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PLATFORMS AS EPISTEMIC INFRASTRUCTURES: MEASUREMENTS, DATA FANDOMS PRACTICES AND THE RECONFIGURATION OF MUSIC CHARTS

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Abstract

This study examines online platforms as epistemic infrastructures that shape knowledge production through data-driven practices of tracking, measuring, and governing collective behaviors. Focusing on the reconfiguration of music charts, it analyzes how data fandoms tactically influence metrics and the visibility of success, exposing tensions between cultural industries, participatory cultures, and platform governance. The article argues that platforms expand the volume and diversity of ranking metrics and enable a fan culture mediated by measurable interactions, creating contested spaces where multiple actors manipulate indicators and policies to assert emerging forms of knowledge.

Introduction

Based on Platform Studies (Helmond, 2015; Van Dijck et al., 2018; Helmond et al., 2019; Poell et al., 2020; d´Andréa, 2020) in its interfaces with Infrastructure Studies (Plantin et al, 2018; Plantin & Punathambekar, 2019; Edwards, 2021), this article investigate how online platforms operate as infrastructures through which specific modes of knowledge are constituted. More specifically, our proposal is to investigate online platforms as epistemic infrastructures.

The concept of epistemic infrastructures was initially used to study how scientific laboratories are constituted as spaces for the production and legitimization of knowledge and truths (Munn, 2022). It has been appropriated to investigate the conditions of knowledge production based on forms of measurement, comparison, archiving, decision-making and other shared epistemic practices.Topics such as climate science (Edwards, 2013), piracy (Bueger, 2015), the development of public policies on sustainability (Tichenor et al., 2022), the transmission and processing of data by data centers and submarine cables (Munn, 2022) and the use of artificial intelligence in

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scientific journals (Yoo, 2024) are some of those recently addressed in the literature that has adopted the term.

Aiming to discuss how, by operating as epistemic infrastructures, platforms rearranges knowledge/power governmentality, the case study here presented emerges from the recent reconfigurations of music charts. Pointed out by Young (2017, p. 44) as “a particular epistemological organization of popular music that is presented as normal, empirically verifiable, and true”, charts operates as an “ephemeral stagnation” (Parker, 1991) that transforms the popularity of music industry production into something tangible. By making a transition from narrative to tabulation (Straw, 2015), these comparative visual representations (Zhang & Negus, 2020) operate as inscriptions that seek to synthesize the connections between the extensive set of actors that constitute the music business.

The platformization of music circulation and consumption (Morris, 2020) has changed the power relations that circumscribe the measurement of artists’ popularity, for example, by incorporating the techno-economic logics of streaming platforms (Prey, 2020) and the datified practices of fans (Morris, 2017). In this context, the article discusses how coordinated strategies carried out by transnational data fandom to influence charts triggers changes in how platforms govern epistemic practices, revealing negotiations and disputes mediated by “measurement materialities” (Bandola-Gill, 2022).

Epistemic infrastructures: practices, measurements, governance

According to Bueger (2015, p.2), the concept of 'epistemic infrastructures' was proposed by Karin Knorr-Cetina to, based on the theory of practice and Actor-Network Theory “conceptualize the global flow of knowledge and the epistemic practices that sustain it”. This perspective refers to the studies that, since the 1980s, investigated how laboratories operate as spaces of mediation aimed at producing knowledge that can be systematized, standardized and “universalized”. In dialogue with Latour (1986), Tichenor et al. (2022, p.435) explain that the power of epistemic infrastructures resides in the mobility of the indicators, data or reports that constitute them and, like scientific laboratories, transform these infrastructures in “centers of calculation”.

In this debate, the notion of epistemic practices (Knorr-Cetina, 1999) is an important analytical operator for understanding how, in specific material and institutional contours, certain knowledge is constituted through negotiations between the actors involved. For Bueger (2015), what singularizes epistemic practices is the effort to constitute a specific epistemic object and the ability to “manipulate” it in order to constitute a universal from particulars.

As mentioned in the introduction, the notion of epistemic infrastructures has been used to discuss the constitution of knowledge/power relations in different contexts. A common aspect of the case studies seems to be their relationship with certain institutional logics, that is, the aim is to investigate how the practices and materialities associated with epistemic infrastructures are at the service of resolving issues addressed by knowledge-producing organizations. Additionally, these institutional issues are carried

out by communities of practice, which means that epistemic infrastructures are built collectively through negotiations and disputes.

For instance, these characteristics can be seen in Bandola-Gill et al. (2022) investigation on how the “Global Goals for Sustainable Development” managed by the United Nations are anchored in “measurement materialities” such as indicators, surveys, reports and data visualizations. Their analysis shifts the idea of “governing by numbers” toward the governance of numbers, arguing that a new global public policy emerges from a negotiated epistemic order established through quantification.

Music charts: a case study

By approaching online platforms as epistemic infrastructures, we seek to understand a shift in the institutional conditions that have historically constituted the knowledge-based relationships.

In the case of music circulation and consumption (Prey, 2016), on the one hand communities of practice, such as fandoms, appropriates the platforms' interfaces, algorithmic logics and policies of moderation and monetization, seeking to generate and systematize knowledge focused on their own interests. On the other hand, platforms such as Spotify and YouTube transform into data the interactions inscribed in their materialities and produce business-oriented knowledge.

In this cycle, the charts, designed to measure the popularity and taste of the public, that is, to generate knowledge about consumer behavior, become themselves the object of investigation and knowledge production. The organization of fans exposes the vulnerabilities of these platforms, revealing weaknesses and breaches in the logic that regulates the online charts. A major example are the collective strategies carried out by data fandom (Zhang & Negus, 2020) to influence the statistical and semantic data associated with their favorite artists. Originally derived from the lexicon of Chinese K-pop fans, data fandom culture is nowadays spread worldwide, as illustrated in Figure 1. In the tweet, three versions (in different languages) of an infographic explain how BTS Arms should operate each of YouTube's features to improve the position of the song “Butter” in the YouTube chart.

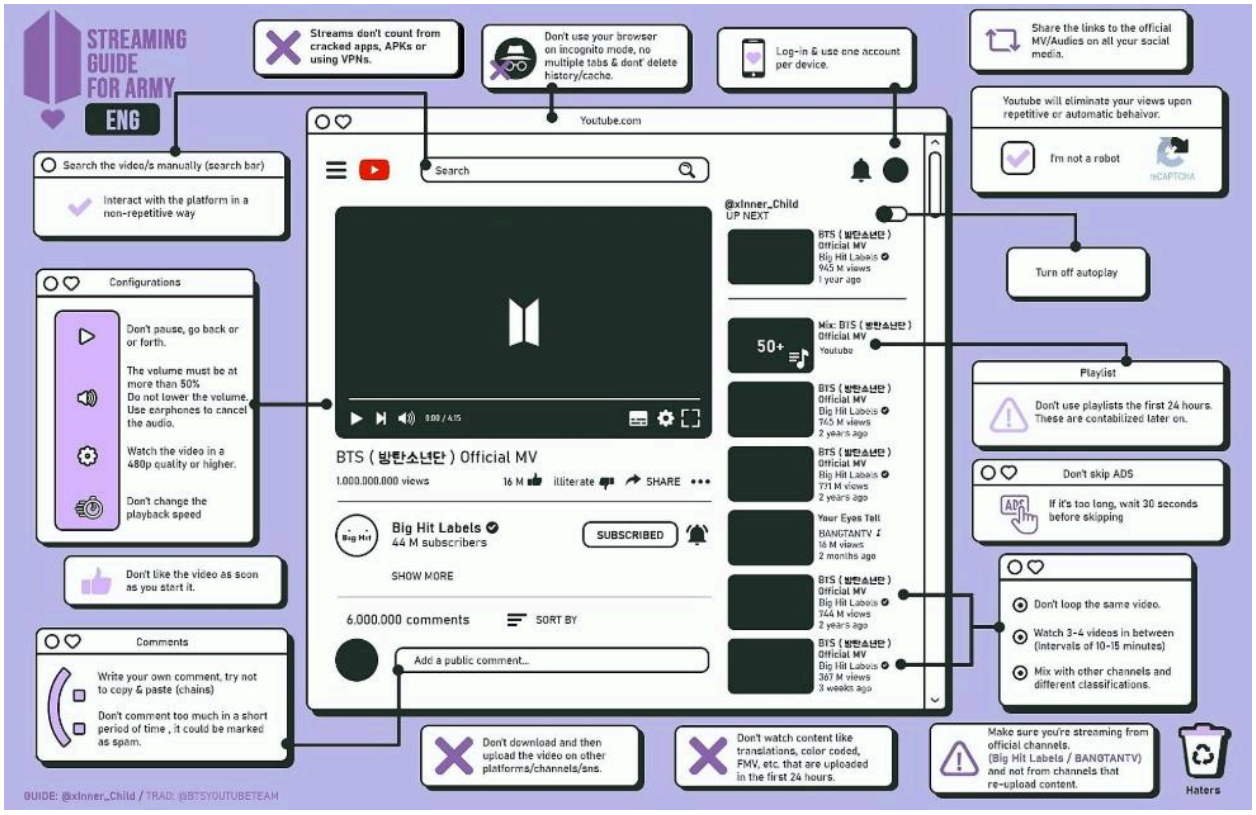

Figure 1. Publication of YouTube streaming guides on X (Twitter)

In response, platforms are tightening their policies. For instance, in January 2025, after the removal of millions of streams of 61 songs on Spotify, BTS fans speculated that the platform had intensified its efforts against artificial streaming. As evidence, there have also been reports of the platform abruptly disconnecting the devices at night, a time when fans often leave automated playlists running[1].

These adjustments reinforce the techno symbolism embedded in chart culture. The platforms have not only expanded the number of metrics attached to the rankings, but have also fostered a fan culture in which the relationship with music is centrally mediated by measurable interactions. As metrics become more accessible and trackable by users, fans get involved with them in a more technical and calculated way. In this sense, platforms act as epistemic infrastructures in which governance of numbers (Bandola-Gill et al., 2022) is under dispute by a range of actors who can institutionally or collectively manipulate indicators, interfaces and policies and thus assert their emerging forms of knowledge.

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[1] For more, visit the space conversation at https://x.com/210hobi/status/1773755476561498301

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