supply chain model. According to Hirsch (1972; 1975), cultural production should be understood as consisting of two stages, an input and an output one. The former is where creators — songwriters, performers, musicians, producers, companies, in other words all those involved in the 'art world' (Becker, 1982) — produce a work that is made commercially viable by the industrial system; the latter includes the institutional media system that receives products from companies and in turn delivers cultural objects to consumers, who constitute the final link in the chain. A portion of consumers' and media operators' judgment generates feedback, which is then returned in various forms to artists and operators. The truly original element of the model lies in the importance given to the filtering activities carried out by the gatekeepers. However, today, it would seem more appropriate to consider gatekeepers both as subjects working at an output level (radio DJ's, promoters, music press, TV shows, and so on) and at an input one, as in the case of artists and repertoire departments in record labels or music publishing companies, who select artists through scouting activities, thereby exerting their selective power. What is interesting is how these selective processes work, and how symbolic creators can reshape their artistic impulses as a function of such processes.

Negus (1992, pp. 54-56) has argued that the conveyance of creative inputs to audiences occurs by means of two distinct ideological devices employed by the industry: the 'organic ideology of creativity' and the 'synthetic ideology of creativity': the former would rely on the commercial valorisation of intrinsically artistic and authentic qualities, and would be typical of artists on which it is possible to make long-term investments, and which are generally intended for a more mature and sophisticated audience, actively engaged in the album market; the latter, on the other hand, follows a more bluntly mercantile logic and is applicable to artists who are less significant in creative terms and whose image and music are meticulously constructed by the industry in order to make them express their potential in the short term, attracting generally youth and generalist audiences inclined to purchase single records. The theory, now somewhat dated, holds truths, but it fits uneasily within our discourse, as it seems to overemphasize

the direct mystifying power of industry. We support that it is possible to get a better understanding of how the industry and the artists relate by approaching the phenomenon in a more ecological way. Indeed, the industry takes up creative solicitations from exchanges that occur outside their control, and provide for the channelling of products within customs, conventions, and categories typical of commerce. Nevertheless, symbolic creators are no strangers to the social realm: it is there that they experience the world and construct their identities. Thus, their creative activity, rather than being transformed by the industry, may rather be optimized for the industry — in addition to being co-shaped by the imaginary reproduced by it. However, in order to understand how a process of music optimization can be structured today within an environment over which the algorithmic imaginary hovers, it is necessary to understand how the platformization of cultural production and distribution has transformed gatekeeping mechanisms (e.g. Nieborg and Poell, 2018; Prey *et al.*, 2020).

The period between the foundation of Napster in 1999 and the arrival of Spotify in 2008 — which also corresponds to the worldwide and granular diffusion of the Internet, especially in the West — marked the transition from the intermediation of traditional gatekeepers to the affirmation of a new type of subject, i.e. *platform gatekeepers*. Initially, the diffusion of Napster, a software based on a peer-to-peer (P2P) file sharing logic, enabled the disintermediation of the roles of traditional gatekeepers, such as TV and radio, and of the major record labels, thereby allowing both music listeners and musicians to exchange and share music in a rather unprecedented way (Johns, 2010). Nevertheless, the affirmation of music streaming platforms, such as Spotify, that took place in the last decade, marked the beginning of a new phase in the process of industrial transformation of cultural artifacts into commodities with exchange value (Bonini *et al*., 2019).

Today music streaming platforms are one of the major means through which individuals can listen to music on a global scale (Friedlander, 2017; IFPI, 2019). At the end of 2020, Spotify reached 345 millions of monthly active users and 155 million subscribers in 178 countries (Spotify, 2021), while it has been estimated that “Today’s Top Hits”, one of the most popular algorithmically generated Spotify’s playlists, has a wider audience compared to any other radio station in the

USA (Music Business Worldwide, 2018). Furthermore, in 2019, music streaming platforms account for circa 56% of the total revenue generated by recorded music (Statista, 2021).

Following the idea of Hirsch (1972), if in the 1970s the output was filtered by mass-media gatekeepers, today music streaming platforms, i.e. algorithmic-based systems, are the new gatekeepers to which it is necessary to rely to reach target audiences. Moreover, platforms not only become one of the main channels that listeners use to access music, but they dramatically redefine how music is organized and consumed. Specifically, there is one particular mode of music curation and listening that has become central on music streaming platforms: playlists (Prey, 2019; 2020). Experts consider playlists on Spotify to be "the new radio" (Shah, 2019) as today they are one of the central means through which listeners consume music. Being in a playlist with millions of active listeners implies that artists can potentially accumulate millions of streams — the new unit of measure with which the success of a song is assessed. Given this scenario, Bonini and Gandini (2019) claim that playlists are the 'new gatekeepers' of the music industry. However, the authors highlight that playlists are not human intermediaries as they used to be radio programmers, tv channels, magazine critics and so forth, which could exert an editorial power on the music industry[2]. Indeed, all the Spotify-curated playlists — which are the most-listened playlists on the platforms[3] — are the combination of human choices and algorithmic decisions. Moreover, there are also user-personalized playlists (e.g. "Discover Weekly" and "Daily Mix") which are completely algorithmically-generated (Ramirez, 2017). On streaming platforms songs are ceaselessly selected, inserted and removed by algorithmically driven software programmes, hence, playlists are the result of "the intermingling between algorithmic affordances and human agency in music curation" (Bonini and Gandini, 2019, p. 4). Given their highly influential role,

[2] Today radio stations also employ algorithmically driven programs to select the music that will be broadcasted (Bonini and Gandini, 2019). This illuminates the increasingly striking role of computational procedures in the sorting, categorizing and hierarchizing of cultural products (Striphas, 2015).

[3] As supported by Prey (2020): "the true hit-makers are the playlists owned and curated by Spotify itself. Spotify has created thousands of its own playlists. The top Spotify-curated playlist - the algorithmically generated "Today's Top Hits"-counts over 22 million followers. The 35 most followed playlists on Spotify (as of January 2019) were all Spotify-curated playlists; as are 99 of the top 100 playlists." (p. 3).

their gatekeeping activity can be considered "as a form of "algo-torial power" that has the ability to set the "listening agendas of global music consumers" (p. 1).

The politics of selection underlying platforms (van Dijck *et al.*, 2018; Prey, 2020) is not impartial and shows that these "complex socio-technical assemblages" (Kitchin, 2017) are not neutral intermediaries, but powerful gatekeepers that encourage specific modes of listening and particular ways of considering the user (Prey, 2018). Indeed, processes of datafication allow platforms to ubiquitously track users, recommend them personalized contents, select and promote certain cultural products over others, as well as profiling individuals according to surveillance capitalist logics (Zuboff, 2019). Users are encouraged to rely on the platform to choose what music to listen to, to the point they no longer need to decide what it is best for them. The platform is programmed to alleviate their "burden of choice" (Cohn, 2019) and guide them through the music they (supposedly) like or need in a specific moment (Prey, 2018).

Playlists are the mode of listening in which this process materializes. In completely algorithmically driven playlists songs are selected and ordered according to the user profile, while in top Spotify-curated playlists users can find tracks to fit a specific context, mood or experience (Seaver, 2015).

Within this scenario, it emerges the crucial role of platforms' affordances. Caliandro and Gandini refer to the term affordances as "the socio-technical architectures of digital media and their capacity to shape the agency of social actors" (p. 11) and the following opportunities and constraints that platforms set to user actions and interactions. It should be noted that this notion allows researchers to take into account the role of digital architectures, while not bowing to technological determinism. Indeed, technologies ought to be considered effective, rather than agentic (Schraube, 2009). Agency is reserved for humans, which act, however, within the specific socio-technical characteristics (i.e. opportunities and constraints) of certain platforms, which have been designed by humans themselves (Davis, 2020, pp. 60-64).

Returning to the role of listeners (users) and musicians on music streaming platforms, it is interesting to scrutinise how users are encouraged to act on music

streaming platforms and how the architecture of music platforms positions users in relation to musicians and their cultural products. If users are encouraged to rely on playlists and personalized recommendations, the work of musicians is obscured by platforms. As supported by Prey (2019), the promotion of platform-curated playlists and the "deliberate manipulation of search results" to favour contents selected and organised algorithmically allow platforms "to assume control over curation" (p. 5). According to Negus (2019), on platforms, such as Spotify, "the curator becomes more significant than the creator" (p. 371). On playlists in which thousands of songs are continuously inserted, sorted and hierarchized, musicians risk to "become subordinate, mere content-developers for playlists: useful for attracting users but at the same time interchangeable and ultimately dispensable" (Prey, 2019, p. 6).

Furthermore, artists lose control over the presentation of their products and need to cope with the affordances and logics of the platform in order to reach audiences. Today, playlists are the main environment in which artists can reach new listeners, and to be or not to be on a playlist can change the career path of an artist. For instance, there are playlists, such as Rap Caviar, that have more than 13 million followers and can be the springboard for being added on other playlists and growing one's streams exponentially.

Recently, it has been reported that many artists are using payola to be added to Spotify playlists (Owens, 2018; Powell, 2021). Traditionally, the term 'payola' refers to the illegal practice of paying off a radio station or disc jockey in order to have a specific music recording playing without the public knowing about it (Wilcken, 2009). Today, new forms of payola are taking place in relation to Spotify. Indeed, although Spotify has always denied and forbidden pay-to-play schemes, musicians and their teams are increasingly willing to pay curators or intermediary companies to have their songs inserted in certain playlists.

In light of the above, it emerges that music streaming services are now key gatekeepers of the music industry, and that cultural producers have to cope with the logics and affordances of platforms to increase the financial value of their cultural products. We argue that all these aspects concerning music streaming platforms and the production and distribution of cultural products may affect the

creative disposition of music producers, as well as their strategies to relate with the broader environment of cultural production and consumption.

4. Towards a platform-optimized culture? The case of recorded music

It might seem quite commonsensical to assert that music creation has always been adjusted to suit the media through which musical objects are disseminated. Indeed, this has actually always been the case, at least in the contemporary Western world. Yet, such an idea would be likely to sound somewhat techno-deterministic. In fact, the roots of contemporary popular music are well-traceable within certain cultural and urban contexts, rather frameable in space and time, and relatively autonomous from the media system (Fabbri, 2016, pp. 3-41). Nevertheless, our perspective would be incomplete, as we would underestimate both the inherent, genetic correlation between media and culture in all expressions of technologically mediated music (Middleton, 1990, pp. 64-93; Jones, 1992; Shuker, 2014, pp. 1-65) and the progressive media seizure of the realms of cultural production (Cook, 2019, pp. 5-28). The functioning and designs of digital platforms seem to have carried the mentioned process to full completion, therefore, it is now more pertinent than ever to turn our attention towards what Katz (2004) called 'phonograph effects'. The author refers with this concept to the tendency of music creators to adapt their artistic contents and practices to the technical devices in widespread use, thus internalizing the present mediascape in their creative work. A notable example of this process is how musicians changed the way they played their instruments in order to be better captured by early sound recording technologies during the 1920s (Katz, 2006).

Drawing on Katz's work, Morris (2020) has recently proposed the idea of 'platform effects', to which is tied that of 'optimization of culture'. The latter indicates "the strategic preparation and readying of cultural goods to orient them toward and ready them circulation, discovery, and use on particular platforms" (p. 4), understood in the context of recorded music media as (i) the wish of music creators to produce content that can fit with algorithmic or editorial playlists, (ii) the aim of music companies to maximize their performances on the platform, (iii)

the intent of other players in the cultural industries who can exploit recommendation systems to increase visibility and circulation. Specifically, Morris identified three types of strategy to optimize cultural products that people across the cultural industries may adopt in order to obtain more visibility on music streaming platforms and (therefore) increase their profits. First, Morris supports that cultural producers can pursue strategies of *sonic optimization*. In other words, they may adjust their songs or records in order to fit the (imagined) affordances of music streaming platforms. For example, Harding and Sloan support that songs are getting increasingly shorter as musicians are getting paid in a stream on platforms. Thus, in order to have more songs streamed at a time (and, hence, being paid more), musicians are increasingly composing shorter songs (Mack, 2019). Second, a strategy might be *data optimization* (Morris, 2020), which refers to artists that attempt to optimize their products "through (meta) data means" (p. 5). Tricks may involve naming a musical project or a song after popular search terms, in order to create "clones" of popular songs, artists or genres. Finally, *infrastructural optimization* refers to strategies aimed at optimizing an artist's performance on the platforms by exploiting the basic logics of the platform itself through "click fraud" practices. For instance, artists may attempt to boost their play counts by using bots, artificial streams or even employing real fans as bots (e.g. Morris, 2018).

Optimization is a recurring term in digital media, and the process of 'remediation' (Bolter and Grusin, 1999) also carries along with it the need to reshape certain creative practices (such as writing) so that they can be adapted to the new environments. Music is no exception. To appreciate why the optimization of music recordings is a more contemporary than historical problem, it is critical to note some features of contemporary music-making culture. Moles (1970), by the 1970s, was already ascribing to the manipulative abilities of record producers and sound engineers ample possibilities for characterizing the qualities of sounds that could segment listeners into predictable subcategories. Furthermore, he predicted that the mechanization of the technical-productive process of music-making would eventually not only subjugate the poietic phases, but even place the figure of the composer in the same space as the users. In the early 1970s, it was

hardly possible to presume the extent to which computers and machines of increasing availability would impact the way music would be created and enjoyed, but it was already clear how the digitization of analog signals through computers would have led to the possibility of standardizing creative processes. At arm's length from those early insights and other predictions about the productive role that consumers would have assumed through given technological devices and production processes (McLuhan and Nevitt, 1972; Toffler, 1980), it can be argued that a paradigm shift in the dynamics of cultural production has occurred in contemporary culture, eventually subjecting even creative practices (Ritzer and Jurgenson, 2010) to the tenets of 'platform capitalism' (Srnicek, 2016).

The crisis of authorship in the digital world is frequently addressed through the metaphor of the so-called 'remix culture'. The theoretical status of 'remix culture' is still rather fuzzy, and the several perspectives that have been investigating the issue have highlighted that systematic recombination has not only technical (Navas, 2011) and legal (McLeod *et al.*, 2011), but more generally cultural implications (Gournelos and Gunkel, 2012), due to the now established capacity of manipulative and recombinatory techniques to redefine the current aesthetic landscapes on a global scale. Lessig (2007) argued that the shift from the commercial economies (where corporations' businesses depended on their assets) to sharing economies (in which large information technology corporations exploit the value generated by user interaction on platforms) has corresponded with the rise of a 'read-write culture' over a 'read-only culture', marking the ultimate transition from a passive model of cultural production and consumption to one that tends to be mainly recombinative. One of the clearest manifestations of the modular nature of today's music culture seems to be the extensive use of assisted compositional techniques. The proliferation of amateur productions and low-cost hardware and software devices established on consumer markets (Théberge, 1997; Moorefield, 2005; Strachan, 2017) — which have contributed to the progressive de-professionalization of the industry and the spread of a proper 'aesthetics of amateurism' (Katz, 2012) —, prelude to an ideal scenario for an optimized culture. A critique of the optimization of culture calls for re-considerations about the notions of authorship and creativity.

Creativity, in the context of popular music — the macro-class of music mainly spread by platforms —, has been mostly addressed from a musicological or sociological perspective. Musicologists and media scholars have often shared the uncomfortable condition of dealing with the relationship between 'meta-textual' and 'meta-contextual' analysis (Tagg, 2012). Sociology, especially after World War II, has observed popular music from two major perspectives: the study of the concept of 'mass culture', and the observation of subcultures and consumption habits of young people (Frith and Goodwin, 1990), though rarely focusing on the technical and theoretical systems that underlie music writing, as if exquisitely musical choices were not able to go through a process of socialization and then express semantic values of sociocultural and psycho-social interest. Musicology, on the other hand, has mainly interpreted the value of music as a pure "effect of its form" (Frith, 2001, p. 953), which is why it has historically nurtured little interest in popular music, long dismissed as a mere expression of lowbrow or middlebrow culture. Popular music studies, in this respect, have had the merits of acknowledging to everyday sounds the appropriate aesthetic and social relevance, although the discipline is still waiting for the full, adequate academic recognition it would deserve — which is still inexplicably lacking, at least in some countries.

Today, understanding musical creativity and its transformations within the media environments requires a crucial interpretative challenge, which is only possible through an interdisciplinary discourse that could encompass knowledge pertaining to several fields that have been considered separately for too long, such as acoustic physics, music theory and media studies. After all, platforms themselves employ tools that can analyze in-depth the intrinsic properties of music recordings to integrate with the behavior of algorithms. These highly sophisticated devices are, for example, Music Genome Project, used by Pandora, and The Echo Nest, used by Spotify, which through web crawling, data mining, digital signal processing and other methods of abstract quantification, are able to gain highly detailed information about millions of music recordings distributed by the platform itself (Morris, 2015; Eriksson *et al.*, 2019). These data allow for an extremely accurate profiling of the choices and consumption styles of users,

whilst the users themselves are simultaneously trained by the algorithmic arbitrariness, selecting (under the supervision of the platform, which in the meantime provides data) the cultural materials to be enjoyed (Goldschmitt and Seaver, 2019; Scherzinger, 2019). The platforms thus operate a reification of the cultural object but also of the user, whose individuality is understood in a processual sense, since it is partly acquired and partly constructed by the process of algorithmic "individuation" (Prey, 2018).

The way in which music-making has changed since the coming of the digital age can be investigated in the light of research that has taken into account the intrinsic qualities of music in circulation. Although platforms and digital audio file archives reveal a scenario in which the supply of music is almost unlimited and able to meet the tastes of the most diverse niches, several studies reported that in the general public markets the products of recorded music have gone through a process of standardization (Serrà *et al.*, 2012; Devine, 2013; Blendell, 2015; Wikström et al., 2019) or of attenuation of fruition intensity (Kassabian, 2013; Hesmondhalgh, 2013). Such studies cannot be considered fully exhaustive, given their strictly quantitative approach and the fact that they sometimes lack a proper musicological background, but they certainly offer a picture of the current landscape of recorded music. Observed from a broader perspective, platformization shows potential threats to the processes of renewal of the cultural forms that feature the products of creativity, and thus the further development of cultural consumers' abilities to establish aesthetic relationships with more complex, articulated and demanding productions. It is unlikely that a system based on maximizing the popularity of certain products in order to increase the advertising value in media environments, as is the case with platform capitalism, will not mitigate cultural products' innovation and differentiation. Cultural production, in fact, is always evaluated by the platform in exclusively quantitative terms of economic performance (Van Dijck, 2013), and barely ever in reference to the textual dimensions of cultural objects. These mechanisms can affect the cultural creators themselves, who may end up, often without being fully aware of it, obliged to constantly adapt the formal and semantic bodies of their works to the structural constraints of digital environments. All in all, as mentioned before,

platforms use devices such as recommender systems to promote a circulation of cultural materials as closely as possible to their own economic-commercial needs. The same creators are also subject to a further effect of these mechanisms: as matter of fact, the system is unable to pay artists' intellectual work properly below a certain threshold of performance (Hesmondhalgh, 2020; Siciliano, 2021).

Furthermore, these indications would seem to conflict (Elberse, 2008; Benghozi and Benhamou, 2010) with the optimistic rhetoric of the 'long tail theory' (Anderson 2006; Aguiar and Waldfogel, 2016), according to which the business model established by the information technology multinational corporations would contribute to a greater circulation of cultural products that are not stereotyped and not aligned with the canons of the dominant industry, making the market reality of cultural industries more lively and diverse. Indeed, this is a purely ideal-typical condition built on a mystifying utopia, which relies solely on quantitative considerations without describing in any way the qualities of the cultural products considered and without reflecting the serious inequalities generated by the system. The fact that there are extensive possibilities for small producers to distribute their products does not imply an efficient removal of entry barriers, but rather the establishment of new potential forms of cultural tyranny. As a matter of fact, smaller producers, as well as independent producers who rely on significant market niches — they too economically weakened by the new system (Couldry and Turow, 2014) — are compelled to monetize by adapting their productions to the algorithmic power, leaning towards mainstream cultural models, which are rarely endowed with innovative strength. Besides, this happens in a context in which the market competition is enlarged to an almost incalculable number of actors that makes the offer difficult to manage, while in the meantime the platforms' governance is increasingly concentrated in a limited number of hands.

Given this scenario, it emerges the striking role that algorithmic imaginaries can have in shaping cultural production. We support that the relationship between cultural creation and algorithmic imaginaries can thus be interpreted in two different ways, depending on whether we interpret imaginaries as 'generative' or 'perceptual'. In the former case, the intertwinement between algorithmic

imaginaries and algorithmic media can produce specific cultural imaginaries. Imaginaries never constitute an objective depiction of a specific cultural reality, but rather a fictional and sometimes stereotypical representation, which is condensed into a historical memory from which other cultural artifacts will be removed. In this sense, cultural creators may be led to conform with the dominant narrative, which, however, is not produced only by a cultural industry that aims to entertain or educate, but also by the algorithmic infrastructure, which is driven by the purpose of creating value in the advertising market. In the latter case, we are not referring to the imaginary produced by the algorithms, but rather to what cultural creators and users perceive of the cultural landscape portrayed by the platforms. Indeed, platforms not only promote certain cultural proposals over others, but they also delete some parts of the social world, thereby excluding from the cultural reality contents which are unable to meet the algorithmic flow (e.g. Gillespie, 2015).

In both cases we find ourselves before a scenario where the representation of the cultural reality is co-shaped by algorithmic affordances and recommendations. Today, cultural producers are provided with music-making technologies that enable the predisposition of recordings that are as much in line with their algorithmic imaginary as possible, and therefore platform-optimized. Although this may all seem like a blessing for both music creators and consumers, it might actually pose serious menaces to the art form and its creative advancements.

5. Future research and empirical challenges

In a documentary aired on January 2, 2021 on Italian public television, a number of young artists, A&R executives, music producers and music promoters were invited to discuss the emerging youth music milieu. All the interviewees seemed to agree on a rather favourable consideration of streaming services: what emerged, indeed, was a shared belief that algorithmic platforms are democratic, meritocratic, and inclined to reward the most authentic and highest quality products, as not filtered by the discretion and interests of the old gatekeepers.

Aside from showcasing a rather naïve view of platforms' power, which is somewhat paradoxical considering they are direct stakeholders in the algorithmic processes, the positions held by artists and executives seemed to confirm Bucher's idea that the perceptions of the algorithmic imaginary are not necessarily negative — quite the contrary! Certainly, both artists and executives are aware of some potential distortive dynamics that underlie the functioning of streaming services, and it is not beyond the realm of possibility that many of them perceive platforms as threatening — for example, in terms of financial remunerations, or in terms of unequal treatment across niches, genres or geographic areas. What is certain, instead, is that the "imagined affordances" of streaming media, that "emerge between users' perceptions, attitudes, and expectations" (Nagy and Neff, 2015, p. 1), can affect cultural creators, as long as platforms disclose narratives and sonic or thematic conventions, thereby shaping aesthetic worlds, potential audiences, career achievements and, more generally, possibilities of action to which musical creators are expected to comply. At the same time, music creators experience a specific understanding of those aesthetic worlds, which may be also partly dependent on their own algorithmically generated music bubble.

To comprehensively understand how the realm of cultural creation is intertwined with the algorithmic imaginaries of different actors within the music industry, there are different research paths that would be fruitful to empirically investigate. Indeed, this paper has thrown up many questions in need of further investigation regarding how all the actors in the music industry relate to streaming platforms.

First, it would be interesting to investigate which algorithmic imaginaries are developed by cultural creators and related figures in relation to music streaming platforms. The imaginary needs to be considered as a "generative and productive" experience, which "enables the identification and engagement with one's lived presence and socio-material surroundings" (Bucher, 2018, p. 113). Cultural producers, but also the people working with them in music labels, perceive and interpret the affordances of platforms in specific manners. Thus, what these algorithmic imaginaries, in turn, make possible? How do the

algorithmic imaginaries of cultural producers, and of their employers or collaborators, contribute to shape their work and cultural products?

Then, future research will also need to examine how symbolic creators may conform their creative outputs to the perceived affordances of a streaming platform. Algorithmic imaginaries are powerful at the productive and affective level (Bucher, 2017). The ways in which individuals use technologies can be shaped by the imaginary itself. Likewise, how technologies work can affect (and be affected by) the imaginary (Nagy and Neff, 2015), which play a crucial role in the decision-making process of individuals (Markham et al., 2019). Within this framework, cultural producers may carry out practices of music optimization to make their creative products potentially more well-suited for streaming platforms. This is extremely relevant at a sociological level as optimization is "politics by other means" (McKelvey, 2019). Thus, which is the role of algorithmic imaginaries in the creation of cultural products? How do algorithmic imaginaries intervene in the process of cultural creation? How does this change the intrinsic aesthetic qualities of music in circulation?

Finally, to better comprehend the ecosystems in which digital platforms and the music industry constantly interrelate, it would be necessary to embrace a more ecological approach and take into account all the human and non-human actors involved in the realm of cultural production. Indeed, there are several individuals working around the music industry — such as musicians, music producers, people working in different divisions of music phonographic and publishing companies, press offices, journalists and so forth, but there are also numerous non-human actors. For instance, apart from music streaming platforms, through which artists distribute their music, creative producers employ software programs like digital audio workstations in order to write, record and produce music, and also other platforms, such as social media, to promote an artist's image and their products. All these software programs have specific affordances and are linked to productive imaginaries who guide user interactions and contribute to shape social life and cultural production; hence, they should be included in broader perspectives which aim to get a better understanding of the phenomenon under scrutiny.

Given these theoretical formulations, the empirical challenge for both media and music scholars becomes that of assessing the relationship between music streaming platforms, algorithmic imaginary and cultural production, without excluding other actors involved in the process. This paper has suggested several courses of actions for future studies as the research climate is ripe for further investigations into this research stream, encouraging a closer discussion between disciplines that are increasingly disengaged from each other, and wishing that more and more critical eyes could be cast on the complex developments and issues that communication technologies may pose to the realms of cultural production and reception.

References

Abruzzese, A. (1979). *La grande scimmia. L'immaginario collettivo dalla letteratura al cinema e all'informazione*. Roma: Napoleone.

Aguiar, L. & Waldfogel, J. (2016). Even the losers get lucky sometimes: New products and the evolution of music quality since Napster. *Information Economics and Policy*, 34, 1–15. DOI: 10.1016/2015.12.003

Airoldi, M. & Rokka, J. (2019). Algorithmic consumer cultures. Paper presented at the ICR 2019, Lyon, France.

Altheide, D. (1976). *Creating Reality: How Television News Distorts Events*. Beverly Hills: SAGE.

Anderson, C. (2006). *The Long Tail*. New York: Hyperion

Appadurai, A. (1996). *Modernity at Large*. Minneapolis: University of Minnesota Press.

Barthes, R. (1957). *Mythologies*. Paris: Éditions du Seuil

Becker, H.S. (1982). *Art Worlds*. Berkeley: University of California Press.

Beer, D. (2017). The social power of algorithms. *Information, Communication & Society*, 20(1), 1-13. DOI: 10.1080/1369118X.2016.1216147

Benghozi, P. J. & Benhamou, F. (2010). The Long Tail: Myth or Reality?, *International Journal of Arts Managemen*t, 12(3), 43-53.

Bolter, J.D. & Grusin, R. (1999). *Remediation: Understanding New Media*. Cambridge MA: MIT Press.

Bonini, T., Caliandro, A. & Anselmi, G. (2019). La diffusione della musica pop nel sistema ibrido dei media: tra piattaforme digitali e broadcaster tradizionali. *Studi culturali, 16*(2), 225-256.

Bonini, T. & Gandini, A. (2019), "First week is editorial, second week is algorithmic": Platform gatekeepers and the platformization of music curation, *Social Media + Society*, 5(4), 2056305119880006. DOI: 10.1177/2056305119880006

Bourdieu, P. & Passeron, C. (1977). *La Reproduction. Éléments pour une théorie du système d'enseignement*. Paris: Éditions du Seuil.

Bucher, T. (2017), The algorithmic imaginary: exploring the ordinary affects of Facebook algorithms, *Information, Communication & Society*, 20(1), 30-44. DOI: 10.1080/1369118X.2016.1154086

Bucher, T. (2018). *If... then. Algorithmic power and politics*. Oxford, UK: Oxford University Press.

Caliandro, A. & Gandini, A. (2016). *Qualitative research in digital environments: A research toolkit*. London, UK: Routledge.

Carr, N. (2010). *The Shallows: What the Internet Is Doing to Our Brains*. New York: W.W. Norton

Castoriadis, C. (1975). *L'Institution imaginaire de la société*. Paris: Seuil.

Cohn, J. (2019). The burden of choice: Recommendations, subversion, and algorithmic culture. New Brunswick, NJ: Rutgers University Press.

Cook, N. (2019). *Digital Technology and Cultural Practice*, in Cook, N. *et al.*, *The Cambridge Companion to Music in Digital Culture*. Cambridge: Cambridge University Press.

Couldry, N. & Turow, J. (2014). Advertising, big data, and the clearance of the public realm: marketers' new approaches to the content subsidy, *International Journal of Communication*, 8, 1710-1726. Retrieved March 23, 2021: https://repository.upenn.edu/asc_papers/413

Couldry, N. & Hepp, A. (2017). *The Mediated Construction of Reality*. Cambridge: Polity.

Davis, J. L. (2020). *How artifacts afford: The power and politics of everyday things*. Cambridge, MA: MIT Press.

Deleuze, G. & Guattari, F. (1980). *Mille Plateaux*. Paris: Les Éditions de Minuit.

Devine, K. (2013). Imperfect sound forever: Loudness wars, listening formations and the history of sound reproduction. *Popular Music,* 32(2), 159-176. Retrieved March 23, 2021, from http://www.jstor.org/stable/24736755

Durand, G. (1960). *Les Structures anthropologiques de l'imaginaire*. Paris: PUF.

Durkheim. E. (1893/1964). *The division of labour in society*. New York: Free Press.

Elberse, A. (2008). Should You Invest in the Long Tail?, *Harvard Business Review*, 86(7-8). 88–96. Retrieved 23 March 2021: https://hbr.org/2008/07/should-you-invest-in-the-long-tail

Eriksson, M., Fleischer, R., Johansson, A., Snickars, P., & Vonderau, P. (2019). *Spotify teardown: Inside the black box of streaming music*. Cambridge, MA: MIT Press.

Fabbri, F. (2016). *Rock around the clock. Una breve storia della popular music*. Torino: UTET

Friedlander, J. P. (2017). *News and Notes on 2017 Mid-Year RIAA Revenue Statistics*. Retrieved March 21, 2021, from: https://www.riaa.com/wp-content/uploads/2017/09/RIAA-Mid-Year-2017-News-and-Notes2.pdf

Frith, S. (2001). *L'industrializzazione della musica e il problema dei valori*, in J. J. Nattiez (ed.), *Enciclopedia della musica*, IV. Torino: Einaudi.

Frith, S. & Goodwin, A. (1990), *On Record: Rock, Pop, and the Written Word*. New York: Pantheon Book.

Gillespie, T. (2014). *The Relevance of Algorithms*. In T. Gillespie, T., Boczkowski, P. & K. Foot, *Media Technologies: Essays on Communication, Materiality, and Society*, (pp. 167-194). Cambridge, MA: MIT Press.

Gillespie, T. (2015). Platforms intervene. *Social Media + Society,* 1(1), 1-2.

Goldschmitt, K. E. & Seaver, N. (2019). *Shaping the stream. Techniques and troubles of algorithmic recommendations*, in Cook, N. *et al.*, *The Cambridge Companion to Music in Digital Culture*. Cambridge: Cambridge University Press.

Gournelos, T. & Gunkel, D. J. (2012), *Transgression 2.0: Media, Culture, and the Politics of a Digital Age*. New York: Continuum.

Herbrik, R. & Schlechtriemen, T. (2019), Editorial zum Themenheft „Einsatzpunkte und Spielräume des sozialen Imaginären in der Soziologie", *Österreichische Zeitschrift für Soziologie*, 4, 1-15. DOI: 10.1007/s11614-019-00370-3

Hirsch, P. (1972), Processing Fads and Fashions: An Organization-Set Analysis of Cultural Industry Systems, *American Journal of Sociology*, 77(4), 639-660. DOI: 10.1086/225192

Hirsch, P. (1975), *The Structure of Popular Music Industry*, Survey Research Center. Ann Arbor: Survey Research Center, University of Michigan.

Hesmondhalgh, D. (2013). *Why music matters*. Oxford: Wiley

Hesmondhalgh, D. (2020). Is Music Streaming Bad for Musicians? Problems of Evidence and Argument, *New Media and Society*. DOI: 10.1177/1461444820953541

Hesmondhalgh, D. & Meier, L.M. (2018), What the digitalisation of music tells us about capitalism, culture and the power of the information technology sector, *Information Communication and Society*, 21(11), 1-15. DOI: 10.1080/1369118X.2017.1340498

IFPI. (2019, April 2). *IFPI global music report 2019*. Retrieved March 19, 2021, from https://www.ifpi.org/news/IFPI-GLOBAL-MUSIC-REPORT-2019

Jasanoff, S. & Kim, H.S. (2015). *Dreamscapes of modernity: Sociotechnical imaginaries and the fabrication of power*. Chicago: University of Chicago Press.

Jasanoff, S. (2015). *Future imperfect: Science, technology, and the imaginations of modernity*. In S. Jasanoff & S.-H. Kim (Eds.), *Dreamscapes of modernity: Sociotechnical imaginaries and the fabrication of power* (p. 1-33). Chicago, IL: University of Chicago Press.

Johns, A. (2010). *Piracy: The intellectual property wars from Gutenberg to Gates*. University of Chicago Press.

Jones, S. (1992). *Rock Formation: Music, Technology, and Mass Communication*. Newbury Park: SAGE.

Kassabian, A. (2013). *Ubiquitous Listening: Affect, Attention, and Distributed Subjectivity*. Berkeley: University of California Press.

Katz, M. (2004). *Capturing sound: How technology has changed music*. Berkeley: University of California Press.

Katz, M. (2006). Portamento and the phonograph effect. *Journal of Musicological Research*, 25(3-4), 211-232. DOI: 10.1080/01411890600860733

Katz, M. (2012). *The Amateur in the Age of Mechanical Music*, in T. Pinch, K. Bijsterveld, *The Oxford Handbook of Sounds Studies*. Oxford: Oxford University Press.

Kitchin, R. & Dodge, M. (2011). *Code/space: Software and everyday life*. London, UK: MIT Press.

Kitchin, R. (2017). Thinking critically about and researching algorithms. Information, Communication & Society, 20(1), 14-29. DOI:10.1080/1369118X.2016.1154087

Lessig, L. (2008). *Remix: Making Art and Commerce Thrive in The Hybrid Economy*. London: Penguin.

Lewin, K. (1947), Channels of Group Life, *Human Relations*, 1(2), 143-153. DOI: 10.1177/001872674700100201

Mack, Z. (2019, May 28). How streaming affects the lengths of songs. *The Verge*. Retrieved March 29, 2021, from https://www.theverge.com/2019/5/28/18642978/music-streaming-spotify-song-length-distribution-production-switched-on-pop-vergecast-interview

Maffesoli, M. (1988). *Le Temps des Tribus*. Paris: Table Ronde.

Markham, A. N., Stavrova, S., & Schlüter, M. (2019). Netflix, imagined affordances, and the illusion of control. In T. Plothe and A. M. Buck, *Netflix at the Nexus. Content, Practice, and Production in the Age of Streaming Television* (pp. 29-46). New York, NY: Peter Lang.

McKelvey, F. (2019, July 12). Daemons are the programs that run the internet. Here's why it's important to understand them. *The Conversation*. Retrieved March 29, 2021, from http://theconversation.com/daemons-are-theprograms-that-run-the-internet-heres-why-its-important-tounderstand-them-119154

McLeod, K. (2011). *Creative License: The Law and Culture of Digital Sampling*. Durham: Duke University Press.

McLuhan, M. (1964). *Understanding Media: The Extensions of Man*. New York: McGraw-Hill.

McLuhan, M. & Nevitt, B. (1972). *Take Today: The Executive as Dropout*. San Diego: Harcourt.

McMullan, J. (2020). A new understanding of 'New Media': Online platforms as digital mediums, *Convergence*, 26(2), 287-301

Merleau-Ponty, M. (1945). *Phénoménologie de la Perception*. Paris: Gallimard.

Middleton, R. (1990). *Studying Popular Music*. Buckingham: Open University Press.

Moles, A. A. (1967). *Sociodynamique de la culture*. Paris: Mouton.

Moles, A. A. (1970). Art et Ordinateur, *Communication & Langages*, 7, 24-33.

Moorefield, V. (2005). *The Producer as Composer: Shaping the Sounds of Popular Music*. Cambridge MA: MIT Press

Morin, E. (1962). *L'esprit du temps. Essai sur la culture de masse*. Paris: Grasset-Fasquelle.

Morris, J. W. (2015). Curation by code: Infomediaries and the data mining of taste. *European journal of cultural studies*, 18(4-5), 446-463.DOI: 10.1177/1367549415577387

Morris, J. W. (2018). Platform fandom. In M. Click & S. Scott (Eds.), *The Routledge companion to media fandom* (pp. 356–364). Routledge.

Morris, J.B. (2020), Music Platforms and the Optimization of Culture, *Social Media + Society,* 6(3), 2056305120940690. DOI: 10.1177/2056305120940690

Music Business Worldwide. (2018, July 19). *Want to get your track on a Spotify playlist? Join the queue….* Retrieved March 19, 2021, from

https://www.musicbusinessworldwide.com/wantto-get-your-track-on-a-spotify-playlist-join-the-queue/

Navas, E. (2011). *Remix Theory: The Aesthetics of Sampling*. Vienna/New York: Springer.

Negus, K. (1992). *Producing Pop. Culture and Conflict in the Popular Music Industry*. London: Edward Arnold Publishers.

Negus, K. (2019). From Creator to Data: The Post-Record Music Industry and the Digital Conglomerates. *Media, Culture & Society*, 41(3), 367-384.

Nieborg, D.B. & Poell, T. P. (2018), The platformization of cultural production: Theorizing the contingent cultural commodity, *New Media and Society*, 20(11), 4275-4292. DOI: 10.1177/1461444818769694

Owens, S. (2018, May 7). How artists illegally pay their way onto Spotify's playlists. *Medium*. Retrieved March 21, 2021, from: https://medium.com/the-business-of-content/how-artists-illegally-pay-their-way-onto-spotifys-playlists-6b85ce0865c5

Powell, A. (2021, January 27). Inside the booming black market for Spotify playlists. *The Daily Dot*. Retrieved March 21, 2021, from: https://www.dailydot.com/upstream/spotify-playlist-black-market/?fbclid=IwAR3jbB-uMfnIkMsM-fRrxuTfSSSi1Y9pl3De-OwqKUzgJmdWYnmUuEOVBoY

Prey, R. (2018). Nothing personal: algorithmic individuation on music streaming platforms, *Media, Culture and Society*, 40(7), 1086-1100. DOI: 10.1177/0163443717745147

Prey, R. (2019). Background by Design: Listening in the Age of Streaming. Naxos Musicology International, 1(1), 1-10.

Prey, R. (2020). Locating power in platformization: Music streaming playlists and curatorial power. *Social Media+ Society*, 6(2), 2056305120933291. DOI: 10.1177/2056305120933291

Prey, R., Esteve Del Valle, M. & Zwerwer, L. (2020). Platform pop: disentangling Spotify's intermediary role in the music industry. *Information, Communication & Society*, 1-19. DOI: 10.1080/1369118X.2020.1761859

Ragone, R. (2015). Radici delle sociologie dell'immaginario, *Mediascapes Journal*, 4(1).

Ramirez, A. (2017, March 31). Algorithms in music: Is it the future? *Vinyl List*. Retrieved March 19, 2021, from https://web.archive.org/web/20171229083655/http://vinyllist.com/

Ritzer, G. & Jurgenson, N. (2010). Production, Consumption, Prosumption: The nature of capitalism in the age of the digital 'prosumer', *Journal of Consumer Culture*, 10(1), 13-36. DOI: 10.1177/1469540509354673

Scherzinger, M. (2019). *The Political Economy of Streaming*, in Cook, N. *et al.*, *The Cambridge Companion to Music in Digital Culture*. Cambridge: Cambridge University Press.

Schraube, E. (2009). Technology as materialized action and its ambivalences. *Theory & Psychology, 19*(2), 296-312.

Seaver, N. (2015). The nice thing about context is that everyone has it. *Media, Culture & Society*, 37(7), 1101-1109. DOI: 10.1177/0163443715594102

Seaver, N. (2017). Algorithms as culture: Some tactics for the ethnography of algorithmic systems. *Big Data & Society, 4*(2), 2053951717738104. DOI: 10.1177/2053951717738104

Serrà, J. *et al.* (2012). Measuring the Evolution of Contemporary Western Popular Music, *Scientific Reports*, 521(2). DOI: 10.1038/srep00521

Shah, N. (2018, June 6). Spotify uproar points to the power of the playlist. *The Wall Street Journal*. Retrieved March 19, 2021, from https://www.wsj.com/articles/spotify-disputes-pointto-the-power-of-the-playlist-1528307004

Shuker, R. (2014). *Understanding popular music*. London/New York: Routledge.

Siciliano, M. L. (2021). *Creative Control: The Ambivalence of Work in the Culture Industries*. New York: Columbia University Press.

Spotify (2021). Company Info. Retrieved March 19, 2021, from https://newsroom.spotify.com/company-info/

Srnicek, N. (2016). *Platform Capitalism*. Cambridge: Polity Press.

Statista (2021). *Music streaming revenue worldwide from 2005 to 2019*. Retrieved March 21, 2021, from: https://www.statista.com/statistics/587216/music-streaming-revenue/

Strachan, R. (2017). *Sonic Technologies: Popular Music, Digital Culture and the Creative Process*. New York: Bloomsbury Academic.

Striphas, T. (2015). Algorithmic culture. European Journal of Cultural Studies, 18(4-5), 395-412. DOI: 10.1177/1367549415577392

Tagg, P. (2012). *Music's Meanings. A Modern Musicology for Non-Musos*. New York: The Mass Media Music Scholars' Press

Tarot, R. (1999). *De Durkheim à Mauss, l'invention du symbolique : sociologie et sciences des religions*. Paris: La Découverte.

Taylor. C. (1989). *Sources of the Self: The Making of Modern Identity.* Cambridge MA: Harvard University Press.

Théberge, P. (1997). Any Sound You Can Imagine: Making Music/Consuming Technology. Hanover NH: Wesleyan/University Press of New England.

Thompson, J. B. (1984). *Studies in the Theory of Ideology*. Cambridge: Polity.

Thompson, J. B (1995). *The Media and Modernity: A Social Theory of the Media*. Stanford CA: Stanford University Press.

Toffler, A. (1980). *The Third Wave*. New York: Bantam Books.

Tuchman. G. (1978). *Making News: A Study in the Construction of Reality*. New York: Free Press.

Van Dijck, J. (2013). *The Culture of Connectivity: A Critical History of Social Media*. Oxford: Oxford University Press.

Van Dijck, J., Poell, T. & de Waal, M. (2018). *The platform society: Public values in a connective world*. Oxford, UK: Oxford University Press.

Vickers, E. (2011). The Loudness War: Do Louder, Hypercompressed Recordings Sell Better?, *Journal of the Audio Engineering Society*, 59(5), 346-351.

White, D.B. (1950). The "Gate Keeper": A Case Study in the Selection of News, *Journalism Quarterly*, 27(4), 383-398. DOI: 10.1177/107769905002700403

Wikström, P. *et al.* (2020), *Acoustic diversity of Western Popular music during a period of digital transformation*. Paper Presented at the 20th ACEI Conference, Melbourne, Australia

Wilcken, L. (2009). "Pay for Play": The Redistribution of Payola for Music Diversity in New York State and Its Implications for Sustainability in Music. *The World of Music*, 51(1), 55-74.

Williamson. B. (2018), Silicon startup schools: technocracy, algorithmic imaginaries and venture philanthropy in corporate education reform, *Critical Studies in Education*, 59(2), 218–236. DOI: 10.1080/17508487.2016.1186710

Žižek. S. (1997). *The Plague of Fantasies*. London: Verso.

Zuboff, S. (2019). *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. London: Profile Books.