

Audiophile habitudes

Survey of influences regarding audio quality

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Abstract: This white paper reports the methodology surveying more than 450 members of 29 groups on social media self-identifying as audiophiles. Ranking six descriptors met the author's hypothesis, with one exception. In contrast to the audio enthusiasts' hobby that began in the 1950s, audiophiles today are dissimilar to those of the earlier era and to each other. Interpreting survey results reveals diverse opinions regarding audio quality that imply "surgical" marketing communication.

High-fidelity enthusiasts

A century and a half since invented, sound reproduction has not progressed as has visual imaging. Because humans favor the sense of vision v. hearing, strides have made *retinal quality* high definition and 4+k display widely available even on phones, hand in hand with content of unprecedented realism. Though sound reproduction preceded movies & television, sound *with* pictures, sound is relegated to *stepchild*, as end credits and budgets attest. Audio did spawn many hobbyists, today a dwindling few called *audiophiles*, entertained *without* images besides album art. Today, visual quality is the realm of professionals, not hobbyists.

In the 1950s, *hi-fi enthusiasts* worked to make the links in their audio chain that didn't add to or subtract from the music. Today many hobbyists reverse course in pursuit of "coloration" (euphonius distortion). Many (not all) practice shopping, prize *cool looks*, and some tout wildly *conspicuous consumption*. Most swap components by trial-and-error rather than by the prior era's more scientific approach, as this self-reported survey confirms.

Survey methodology

60+ years as an audio professional, the author participates to be helpful in 29 groups on Facebook whose members self-identify as "audiophiles." The total population of these groups is more than a half million, with only a small minority overlapping. To share insight into what influences them, I asked them to rank any of six (6) descriptors they personally ascribe to in their insatiable quest for audio nirvana. Responses varied within and by group, some surprisingly. The poll as posted 8 March 2023 was:

[Group] member SURVEY – reply with your audio priorities in order of preference, high to low (e.g., 2,1 or 6,5,3,4, etc.):

- 1) You improve your audio system based on online advice, or advertiser-driven content, or seller demo;
- 2) You trust your ears, playing your go-to recordings, trying different setups in search of a sound you like;
- 3) You study scientific posts or papers before adjusting your system, followed by listening to varied genre;
- 4) You have professional audio training & experience;

5) You find & fix broken equipment, or make your own;

6) You are familiar with live acoustic sounds and judge audio reproduction based on verisimilitude.

Reply with one or more numbers by preference, high to low. My "Like" means "counted" (not a judgment).

The author received hundreds of responses from 26 groups of 29 polled. He processed these like Ranked Choice Voting (RCV), not intending to determine a "winner," but to rank in descending order all six descriptors. The author reported to all 29 groups a summary of the groups whose members responded in sufficient numbers. The report motivated stragglers, included in revised results, tabulated below. The author invited comments. Along with several 'likes' and two still wanting to vote, a telling one was proffered, expressing the sentiment "depressing but expected."

Results summary

One month after the survey was posted, voting was closed, and the votes were ranked. Response in some groups was low by percentage of members, but overall are statistically significant. A few instantly reflected disinterest. However social media are ephemeral in nature; most participants are sporadically active, avoid deep dives, and soon move on to lighter conversations.

Audiophile Survey Results		(c)Robin Miller
Group members	Replies *	Group ranking
64,987	60	2,3,6,1,4,5
54,568	59	2,5,4,3,6,1
34,131	53	2,4,5,1,6,3
17,228	52	2,5,1,3,6,4
73,642	30	2,1,3,5,4,6
6,599	25	2,1,6,3,4,5
42,199	22	2,6,4,1,5,3
4,827	20	2,4,3,5,6,1
799	19	2,6,3,4,1,5
37,798	15	2,6,3,4,5,1
25,186	14	2,3,1,6,4,5
536	13	2,4,3,1,5,6
8,500	11	2,4,1,3,5,6
10,300	10	5,3,2,4,6,1
5,070	7	2,3,6,4,1,5
5,613	6	3,2,4,1,6,5
536,917	416 of 452	2,3,4,5,6,1

*Groups with sufficient replies identifiable by number of members.

Summary of 16 of 29 groups polled replying in sufficient numbers.

One month after launch, a summary was posted along with the caption: "Here are the personal importance rankings from groups, identifiable by number of members, who responded in sufficient numbers out of 29, totaling more than a half million members. Ignored are 13 groups with insufficient responses (or none), although their 'votes' count in the overall ranking." Late voters came forward, reflected in the overall ranking above, after disqualifications, and in the Appendix listing 416 responses of 452 tendered. Late votes tipped the final overall order to 2,3,4,5,6,1.

Design of the survey descriptors

Both the content and order of the categories surveyed were purposeful. So as not to test participants' limited attention spans, descriptors were brief. However, each choice implied more. The following paragraphs expand on what each category intended.

1) You improve your audio system based on online advice, or advertiser-driven content, or seller demo.

...reveals many an audiophile's reliance on the echo chamber of internet conversations among fellow hobbyists, who may or may not know what they are talking about. Also, the extent to which the 'purple prose' of advertising copy has infiltrated the groupthink evident in members' conversations. Add the *positives-only* sales pitches of salespersons at audio show booths, and the nearly extinct bricks & mortar equipment stores audio hobbyists once frequented. It is well known that seller-speak is propaganda for the purpose of higher profits rather than advancing quality. Building reputation (branding). The repetition is also known to condition behavior; in psychologists' parlance, *bias confirmation*.

2) You trust your ears, playing your go-to recordings, trying different setups in search of a sound you like.

...is a predominant claim in posts, surpassing that the point of an audio system is listening to music.¹ It means these audiophiles believe subjective opinions more than scientific evaluations of sound quality, such as objective tests & measurements. They "trust their ears," but only if they also see the device under test (DUT). Many decry blind testing, where popular brand names or prices cannot influence subjective judgement that hides the truth.

Experienced practitioners know one's changeable hearing perception can be due to sleep deprivation, hangover, stress, elevated blood pressure, and more. The author and other sound recordists and post-production engineers experience finishing a mix, only to come back the next day wondering what they were thinking! Like rewrites of this paper, the best mixes are remixes.

Its owner should be satisfied with his\her system, but should not expect others to kowtow. One's "ears" (actually one's brain) may reflect his\her current taste for "euphonius distortion," personally pleasing coloration of the sound, acquired over time by habituation, but subject to change.² Longer term *ear training* is real; to regard one's own ears as "golden" poses as arrogance.

Age dependent, most people like the music they grew up with. However "go-to recordings" carry personal bias, such as

sentiment for the genre, or the artists. These may make a recording seem to sound good even if it were poorly made.

No one knows what they don't know.³ No one hears what they can't hear, even among the young, given today's endemic hearing damage. Self-appointed arbiters of quality may smack of being arbitrary, if not narcissistic. In audio, another's conditions suggest audiophiles might practice more agreeing to disagree.⁴

Sides have been taken between the subjectivists and the objectivists in many areas, ranging from politics to hobbies. Anyone can have an opinion; but not everyone can make proper measurements or understand the results. The author learned early from mistakes in measuring what every engineer comes to know – it's smart to measure correctly; folly to criticize doing it.

3) You study scientific posts or papers before adjusting your system, followed by listening to varied genre.

...may be interpreted two ways. A respondent may have 1) understood that the publication had to be *bona fide* scientific writing by an expert, peer reviewed in a journal, or a respected textbook. Or 2) does any agreeably-written article qualify? Not everything online is fact: off-the-cuff texted prognostications are *opinions*; those that quote online "trade magazines" aid & abet *propaganda*. It may be sponsored, like a "review" on retailers' websites. Nor is one merely reading these "doing research." Obvious from audiophiles' online conversations, a small minority are *applied scientists*, e.g. journal paper devouring members of the Audio Engineering Society (AES). Whichever way voters regarded 3), it ranked 2nd overall. One who is scientifically educated can usually spot balderdash a mile away. And do others reading it a service by flagging a nonsensical comment as such.

More productive is to do *bona fide* research (or consult an expert) before aligning a turntable, choosing loudspeakers based on their frequency limits and distortion, determining the power needed to drive that speaker, and understanding the overriding room acoustics. Then judge by listening to genre for which the hearer has a live reference. And little sentimental bias.⁵

4) You have professional audio training & experience.

...checks other rankings, as most professionals calibrate over time their determination of quality. Most pros have learned *not* to "trust their ears." But to correlate their hearing with well-made measurement data by honest manufacturers or 3rd party evaluators. To know the quantitative divide between professional and consumer gear, such as quoting a component's "frequency

¹ Appreciating music was not surveyed, only ranking notions of audio quality.

² Electro-acoustic consultant Don Davis is often quoted re home music and PA operators saying: "If bad audio were fatal, it would be the leading cause of death."

³ Seminal research by Dunning & Kruger in 1999 showed people with low ability, expertise, or experience tend to overestimate their ability or knowledge in an area.

⁴ Hearing a component at a show or in a store's demonstration room can sound different at home, return it, and repeat. For many audiophiles, this *is* the hobby!

⁵ To reduce that variable, for subjective equipment 'shoot-outs' the author brings non-sentimental noisemakers for clients to compare to recordings of them. Not music, which carries personal bias. See the paper "Evaluating Loudspeakers: Subjectivity using non-sentimental sound-makers" at www.filmaker.com.

response within \pm dB” that does not impact tone color (timbre), v. “frequency range” by convention -10 dB, perceived as softer by about half the reference volume. Or amplifier “power 20~20kHz with less than % THD\IM distortion. Power supply “stiffness” as required for “all channels driven.” Tests that caused *no smoke!*

5) You find & fix broken equipment, or make your own.

...checks further claimed training & experience, and means that DIYers often come to understand audio’s underlying science. And how to implement components in a system cost-effectively, including interconnecting wires, the subject of widely believed snake-oil. 5) harkens back to the 1950s hobby, when many audio enthusiasts built kits, mostly no longer economically viable.

6) You are familiar with live acoustic sounds and judge audio reproduction based on verisimilitude.

...a concept meaning *true similarity*, although seemingly forever elusive. Edison’s national sales touring events alternated a singer live with the singer recorded. Spectators were awed by his phonograph’s *verisimilitude* because Edison had hired singers who could mimic the limited range and high harmonic distortion of his invention, not the other way around. Most people, then as now, can tell live v. canned music, even from behind closed doors.

In the history of recorded music, verisimilitude – once the prime objective of both audio engineers and hobbyists – has since yielded to popular music with novel sounds like never heard before. Succeeding light orchestral music in popularity in the UK, the Beatles’ tape flanging and telephone filtering seized public attention, and rang a global *ka-ching*. Verisimilitude applies to acoustic music (classical, jazz, chorale, etc.) for which listeners have a remembered reference for the natural tone of instruments heard live. The brain integrates the myriad reflections of concert hall acoustics arriving in 3D from around, above, even below. And that for the timbral (tone color) of each different sounding venue are *played* by instrumentalists as extensions of their instruments.

Verisimilitude requires arrays of microphones and speakers that retain the 3D angular provenance of early reflections, and reverberation, coming not from only in front. A listener’s pinna (outer ears) color differently each sound’s angle of arrival for the brain to construct a spherical 3D “image” unique to that hearer, altogether termed his\her head-related transfer function (HRTF).

Respondents who rank 6) anywhere in their reply likely listen to acoustic music, some adding that they were musicians. But by far most audiophiles today listen to popular music, with no live reference for fuzz-toned guitars and auto-tuned vocals. 2-speaker stereo cannot do verisimilitude, due to the lack of 3D ear signals, and crosstalk from either speaker to the listener’s opposite ear.⁶

As a participant in all 29 groups, the author hypothesized an overall result of 1,2,3,4,5,6 in descending order. That hypothesis proved correct with one exception, explored next. The weighted tallies of 660, 2075, 1050, 997, 924, 914 for categories 1,2,3,4,5,6 resulting in ranking them overall in descending order 2,3,4,5,6,1.

Interpreting the survey results

As a degreed electrical engineer observing many of today’s audiophiles from an ideological distance, the author has a visceral reaction to most groups’ plethora of unscientific postings, if not nonsense, inflammatory language, or oddly captivating claims. The author summarizes the survey’s overall findings (which may not apply to a minority of individuals within any group) as:

Far fewer than expected non-DIYers selected “online opinion” 1).

An expected number, responding by double, “trust their ears” 2).

An expected number claim to study “scientific publications” 3).

An expected number claim “professional training\experience” 4).

An expected number “fix broken equipment \ make their own” 5).

As expected, few claim to seek live sonic “verisimilitude” 6).

Except for case 1), the overall ranking 2,3,4,5,6,1 follows the author’s hypothesis, as embedded in the descending order of the survey’s descriptors. A few responses were in fact 1,2,3,4,5,6 or other chronological set; the author asked these participants to confirm the intentions, whereupon about half altered their order.

The low turnout for 1) may be because individuals do not recognize (or wish to reveal) that this case is their actual dominant proclivity. The author’s reading thousands of posts on all groups gives the strong impression that they respond most to and echo others’ opinions online, sales pitches at hi-fi shows, and advertiser copy, now online more than in print trade “journals.”⁷

The hobby today is far less popular than in the 1950s, but a far more social one (albeit virtually), with fans on social media inviting others to opine (i.e. agree), to be impressed, and seeming to invite envy (especially in \$). They may never meet in person, e.g. at consumer shows. Impersonal as social media are, they offer real-time, push-pull conversation, replete with ad hominem attacks, not available in push-only printed trade publications of the 1950s.

Facebook is the platform of choice of audiophiles, where participants belong to groups whose opinions align with their own, re-infecting them with bias confirmation that turns to vitriol more than in other hobbies where the author lurks, such as the far larger and similarly male-dominated model railroading community. Highly divisive topics include analog v. digital v. vinyl (phonograph records), wires and cable elevators, *my* brand v. *your* brand, and especially subjective v. objective evaluation of quality.

⁶ Cf. crosstalk cancellation in papers at www.ambiophonics.org or filmmaker.com.

⁷ By “echo chamber,” the author refers to audiophile groupthink that is palpable.

A caveat, discussion, and conclusions

This paper is hypothesis-generating, an invitation for others to refine the outcome by the *statistical law of large numbers*. While the overall ranking meets that criterion, low turnout groups do not. And the overall mean blurs diversity given in each group's signature. Also re the invitation for comments, a telling response was the sad sentiment: the survey was "depressing but expected."

Nevertheless, those who communicate with the audiophile community may glean a few nuggets from this survey. E.g. mid-ranked 3) & 4) imply a greater desire for performance data. Consumer and so-called "prosumer" products are described mostly by flowery adjectives rather than numeric measurements that specify physical devices meaningfully. Or makers present incomplete data to inflate ratings, such as quoting power only at 1kHz, not the full audible range. Omitting dB limits. Not rating all channels driven. Speakers rated with overly smoothed frequency response curves, and without dispersion (polar) responses by frequency. Hiding speakers' most limiting spec, distortion, the source of coloration, and that causes many audiophiles to reject use of subwoofers.⁸ Makers & retailers assume little by way of consumer education; if unknown information were presented, users might investigate, and elevate their knowledge. Savvy buyers assume that hiding important performance figures implies they are not good, as respected 3rd party reviewers often find.

Item 1) is likely more prevalent than the survey indicates, which speaks to marketing communications. Group posts are replete with brand-loyalty or -shaming, and with audiophile-speak that repeats the so-called *purple prose* of ad copy. To produce saliva, not to convey actual quality. Ignore gratuitous superlatives and meaningless incantations like "high-end" (pricey), or any product touting it is "quantum" this-or-that. Beware of any audio thing labeled "high definition." Meaningless positives like "kicks," "detailed," or negatives such as "too sterile," "clinical," "neutral," or "analytical" implies supersized sound is preferable to accurate sound. J. Gordon Holt of *Stereophile* magazine described more meaningful terms: the onomatopoeic "boomy" for sounds like the word "boom;" "airy" imagines treble boosted like the sky that has no limits; "gritty" for a sense of chewing lettuce with sand in it.⁹

"Soundstage" is over-used, in effect the *localizing* of sources spanning the 60 degrees of 2-speaker stereo. Or beyond, coming from outside the speakers, actually spurious phase artifacts, such as those in a recording created by processing, or stylus mis-tracing error distortion that, out-of-polarity in stereo, is heard zinging around the room. Or just echoes off the listening room's walls.

These and other so-called euphonious distortions do excite some audiophiles, but do not occur for others, made to feel left out. For sophisticated listeners in good acoustics, they are all anathema.

Claiming "3D" sound implies the full sphere of natural human hearing, with surround and height reproduction. But using only 2-speaker stereo, these can only be acoustical reflections from the walls, ceiling, and floor of the listening room – the same for all recordings, and different for each audiophile. Typically untreated, one's room plus loudspeakers modifies the sound of a recording.

Verisimilitude is desirable, but may apply little to music genre that are far more popular. Anecdotally, only a small minority still prefer acoustic music (classical, jazz, chorale, folk, etc.), and know, attending live concerts, what would sound *real*. 2-speaker stereo cannot achieve life-like reproduction. With experience, audio-fans might want to experience more neutrally what musicians and producers of any genre intended. But experienced listeners are known to leave the hobby due to unavailability of well-made recordings. Poor recordings can result from monitoring in the control room. If not neutral, bad mixing decisions will be widely distributed. E.g. "near-field" speakers on a meter bridge where the console deck reflects sound that is comb-filtered at producers' ears, causing them to bake into the mix bogus compensation.

Almost understandable is producers' resorting to heavy-handed processing, knowing their mixes must sell mostly to non-audiophiles shopping for the loudest sound, to play over lowest common denominator gear, and in hostile acoustics where non-linear artifacts (distortion) are masked by environmental noise.¹⁰ Squashing dynamics also improves profits by avoiding the cost of higher design limits. Where for the same volume, say 2 watts of average power, the 6dB of headroom typical of popular music might not require more than 8 watts of peak undistorted amplifier and speaker power. However for the 20dB dynamics of life-like movie effects and orchestral reproduction, 200 watts is needed.¹¹

Chronic bias confirmation progresses to *cognitive dissonance*. E.g. many hobbyists are reactionary to home use of commercial equipment, claiming it is not "audiophile." Sans shiny looks and inflated prices, professional gear typically is better built and higher performing, especially low in distortion when loafing at home.

Consultants and companies who advise and market to audiophiles can interpret the results according to their specific criteria. However, as revealed by the diversity of opinion by group and by individuals within groups, targeting each needs to be "surgical." The Appendix shows the survey's full dataset, with the spreadsheet available by written request at www.filmaker.com.

⁸ Audiophiles find "splicing" a subwoofer with main speakers problematic if THD & IM artifacts, generated post-crossover, are higher frequencies than the crossover, and thus are localizable. Cf. the paper "Subwoofer Camp" at www.filmaker.com.

⁹ A 1993 300-term glossary <https://www.stereophile.com/reference/50/index.html>.

¹⁰ Level compression is not applied in replay gear to suit listening conditions, but in mastering a one-size-fits-all sound to which consumers become habituated.

¹¹ An average 2w may deliver 85dB sound power (SPL). For pop music, peaks of 6dB quadruple required power. For an orchestra, 20dB peaks multiply 2w by 100.

NOT AUDIOPHILES		Audiophile	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
288	James Jones	708 1.2		1	2			0	5														
289	David Jones	4.7				2	1						6										
290	David Hoffman Dick	0.3,2		3	2	1				4	5												
291	Joe Bunker	2.0,3		1	3					4													
292	James Jones	4.6,2		3	1	2				4	0												
293	James Jones	6.3,2		3	2	1				4	5												
294	Joe Bunker	2.1								4													
295	Joe Bunker	6.3,2		3	2	1				4	5												
296	Joe Bunker	2.4		1	3					4	5												
297	Joe Bunker	2.5,1		1	2	3				4	5												
298	Joe Bunker	6.5,2,2		2	3	1				4	5												
299	James Jones	6.5,4,2,3,1		6	5	4	3	1		2	1		5	4	0								
300	Joe Bunker	2.3,1		1	2	3				4	5												
301	Joe Bunker	4.3,2		3	2	1				4	5												
302	James Jones	4.3,2,5		3	2	1	4			4	5												
303	Joe Bunker	3.2,1		3	2	1				4	5												
304	Joe Bunker	3.2,1,4		3	2	1	4			4	5												
305	Joe Bunker	3.2,1,1		3	2	1				4	5												
306	James Jones	708 3.2,8,1		4	3	2	1			3	5												
307	Joe Bunker	1.2		1	2					0	5												
308	James Jones	2.4,3,4,1,5	teagym post	20	11	4	3	11	10	17	10	17	10	17	10	17	10	17	10	17	10	17	10
289 votes. All post these payments, plus their votes to other respondents																							

HEY AUDIO STUDENT		Audiophile	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
315	James Jones	30871 0.2,5		2	3	1				5													
316	James Jones	4.0		1	2					5													
317	Joe Bunker	4.1		1						5													
318	James Jones	2.1,4		2	1	3				5													
319	Joe Bunker	4.0,2,3,1		5	3	4	1	2		2	3		4	0									
320	James Jones	30871 4.0,2,3,1	teagym post	7	15	3	20	4	16	10	17	10	17	10	17	10	17	10	17	10	17	10	17
483 votes. All post these payments																							

High Fidelity Stereo		Audiophile	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
441		6.71																				27	
442		6.71																				27	
2 High Fidelity Stereo		1,2,3,4,5,6	empty post																				
483 votes																							
Real To Real Tape Recorder		Audiophile	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
443	James Jones	30482 4.8,3,1																					
444	Joe Bunker	30482																					
445	James Jones	4.5,3,2,1																					
3 Real To Real Tape Recorder		4.8,3,2,1	teagym post	1	2	6	12	16	6	10	17	10	17	10	17	10	17	10	17	10	17	10	17
483 votes																							

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*The author hypothesized, as audiophiles' posts show anecdotally, that descriptor 1) "I abide by online opinions" is actually the dominant proclivity, ahead of 2) "I trust my ears." In which case 1) would be confirmed as most prominent in interpreting and applying results for purposed of marketing communications.