"It Has Seldom Been So Difficult to Try to Dress Up a Sound Experience in Words"

Technology and the Rhetoric of Sound and Music Reproduction in Hi-Fi Magazines

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The aim of this paper is to explore the *rhetoric of sound* in high fidelity magazines, and how this rhetoric is linked to a technological discourse. Rhetoric of sound refers to the magazines' efforts to describe sound and music experiences in words. The aim is also to show how an identified technological discourse legitimizes a specific social order. The paper argues that the technological discourse naturalizes the link between technology and masculinity based on notions of gender differences, and that it reproduces a technological worldview in general by offering multiple positions of identification.

Keywords: Technology, Discourse Theory, Rhetoric, Identification, Articulation.

Today there are many international high-fidelity (hi-fi) magazines dealing with music, sound, stereos and other electronic equipment. *Hifi+*, *Stereophile*, *Hi-Fi World* and *Hifi & Musik* are some examples. All these magazines have certain things in common: they report on new tendencies and new products on the electronic and music market, and they also carry out consumer evaluations of the products' abilities to reproduce sound and music as realistically as possible. If the early hi-fi magazines in the 1950s and 1960s dealt exclusively with analogue equipment, the magazines of today report on a much more diversified market with many different forms of sound reproduction, not least digital ones. Network music players and Internet based download services are some examples. However, in recent years the magazines also reflect an analogue revival characterized by a more general interest in vintage equipment such as vinyl record players and open reel recorders. This revival has by Bijsterveld & van Dijck (2009) been described as an expression of tech nostalgia or technostalgia (Pinch and Reinecke 2009), but it is also related to ideas of authentic high-fidelity sound and music reproduction. Among (some) reporters – and many audiophiles[1] in general – it is said that the analogue technique is superior to the digital because it can offer a more natural sound (cf. Björnberg 2020).

However, regardless of whether the magazines report on analogue or digital sound equipment, they often are characterized by a technological focus, which is also the case in the two magazines examined in this

1. Audiophiles are people – usually men – who spend significant amounts of money on purchasing audio equipment and tinkering with it (Perlman 2004) with the goal of eliminating noise from the music experience and reproducing the sound as faithfully to the source as possible (Evens 2005:6).

Figure 1: A collection of hifi magazines is essential for many so-called audiophiles. Photo: Bo Nilsson.

paper, *Hi-Fi World* (UK) and *Hifi & Musik* (Sweden); both contain many technical terms and use a specialized terminology regarding sound and music reproduction.

The link between technology and society has been understood in different ways, depending on the theoretical and historical context (see Fisher 2010 for a review). According to one perspective, technology is neutral and inevitable. It has its own evolutionary history and dynamics; it is a more or less independent force that influences society (see Feenberg 2002). This approach has by Webster (2006) been described as technological determinism by its focus on technology's internal logic and external effects. Another, more critical, perspective is not so much interested in how technology shapes society, as in how society shapes technology. Technology is thus not regarded as a phenomenon "outside" society, but rather impregnated by socio-economic structures "inside" society. One of the main research tasks according to this perspective is to identify and analyze how such structures permeate technologies, as well as to explore how technological production processes are aspects of capitalism and class structures (Braverman 1974) rather than expressions of reason and rationality (Fisher 2010).

The two perspectives above differ from each other, but they also have a common feature in which they both relate to technologies as "tools". A third perspective instead sees technology as a discursive phenomenon with social, cultural and political implications. Fisher (2010:231) points out that "the discourse on technology is not simply a reflection of the centrality of technology in the operation of modern societies; instead, it plays a constitutive role in their operation, and enables precisely that centrality". Thus, the discourse on technology is seen as an active part in the construction of reality. Through this discourse technologies are, as stated by Noble (1999), often made into something unquestionably "good" or act as a kind of "religion" that has "blind" believers. This discursive

view on technology also constitutes an understanding of technology not as an objective phenomenon, but as fiction (Druckrey 1994:2): a fictional story usually holding the promise that most problems in society can be solved if only the right technology is put to work (Aronowitz 1994).

According to the discursive approach, technologies are by their ascribed meanings involved in how people understand and organize their lives, and in the reproduction of identities and subjectivities (cf. Harrison 2010). With references to audio technology Perlman (2003) contends that: "Audio technology, like other forms of technology, is not simply a tool used for practical purpose; it bears cultural meanings and personal emotional investments" (Perlman 2003:346). A contemporary example of this is digital information technology, which represents an inevitable part of people's daily lives. However, the discursive meaning of technology is not one-sided. While mobile phones are usually described as convenient means of communication, they can also be accused of creating a desire for constant connectivity, and to reproduce a social order that according to Carlsson (2009) is characterized by monitoring and control (cf. Druckrey 1994). Technologies are also involved in the social and cultural construction of gender. For example, while high end audio has been linked to masculinity through articulations of technical knowledge (Annetts 2015), mobile phones have been related to processes of femininization through their design and appeal to stylistic trends (Shade 2007).

Together with other forms of portable audio technology (PAT), mobile phones have furthermore contributed to a personalization and an individualization of the practice of music listening. The music streaming services that often represent the sources for mobile music listening are however also said to streamline music, forsake individual artists and lead to music piracy. The development of new technologies has also directly influenced music performances (cf. Webster 2002) as well as musical forms. An historical example given by Lundberg, Malm & Ronström (2003:68) is that the introduction of microphones in 1920s, meant that the voices of vaudeville singers changed character and become more intimate. Furthermore, mobile electronics are according to Gopinath & Stanyek (2014) examples of how sound fidelity is said to be sacrificed to portability. Thus, technological development in the area of sound and music reproduction is not always regarded to be beneficial, and it is not the same as an improvement in sound and music reproduction, especially as ideas of true high-fidelity can be regarded as a social and cultural construction or as discourse in itself (cf. Devine 2012).

In line with Fisher (2010) we do not view technologies, including the technology of sound and music reproduction, as neutral forces or tools that are independent of ideological and political contexts. Instead, they can be viewed as changing systems of knowledge and regulation, and as parts of an ideological (re)construction of society and culture. As stated by Best & Kellner (2000), technologies can hide mechanisms of

power and dominance, and most people have no influence on decisions about how technologies – and thereby also their own lives – are to be designed (Feenberg 2002). That different understandings of technology – important for the social and cultural organization of society, including the media and the music market – is a perspective that also permeates this paper. It may seem obvious that hifi-magazines reproduce a technological discourse, but from our point of view is it important to scrutinize this discourse because it recreates certain views of sound and music reproduction while excluding others. It also legitimizes a social order, and it has conservative effects in a social and cultural sense. Our contribution to the research field of social and cultural aspects of technology is thus to illustrate how seemingly 'innocent' high fidelity magazines reproduce views of technology that have an impact not only on the readers, but on society in general.

Aim

The aim is to explore the rhetoric of sound in high fidelity magazines, and how this rhetoric is linked to a technological discourse. Rhetoric of sound refers to the magazines' efforts to describe sound and music experiences in words. The aim is also to show how an identified technological discourse legitimizes a specific social order.

Method

By the use of content analysis and discourse theory, we have reviewed the magazines *Hi-Fi World* and *Hifi & Musik* dated from 2007 to 2017. The magazines are both published once a month, sometimes as double issues.

There were four main reasons for choosing these magazines. First, they are both well established, *Hi-Fi World* with an international and *Hifi & Musik* with a Nordic audience. Second, they deal primarily with music and audio products. Third, they reflect an analogue revival, which also was a reason for the chosen time frame because analogue sources and vinyl records became popular again during the chosen period. Fourth, by choosing magazines from different countries it was possible to explore if there were any national differences in the reproduction of a technological discourse. In fact, the choice of magazines was not decisive, but we thought that a cross-border comparison could indicate the scope of the technological discourse and its degree of coherence.

As a first step, we carried out a qualitative content analysis (cf. Hsieh & Shannon 2005; Neuendorf 2002), which means that we repeatedly examined the magazines' content and identified different types of texts. The review resulted in the following major genres: news (including show reports), historical articles (vintage), popular education (including Q & A, i.e. Questions and Answers), and tests and reviews.

At the next stage, we chose to scrutinize articles in which journalists reviewed various audio products and discussed phenomena related to sound and music reproduction. We examined texts from different genres, but primarily we concentrated on more extensive reviews and tests (based on these criteria, 100 articles were randomly selected). The reason for using this sample was the evaluative nature of these texts: the authors examined electronic equipment and wrote critically about their ability to reproduce sound and music. To our knowledge, the reviews and tests were written and performed only by men, and we have not been able to identify any women in the readers' contribution section in our sample. For some of the included quotes, to increase readability, a few minor changes have been made but without altering the meaning.

In the analysis of the reviews and tests, we identified recurring concepts and formulations that together formed what we call the rhetoric of sound. This rhetoric appears partly to be non-technological, because the journalists are using non-technical terms to describe the audio products' ability to reproduce sound and music. However, the rhetoric of sound – and high fidelity-magazines in general – are part of a broader technological discourse, which we will investigate further in this paper.

Theory

The theoretical influences come from discourse theory, and "discourse" refers to specific ways of understanding and representing the social world. An important aspect of discourse is the fixation of meaning. There is a continuous struggle between different discourses about the "right" to define the meaning of specific phenomena in social life (Laclau & Mouffe 1985). In this article, we will specifically focus on the meanings and effects of a technological discourse as it is reproduced in the context of the examined magazines' content. The following five concepts are central to the mapping of the content and the identification of the technological discourse: genre, rhetoric, floating signifier, articulation, and identification.

Genre refers to how people traditionally communicate and (inter)act linguistically. We will consider the journalistic genres in the examined magazines as conventions in style and form (cf. Engstrom 2008:12). The purpose of identifying genres is to find patterns in the writings about sound and technology, and to find out whether these writings vary within and between the magazines.

Rhetoric is closely related to the concept of genre in the way it also includes style and form. However, rhetoric has a more general character and it exceeds genre boundaries (cf. Berggren 1995). It refers to how journalists generally write about music, audio, and stereo products, how they describe a "good"-sounding product and what criteria are used in evaluations of stereo equipment. Rhetorical strategies indicate both

specific strategies in journalists' arguments and how the technological discourse is constructed and legitimized.

Floating signifier is an element open to the attribution of meaning, and in different contexts it can carry different meanings (Laclau & Mouffe 1985). Within the rhetoric of sound, *sound quality* is a central concept that nonetheless possesses the qualities of a floating signifier. Sound quality acts as a "target" for various attributions; it has a recurring connection to an understanding of sound as closely or directly related to technology, but it is also frequently represented as deeply individual and a question of personal taste.

Identification is linked to the concept of discourse in the sense that discourse always offers different (and limited) positions for the subject to identify with. Such identity positions are not fixed but are subject to continuous change (Gosine 2008). Identity is thus a process and an ongoing attempt of identification (Glynos & Howarth 2007) by which an individual or a collective can gain recognition. In this study "identification" refers to how the studied texts reproduce various positions that both readers and writers can identify with.

Articulation is used to illustrate how practices establish a relationship between elements in a way that affects or changes their previous significance or identity (Laclau & Mouffe 1985). The relationship is neither necessary nor definitive, but temporary and changing. For example, sound quality is a concept that is articulated in different ways and given various meanings in different contexts in the magazines.

Results

In the following presentation we chart the contents of the magazines *Hi-Fi World* (UK) and *Hifi & Musik* (Sweden) and show how they were characterized by a similar technologically influenced style of writing. We also explore what we call the rhetoric of sound, a specific style of writing that occurred when journalists in both magazines were writing on the elusive thing that hi-fi equipment is somehow made to facilitate – authentic sound and music.

Technological Genres

News as a genre refers to articles in which the journalists report on current events in the high-fidelity sector. They often present new products or report on what has taken place in various so-called hi-fidelity shows around the world. Many of the news texts are illustrated with pictures and characterized by a technical language that requires some prior knowledge to be understood. An example is a presentation of a new audio-video (AV) product:

> […] it is notable for its Wi-Fi audio streaming capability, meaning it can lock onto a computer with music (in AAC, MP3, WAV, WMA lossless and FLAC formats) and play it wirelessly via a router. In addition to this, the behemoth features HDMI 1.3a connectivity, Dolby TrueHD and DTS-HD decoders, Deep Colour and xvYCC support and Auto Lip Sync (News 2007:8 *Hi-Fi World*).

Using a lot of abbreviations that require a certain competence, this news article describes the product's connectivity options and its capacity to handle different Audio and Video formats, which enables different forms of music listening. Another example is perhaps more accessible, but still has an explicit technical character:

> Take MB-2.5. a 2,5-way speaker just over 1 meter in arched MDF and carbon fiber, with base speakers in carbon fiber (over hanged) and AMT-tweeter above 3,5 kilohertz (Nyheter 2015:10 *Hifi & Musik*).

Nothing is mentioned about the speaker's ability to reproduce sound and music, but what seems to be most important is the technical construction. The news stories in the two magazines have many similarities with news as a mass media genre in a broader sense. By the use of different linguistic and journalistic strategies – headlines, choices of words and material selection – the magazines try to arouse the readers' interest and increase the news' value (cf. Hvitfelt 1986).

Historical articles (vintage) can be found under the headline "Olde worlde" in *Hi-Fi World*, where journalists describe and discuss the sound quality and technical design of older stereo products. The construction of a turntable from the 1970s was described in April 2009:

> […] power from the Phillips AC synchronous motor was transmitted to the platter via a rubber drive belt, speed change done manually. The belt went around an inner platter made of a zinc and aluminium alloy called Mazak, and the outer platter (also Mazak) fitted over this and came with a distinctive looking built-in mat with a brushed felt finish (again, this came in a pleasant shade of 'hearing aid' beige) and a recess for the record label (Bolton 2009:112 *Hi-Fi World*).

However, the technical construction does not seem to have been especially successful, because the author described the sound as clinical, "[…] almost as though the musicians were playing together accurately but not communicating with each other" (Bolton 2009:113 *Hi-Fi World*).

A common feature in the historical articles is an interest in, and often a positive, emotional, and sentimental attitude towards older products and technologies, for example VHS-tapes and record players: "The development is progressing, it's called, but I don't know. It is even difficult to find record players today that have a speed of 78 rpm. What to do with the old record collection?" (Edenholm 2016b:78 *Hifi &*

Musik). The vintage genre can therefore be described in terms of tech nostalgia (Bijsterveld & van Dijck 2009) or technostalgia (Pinch & Reinecke 2009), a nostalgic approach to older technologies. According to Johannisson (2001) nostalgia can be described as a kind of emotional memory, which evokes sensations of the past. However, nostalgia can also be defined as culturally productive rather than just as a feeling or desire (Lundgren 2005). This also applies to tech nostalgia, since the vintage genre expresses a sentimental passion towards old technology. However, tech nostalgia also attempts to create a bridge between past and present. According to Pinch & Reinecke (2009) – who have studied musicians – technostalgia does not necessarily mean a return to an ideally constructed past, but a way to construct new sounds and interactions. Technostalgia can therefore make space for contemporary identifications. For example, the identity as a collector of old high-fidelity technology is attributed high status (Ellsinger 2011 *Hifi & Musik*), and there is a vivid discussion whether some older products outshine current technologies. Nostalgia also includes forms of consumption (cf. Tacchi 2003), both in terms of emotional beliefs about the past and in terms of a growing market for vintage products. The latter is attributed an increasing symbolic and economic value, not least open reel recorders. An illustration of the fact that tech nostalgia is profitable can be made by considering the "retro-look", a trend among hi-fi manufacturers producing new hi-fi equipment with design influences from the middle of the twentieth century. Importantly, however, tech nostalgia is also structured by technological discourse, even though it sometimes dwells on the feelings and memories connected to older technologies. This is most apparent in the constant return to technological details and technical design solutions and the credit given to collectors.

Both the magazines comprise a *popular educational* genre and provide tips and advices to readers. *Hifi & Musik* has a headline "DIN kontakt!"[2] under which the readers can ask questions, for example about the meaning behind technical abbreviations. The magazines also teach technical and mechanical skills more explicitly, for example how to master soldering. Under the headline "Analogue Anatomy" the following was written in *Hi-Fi World*: "Ever wondered what bits make up a record player? *Hi-Fi World*'s duty doctor Tim Jarman gets out his allen keys to dissect a typical turntable …" (Jarman 2011a:102 *Hi-Fi World*). The various components of a turntable, such as the motor, bearings, and suspension are then described in detail along with their characteristics and functions. The writer indirectly praises the designers behind this "precision" item by writing: "The vinyl record player is an analogue instrument of extreme precision" (Jarman 2011a:103 *Hi-Fi World*). The reference to "duty doctor Tim Jarman" is probably a joke, but it nevertheless contributes to the image of the turntable as a technologically advanced product.

The educational genre is generally characterized by a pro-technological approach, and it contributes to the "naturalization" of technology and an emphasized awareness of the importance of technical skills.

2. "DIN kontakt" means "Your contact", but it also alludes to electrical plugs designed according to Deutsche Industrienorm (DIN-Norm).

Furthermore, the educational genre describes audio-technological products as expressions of human (technical) skills at the highest level. A pro-technological approach is also reflected in texts that not only comment on specific products, but also debate major audio-technological phenomena in society. For example, the opinion columns debate the status and development of radio broadcasting in England, and the pros and cons of new AV formats. Often the columnists are enthusiastic about a specific technology and in opposition to others – a certain amount of snobbishness or elitism is maybe reflected in the journalists' contempt for or lack of interest in mass-produced electronics (cf. Branch 2007; Heward 2009). Some praise the accessibility and convenience of new digital formats, while others are critical of what they perceive as a negative development, where high-quality audio technology (such as record players) are losing ground to digital technologies with inferior sound quality that are driven by (short-term) profit interests. Journalists are also making critical comments on how record companies adjust recordings sonically to fit MP3 players and other lifestyle products. However, although the journalists are critical of some aspects of technology, they still hold on to a technological worldview; they reproduce ideas according to which technologies – either in form of old or new variants – are and have to be inevitable aspects of society and of sound and music reproduction. This is in line with Fisher (2010) who argues that a dominating technological discourse plays a constitutive role in how society is organized. The technological discourse reproduces ideas of technology as an indispensable part of society, and as something solely natural, necessary, and good.

Tests and reviews of products take up a lot of the space in both magazines. There are many similarities between the two magazines' reviews, and they are characterized by presentations and evaluations of products. They usually include a description of the brand and an evaluation of the product and its ability to reproduce music. Pictures are common, sometimes revealing the electronic components inside. The reviews often have a technical character. They contain tables and graphs with numbers and measurements of, for example, the frequency response and the produced effect in watts. Examples of the latter can be found in tests of amplifiers, where the maximum output is measured in watts and amperes. In a review of a very expensive amplifier, the measured performance is described as follows:

> An almost perfect cube measurement, among the best we have experienced! Over the cube roof down to 2-ohm load, and not so far away in 1 ohm either, where it produces almost 2,000 watts. High and fairly symmetrical current measurement as well (Meyer-Lie 2015:10 *Hifi & Musik*).

Hi-Fi World has a special recurring headline for technical information, "Measured Performance", where various measurements are presented

and commented on. The same journal also puts a great emphasis on its "unique" technical measurement equipment:

> To ensure the upmost accuracy in our product reviews, *Hi-Fi World* has extremely comprehensive in-house test facilities, and our test equipment – from big names like Rhode & Schwarz and Hewlett Packard – is among the most advanced in the world ("Testing" 2008:3 *Hi-Fi World*).

The technical illustrations and data require prior knowledge in order to be understood, which the magazines seem to be aware of. To help readers, both magazines therefore occasionally supplement the technical data with explanations of how to interpret the different graphs and measurements.

Rhetoric of Sound and Sound Quality

> From the first bars of music, it was clear that the Diva was going to be an engaging companion. It is a crisp and dynamic performer with plenty of emotion and presence, and a healthy dose of rhythmicality (Smith 2008a:98–99 *Hi-Fi World*).

This example is taken from a review of a turntable, and it illustrates how the magazines, in reviews and tests, sometimes seem to depart from their technological approach. The journalists translate technological aspects into what we call the rhetoric of sound. This means that they – as in the example above – use non-technical concepts and metaphors to capture the appealing qualities of the products and their abilities to reproduce sound and music in a way that is as lifelike as possible. In a text of an amplifier the reviewer concludes: "Yes, the music becomes more tangible and physically palpable and the amplifier creates three-dimensionally sculpted musicians and singers who step straight into the listening room" (Meyer-Lie 2014:86 *Hifi & Musik*). An important point of departure here is the practice of listening (cf. Sterne 2003; Henriques 2011; Björnberg 2020), a structured activity during which the reviewers not only "listen" to the products, but also attempt to conceptually capture their sonic qualities, that is, the fidelity of sound or the lack of it. This is sometimes described as a difficult task:

> It has seldom been so difficult to try to dress up a sound experience in words as when this electronic beast takes care of the reproduction with the rock-solid, completely obvious authority that the 100-watt possesses and which infects everything (Meyer-Lie 2010:48–49 *Hifi & Musik*).

Language is, according to Roland Barthes (1979), a rather poor tool when it comes to describing music (and sound). There are simply no words that can capture the many facets of music, and we are therefore forced to rely on "the poorest of linguistic categories: the adjective"

(Barthes 1979:179). The only thing music reviews (hopefully) can result in is better forms of failures. We will now describe a central aspect of the rhetoric of sound, namely sound quality and we will argue that although different from texts focusing directly on technology, descriptions of sound quality are still related to a technological discourse.

Sound quality is a key concept in the reviews, and it can be described as a floating signifier since its meanings seem to depend on the practice of articulation. Sometimes sound quality is understood as an objective measure, either by making measurements of distortion figures, placing the equipment in relation to other products or by comparing it to a supposed "actual sound" ("real music"). At other times the experience of sound is rather viewed as an issue of subjectivity, i.e. it is entirely up to the individual listener to define the essence of "good sound" (cf. Heward 2009). But because such a subjective position could undermine the practice of reviewing, it does not dominate the rhetoric of sound. Instead, and in order to counter such a reading, subjective reviews of "sound" are articulated together with some recurring arguments and concepts giving the impression that the validity of reviewing is high:

> My wife plays the flute and so we are both aware of how instruments like this can sound rather limited when reproduced from a recording, but the Rock [a record player] is absolutely first class in this respect (Smith 2008b:91 *Hi-Fi World*).

In this case, the reviewer is impressed by the turntable's ability to reproduce the sound of instruments, and it is his own and his wife's "real" experiences of flute music that constitute the point of reference. In other words, by referring to their own musical background the author can indirectly counter the idea of a totally subjective review. Thus, still central to the review practice is how realistically and authentically the product can reproduce sound and music. Other recurring and evaluative concepts in reviews are power, dynamics, musicality, soundstage and presence. This last aspect, presence, indicates whether the listener gets the impression of being able to step into a three-dimensional soundstage and meet the artists "on the spot" (cf. O'Neill 2004). Sometimes this is described in rhetorical terms as an almost frightening and too real experience: "I almost felt that I could reach out and touch the players as they seemed so close" (Smith 2008b:91 *Hi-Fi World*).

Sound quality is furthermore articulated in terms of musicality, and to be defined as high quality a product has to prove its musical abilities. However, what musicality really means is not always obvious. Sometimes it is contrasted with products sounding technically correct and accurate, which, because of that, are said to lack musicality (for example, Japanese products from the 1970s were previously associated with good measurement numbers but poor sound, i.e. poor musicality). However, the division between musicality and technical ability does not

mean that the rhetoric of sound is totally disconnected from technology. On the contrary, different technical solutions are often considered to have different sonic qualities. For example, while some articles highlight the unsurpassed sonic benefits of record players, others believe that cutting-edge digital products are comparable with the best analogue sources (see e.g. Linder 2017 *Hifi & Musik*).

Technological Discourse and Cultural Reproduction

Under this heading we will broaden our perspective and view the content and structure of the two magazines, *Hi-Fi World* and *Hifi & Musik*, as an expression of a technological discourse, that is, a specific way of representing reality based on a technical understanding of the world and specially of sound and music reproduction. The content of this discourse has changed throughout the history. An example is the status of valves or tubes as the main device for signal amplification. Valves dominated in the beginning of hi-fi, but when transistor-based sound equipment was introduced in the 1950s many regarded valves as inferior to transistors (see Hamm 1973). However, in parallel with the analogue revival during recent years, valves have regained their status as an audiophile's choice.

In the studied magazines, a technological discourse is reflected by the journalists' exclusive focus on electronic products. Technological arguments are, as was illustrated above, more a rule than an exception, and the meaning of words such as watts, amps and coils are usually taken for granted. However, even if the magazines often assume that the readers master the technology as well as the terminology, they also inform people about the technical function of different categories of products and they tip readers about, for example, different ways to construct a loudspeaker and so-called tweaks that are supposed to improve the reproduction of sound and music.

Apart from a direct and unquestioned focus on technology and its meanings for sound and music reproduction, the technological discourse can also be identified by the absence of other perspectives and genres. Only occasionally do the journalists write about technology in a wider sense, such as its environmental effects. The result is that the magazines contribute to a view of technology, technological production, and development as "harmless". Technologies seem first and foremost to represent progress as well as objects of pleasure and desire (cf. Soukup 2009).

This aspect of the magazines' content reflects an evolutionary and deterministic approach, according to which technological progression and development seem to be inevitable and inherently "good" (another and partly contrary aspect of the magazines' content is the analogue revival discussed below). Furthermore, the latest high-end technology is

often equated with the best and most authentic reproduction of sound and music. Sound fidelity and what is heard are, in other words, directly linked to audio technology. It is, however, important to emphasize that the deterministic approach characterizing the magazines is an effect of the technological discourse and not a reflection of technology as a neutral and inevitable force in and of itself.

The linking of sound and technology also means that the narrative of audio-technological progression is a narrative of a vanishing mediation, promising that the reproduction of music is getting closer and closer to "the real thing". There is however a paradoxical aspect of audio technology in that sense that it must eradicate its own impact on the sound to be able to reproduce music as faithfully as possible (cf. O'Neill 2004). Authentic audio technology is in other words "audibly invisible", or rather inaudible, "leaving nothing but the music" (Downes 2010:309). It is, however, also possible to argue that realism and authenticity do not need to be a direct effect of sound reproduction technologies as much as they need to be an effect of the listening experience itself (Sterne 2003). But this idea of sound as linked to the actual listening experience is not directly compatible with the technological discourse. Journalists can certainly complain that the "real" audiophile is a dying breed in the digital age (cf. Bull 2000; 2007; Björnberg 2020). However, this does not call into question the technological discourse or the narrative of progression – it just marks a shift in its content. The technological discourse also legitimizes itself in a wider sense. By promising technological development in general, it gives the impression of technology as the saver of society (see Aronowitz 1994).

The magazines sometimes seem to reflect a division between technophiles and audiophiles (cf. Evens 2005), or in Perlman's (2004) words, between "meter readers" and "golden ears". According to technophiles, meter readers, it is possible to objectively measure the quality of stereo products and explain why they sound like they do. Component selection and design, and mathematical measurements are viewed as the main sources for the products' sound character and quality. Such an approach may seem obvious in this context, but it results in legitimization of technology because it is made crucial not only for the technical performance of the stereo product, but for the quality of the music experience in a broader sense.

However, the hi-fi magazines also represent the views of audiophiles, who judge the quality of stereo equipment by its ability to recreate a musical experience. This position is characterized by arguments that seem to break with the objective approach. The journalists emphasize the importance of musicality, which is not the same as perfect products in a technical sense. On the contrary, products characterized by excellent measurement data are often attributed deficiencies such as a rigid and sterile sound. This audiophile position has connections to a wider moral order in which it is important to defend the individual's

autonomous position and uniqueness in relation to structural, technological, and economical forces (cf. Perlman 2004).

Although the non-technological arguments indicate the complexity of the technological discourse of sound reproduction, they do not actually counter it. Instead, they are made part of it, and are represented as “the human side” of technology. It is, after all, humans and their senses that decide what a good technology product (and good sound) is, not the technology itself. This “humanization” of technology can be viewed as a rhetorical strategy that contributes to the legitimization of the technological discourse, because, after all, it gives the impression that people control the technological development, not the other way around.

The technological discourse enables identifications based on the ideas of many different possibilities of individual positioning. As mentioned earlier, some articles put forward the benefits and conveniences of computer-based sound, while others argue for the acoustic advantages of vinyl records and open reel recorders. Articles about so-called vintage products often highlight the quality of old stereo equipment in relation to recent mass production of electronic equipment. Nationalist ideas emerge through the use of signs as “American sound” and “British sound” (cf. Ng & Skotnicki 2016) and by the attribution of inferior quality to products from the East.

The many diverse articles illustrate how journalists relate to the different and partly competing established orientations and positions in the technological discourse; these are positions that the individual reader and consumer can also identify with. In other words, the technological discourse provides for a variety of tastes and identification possibilities, which also constitute a hegemonic aspect (cf. Zizek 1989) naturalizing an overall dominating technological worldview. By offering different identities and seemingly a great deal of individual freedom of choice, the technological discourse remains “invisible”. It is not important to the reader whether or not all this technology is necessary, or who it is that benefits most from a continuous development and consumption of electronic products. Confirmation of a proper identity on the basis of technology is more important.

Thus, the technological discourse reproduces much more than ideas about technical devices; it also transmits social and cultural values (cf. Keightley 2010), not least regarding gender. The reconstruction of gender can be linked to a technological masculinity characterizing the content of the magazines. This masculinity is expressed through gear fetishism (Annetts 2015), an excessive interest in objects, and it also represents practical knowledge of mechanics as well as a theoretical and calculating approach to technology (Mellström 2003; Nilsson 2011). Furthermore, it makes the connection between men and technical and mechanical skills seem “natural” (cf. Mellström 2003). In other words,

the total dominance of men among the journalists makes women, in line with logic of gender differences, an oddity in the technological discourse. This logic is emphasized by the use of concepts such as WAF (wife acceptance factor). According to this, small audio products of modern design have a high WAF, while large, bulky and technically demanding equipment represent the opposite. Both magazines are characterised by this logic of othering – even if it seems to be more explicit in *Hi-Fi World* with more references to women as "the others."

Beside this difference, the similarities between the magazines dominate, not least because they are in line with how the audiophile community at large is organized. This community has by Perlman (2004) been described as a community of white and wealthy European and American men who can afford expensive audio equipment and who can devote a room to this obsession. In this self-contained space (cf. Rodgers 2010), sound, music and sound equipment become "technologies of self" (cf. DeNora 1999; 2000) that are involved in the construction of male subjectivities characterized by a need for control. There is according to Rodgers (2010) a male fantasy of a true origin of sound that can be reproduced by the control of technology. In a broader perspective, this need for control and for private spaces by male audiophiles is in line with other exclusively male activities that can be interpreted as responses to a traditional masculine identity that is threatened by wider social and cultural changes (cf. Nilsson 1999; Keightley 2010) such as gender equity efforts, feminism, and more women in the labour market. Thus, high fidelity as a phenomenon can in a historical perspective be regarded as involved in a process of masculinization of technology and as an effort to reclaim masculine domestic spaces (Keightley 1999).

Thus, the technological discourse of sound and music reproduction – as it is reproduced in the studied magazines – illustrates stereotypical views of gender, for example by portraying women as uninterested in technology and only interested in design (cf. Jansson 2010). This conservative character of the technological discourse is perhaps reinforced by the popularity of Internet-based music services. For example, iTunes and Spotify have in a way democratized music listening by making music available to more people. However, iTunes and Spotify represent in many cases a drop in sound quality, which can be seen as a challenge to the audiophile community and its quality standards. Thus, against the background of the digital lo-fi "development", the magazines have indirectly become reactionary; they defend an elitist view of technology permeated by a logic of gender differences.

The analogue revival present in the magazines is perhaps also a reaction to the wide spread of digital music. As noted by Perlman (2004), controversies and struggles for authority in the audiophile community are often emphasized when new technologies begin to replace old ones. In both magazines a recurring view is that analogue sound is superior to

digital, although this changed during the studied period and gradually it became more common with a positive attitude toward digital sources.

However, the analogue revival is not without contradictions, because it can be viewed as both anti-technological and pro-technological. On the one hand, the analogue revival is conservative, nostalgic and a reaction to an increasingly wide range of digital products – partly due to early promises from the digital audio industry to offer perfection in sound, which was seen as a treat to the audio community and its active engagement in technology (Heward 2009). On the other hand, the analogue revival can be regarded as progressive, which is reflected in a constant interest in new and improved analogue products, and in the manipulation, tweaking and adjustment of the old.

A contradictory character also characterizes the technological discourse. The conservative aspect in some areas is paralleled with a constant introduction of new products and brands, which illustrates how the technological discourse is linked to new capitalism (cf. Fisher 2010). This linkage makes it seem both necessary and inevitable that more and more electronic products will be produced continuously. Many of them are also becoming more short-lived. Thus, the technological discourse makes it legitimate and "necessary" to repeatedly consume and upgrade electronic (audio) products. In other words, the technological discourse reinforces the capitalist logic of growth. As Howarth (Howarth 2005:334; see also Zizek 1994) pointed out, capitalism is no longer perceived as one form of production among others, but as something necessary and universal. The technological discourse contributes to such an understanding, where continuous growth is not only seen as important for people to be able to live a good (better) life, but also as a necessity that enables societal development in general.

Conclusion

The technological discourse of sound and music reproduction emphasizes technical change and development. Technological development in audio products appears to be inevitable and – with the exception of a few environmental arguments – taken for granted. But there is a seemingly paradoxical aspect of the technological discourse, because the magazines also promote traditional engineering design solutions and emphasize the quality of older products.

The contradictions in the material, for example between new and old audio technologies, could be interpreted as a struggle between discourses. However, they are both portrayed in the magazines as sharing the same goal to reproduce sound and music as faithfully as possible, and also to reproduce the main subject position taken by audiophiles. In this respect, this contradiction is partly ostensible, and it may be more fruitful to talk about the technological discourse

as one providing various identification possibilities. In a similar way, the magazines expressed nationalist ideas in parallel with the overarching and unifying position as an audiophile. In other words, the technological discourse not only makes it understandable that technology is beneficial and necessary because of its different technical solutions, it also ensures that individuals can adopt different identity positions. However, due to their technological character these identity positions reflect a traditional social and cultural order, for example by reproducing gender positions that are in line with the logic of gender differences as part of a patriarchal society. ■

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