

I've Got The Music In Me: A Study Of Peak Musical Memory Age And The Implications For Future Advertising

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ABSTRACT

Neuropsychologists have demonstrated the effect music has on the human brain, and that a peak “musical memory age” occurs around 14, when normal bodily maturation is in progress. A group of 114 college students between the ages of 19 and 25 was exposed to short clips of the top 20 songs from each of the 11 years during their youth; participants were asked to rate their liking of each song sample on a 0-10 scale. Data analysis showed that the peak musical memory age of these students was not as precise as prior research had shown, and that overall there was difference in degree of musical affinity between age groups in the sample. This deviation from prior findings may have resulted from changes in how music is available today. Whereas specifically targeted music was once standard procedure in past TV advertising, these findings produce new implications for future TV advertising.

Keywords: Advertising, music, broadcasting, television, pop culture

INTRODUCTION

Since the 1980s, researchers have been using neuroscience technology to monitor brain activity as it relates to musical perception and preference (Sacks 2008). Marketers were quick to follow suit and began conducting brain-mapping exercises of their own, all with a view to better understand the role music plays in a persuasive message.

Director of the Laboratory for Music Perception, Cognition and Expertise at McGill University, neuroscientist Daniel Levitin, has conducted extensive research on the connection between neural development and musical memory. In his book, *This is Your Brain on Music*, Levitin asserts that neural and psychological development creates a musical memory age of 14.

From a physiological standpoint, age 14 is the age when the amygdala and neurotransmitters come together to create something of a “perfect storm” which marks music of this time as being particularly significant and meaningful. (Levitin 2006). From a marketer’s standpoint, age 14 could well be the nostalgic “sweet spot” when selecting promotional music that connects with a specific demographic.

The purpose of this study is to examine whether a peak musical memory year exists among college-aged students and to develop implications for future advertising.

LITERATURE REVIEW

The persuasive power of music is well documented in the literature. It has the ability to influence emotions, (Gavin 2006, Bruner 1990), increase cognitive activity (Chebat et al, 2001; Sacks 2008), improve memory (Balch and Lewis 1996), enhance worker productivity (Gardner and McGeHee 1949), impact feelings of

pleasantness (Balch et al., 1992) and play a major role in consumer buying behavior and likelihood of purchase (Gardner 1985, Alpert et al, 2005).

Kotler (1974) coined the term “store atmospherics,” to refer to the impact that a retail space has upon consumer experience. However, it’s not just the physical environment which impacts consumer behavior. Shapiro (2004) and Matilla and Wirtz (2001) suggest it is also the intangible environment created by lighting, scent and increasingly music. Point of purchase music has been documented to improve the shopping experience, increase time spent shopping and boosts actual sales (Smith 1985; Yalch and Spangenberg 2000).

But the music message isn’t completely harmonious. Consumers are very particular about their exposure to “unintentional” music. Shoppers reported a “terrible retail experience” when exposed to loud environmental music (Arnold et al, 2005). Consumers disconnected in higher numbers when forced to listen to “relaxing” music while on hold, as opposed to other genres (Ramos 1993). An overall negative retail experience was reported when the style of music did not fit with the expected retail personality. (Gavin 2006).

Even before the consumer sets foot in a retail space, it is usually advertising, accompanied by music, which communicates the intended marketing message. Gorn’s (1982) landmark research used classical conditioning methods to suggest that hearing liked or disliked music while being exposed to a product directly affects product preferences. A direct correlation has been documented between the use of music in TV commercials and the formation of brand attitude, especially in regard to low involvement products (Park & Young 1986; Roehm 2001).

Recent research goes a step further and indicates that music has a positive effect on consumers in a state of high involvement when the music fits well into the overall advertising message. (Zander 2006.)

Jingles and music scores have been used to promote advertising messages, often with the hope of creating a product-specific “earworm” (Sacks 2008). Kellaris, et al (2003) refer to this psychological phenomenon as a cognitive itch or the proverbial “can’t get the song out of my head” syndrome. Some researchers suggest that the communicative property of music is so powerful, it should be examined as an actual language form, and not merely background to an existing advertising message. (Scott 1990). Others assert that the selection of music for advertising purposes is so important, it should be part of the initial advertising planning phase, not a decision made in the later stages of advertising production (Dunbar 1990).

People love their music, and marketers know that music works. According to the 2007 Millward Brown Brandamp Study, music is the medium that people would least like to live without (Brunini 2008). Sidney Hecker, Associate Research Director at Young & Rubicam writes that music may well be the single most stimulating component of advertising. (Hecker 2006). A study conducted by Sounds Like Branding™ (2008), surveyed 70 top global brands, and discovered that 97% thought music strengthened their brand, 76% use music actively in marketing and 74% thought that music will become even more important in the future. (Lusensky 2008). It is important today for advertisers to connect with their target and engage them in the product. (PriceWaterHouseCoopers, Whitepaper, 2007).

Music has been documented to be one of the more powerful communication tools of engagement. But, do we know what kind of music engages consumers best? What kind of music relates best to different demographics? Does a universal musical memory age exist? The contribution of this study is to examine the musical memory phenomenon and to determine if such a peak age exists, as well as the resulting implications for advertisers.

METHODOLOGY & HYPOTHESES

A volunteer sample of college students was invited to participate in the study. The study was conducted in Spring 2009 at a regional Division II state university in the US southwest. Students ranged in age from 19 to 28. Data were collected in four rounds using computer labs equipped with audio systems (25-30 students in each session).

Participants were required to listen to 220 10-second song clips gleaned from an 11-year period (1994-2005), relying on Billboard Top 100 song lists as the official popularity ranking of songs. The top 20 songs from each year in the study were utilized, and were randomly assigned across the listening sample so as to not bias listeners or reflect a trend in music progression throughout the study.

Students had their own computer to record their “liking” of songs with an online survey tool; for each song an interactive dial (“song-o-meter”) was used that had a 0-10 scale for respondents to indicate their degree of liking. Song clips were retrieved from iTunes; only the most salient and identifiable portions of each clip were used, in order to facilitate easier recognition of songs. Duration of each data collection session was approximately 90 minutes.

Given the number of years covered in the listening exercise, and the relatively narrow block of college student ages, it is possible to plot respondent’s degree of “liking” based on the age of the music. A composite score of “liking” can be calculated for each individual, and then averaged for everyone in a particular age or age grouping. Thus, based on the work reported by Levitin (2006), we hypothesize:

H1: Age 14 will be the peak respondent “liking” year for popular music. In other words, birth year + 14 will be the respondent’s favorite year of music.

As a result of utilizing respondents of different ages, it is possible to compare musical “liking” years across respondents. By plotting average composite “liking” scores by respondent-age, we would thus expect there to be overlapping curves, rising to a peak year and then dropping off. Because music listening habits are acquired gradually as a person matures, we would thus expect musical affinities to begin for a person born in Year X to begin a year before a person born in Year X+1; hence, the overlapping curves. Finally, we hypothesize:

H2: There will be significant differences in the degree of musical “liking” between ages and/or age groups for the 11 years of music included in the study.

RESULTS

There were 114 usable responses (i.e., no incomplete surveys). Of these, participant ages ranged from 19 to 28. There were 37 males and 77 females. A measure of overall musical “liking” for each was calculated as the average of the sum of the 20 scores participants gave for each song within a given year. Thus, with 20 songs per year and 10 points possible per song, the total number of points possible was 200. Findings were as follows:

Table 1: Sums of Musical “Liking” By Year (Full Sample)

	N	Minimum	Maximum	Mean	Std. Deviation
sum1994	114	4.00	162.00	73.1140	33.82091
sum1995	114	8.00	184.00	77.8421	35.37900
sum1996	114	5.00	183.00	87.7368	35.02466
sum1997	114	9.00	176.00	97.4211	35.48773
sum1998	114	13.00	172.00	92.9474	33.14085
sum1999	114	10.00	178.00	105.3684	36.57536
sum2000	114	17.00	184.00	108.6316	38.31201
sum2001	114	17.00	190.00	113.4298	36.93500
sum2002	114	7.00	190.00	109.4649	40.16541
sum2003	114	10.00	185.00	108.7632	38.36811
sum2004	114	17.00	187.00	108.6754	35.61781
Valid N (listwise)	114				

The data show an overall increase in “liking” from 1994 through 2001, with a small decline following. Still, the average scores are modest at best, with 2001’s measure being scarcely 56.5% of the possible amount of affinity. Thus, in spite of the songs used being verified Top 20 songs at the national level (across all genres), the sample was marginally attuned to them at best.

The ten respondents aged 24 – 28 were eliminated because their numbers were so few, leaving 104 participants. Figure 1 below graphically displays the summed “liking” for each of the 5 ages remaining in the sample. While a general upward trend is indicated for all 5 ages (with songs from 1994-1996 scoring below 100 for all), there is no clear evidence that the age of 14 (music from 2000 – 2004, depending on age) is the peak year of liking. If anything, a general leveling effect occurred for all participant ages at or below the age of 14, with the oldest respondent group (age = 23) being an anomaly (their peak “liking” year occurred at age 17; Table 2).

Figure 1: Summed Musical “Liking” By Respondent Age

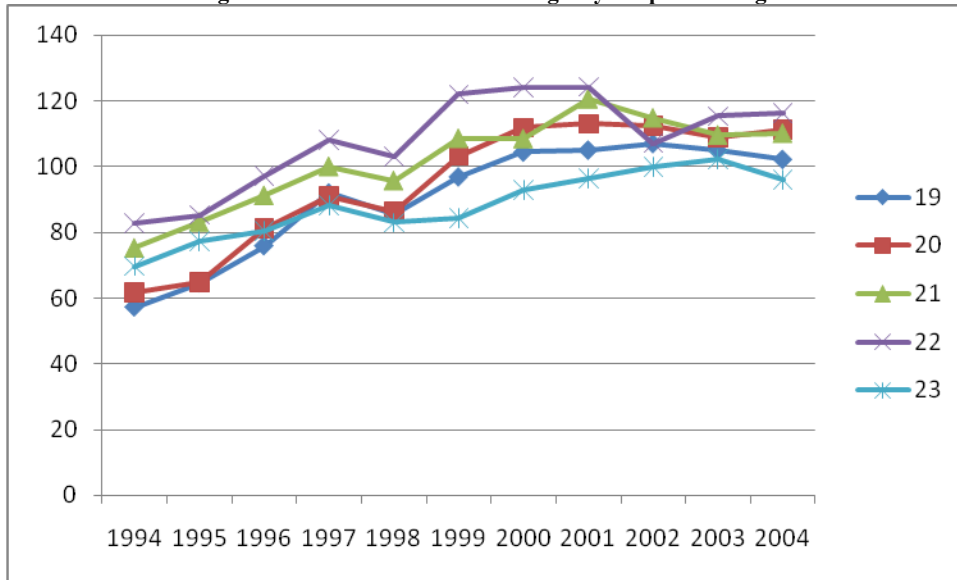


Table 2: Peak “Liking” Year By Age

Age	19	20	21	22	23
Peak Music Year	2002	2001	2001	2001	2003
Peak Music Age	12	12	13	14	17

Next, in order to facilitate more meaningful statistical analyses, the sample was consolidated into three groups . Three age-based dummy variables were created. Group 1 consists of 19- and 20-year olds (n=40); Group 2 consists of 21-year olds (n=28); Group 3 consists of 22- and 23-year old (n=36). An ANOVA was performed comparing the mean “liking” scores of these three groups for all 11 years (Table 3).

Results from the ANOVA indicate significant differences in “liking” only occurred for 1994 and 1995 songs. Games-Howell analyses of the ANOVAs (assuming non-equal variance among the groups) revealed the differences for these two years specifically occurred between Group 1 (ages 19 and 20) and Group 3 (ages 22 and 23). This finding is not surprising, as the majority of the study participants were very young in 1994 and 1995. The ones most likely to have been listening to popular music in those years would have been those in Group 3. Still, composite “liking” scores for these two years were the lowest of the 11 years studied.

Table 3: ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
sum1994	Between Groups	7366.830	2	3683.415	3.496	.034
	Within Groups	106426.670	101	1053.729		
	Total	113793.500	103			
sum1995	Between Groups	7893.693	2	3946.846	3.344	.039
	Within Groups	119205.654	101	1180.254		
	Total	127099.346	103			
sum1996	Between Groups	3763.978	2	1881.989	1.543	.219
	Within Groups	123228.638	101	1220.086		
	Total	126992.615	103			
sum1997	Between Groups	2081.140	2	1040.570	.787	.458
	Within Groups	133569.850	101	1322.474		
	Total	135650.990	103			
sum1998	Between Groups	2325.025	2	1162.513	1.052	.353
	Within Groups	111610.937	101	1105.059		
	Total	113935.962	103			
sum1999	Between Groups	1620.484	2	810.242	.597	.552
	Within Groups	137018.045	101	1356.614		
	Total	138638.529	103			
sum2000	Between Groups	465.383	2	232.692	.151	.860
	Within Groups	155555.607	101	1540.155		
	Total	156020.990	103			
sum2001	Between Groups	2043.195	2	1021.598	.712	.493
	Within Groups	144839.564	101	1434.055		
	Total	146882.760	103			
sum2002	Between Groups	1665.716	2	832.858	.495	.611
	Within Groups	169865.822	101	1681.840		
	Total	171531.538	103			
sum2003	Between Groups	252.869	2	126.434	.080	.924
	Within Groups	160572.045	101	1589.822		
	Total	160824.913	103			
sum2004	Between Groups	148.052	2	74.026	.055	.947
	Within Groups	136515.707	101	1351.641		
	Total	136663.760	103			

DISCUSSION

The results above do not support the general hypothesis that the age of 14 is the peak musical liking year; thus, H1 is rejected. If anything, the data illustrate that a relevant range of liking exists, and in fact peaked at an earlier age for three of the five ages considered. Idiosyncrasies among age cohorts and in the music of a particular year may affect the degree of liking from one year to the next (perhaps explaining how the 23-year olds settled on 2003 music while they were 17) as their peak liking year.

By comparing three age groupings by the 11 composite music “liking” scores, H2 could be tested at 33 (3 X 11) levels. The fact that there were only two significant differences between age groupings and the 11 years of music (specifically, 1994 and 1995, between the youngest and oldest respondents) allows for H2 to be rejected in 31 out of 33 instances.

Furthermore, while there is little doubt that the music of a person’s childhood (e.g., age 11 and younger) is not held with great affinity, there is very little variance in liking once the study participants reached age 12. Thus, rather than a peak impressionable age, the data indicate a peak impressionable age range that continues throughout the teen years and into the college years.

Music is accessible in many more methods today than it was even 15 years ago. Thousands of online radio stations exist, as well as customizable portals like Blip, Last.fm, Imeem and Pandora that allow users to create their own playlists and stations. Music can be both listened to as well as purchased online, not just in CD format, but increasingly as digital downloads via sites like iTunes. Listeners are then free to create their own fully customized listening devices (e.g., iPods) with playlists to their liking, effectively becoming their own DJ and radio station.

The music industry is undergoing radical changes, and there are new players in the digital music world. (Business Insights, 2009). One of the leading research groups for consumer measurement, Nielsen Media Group, reported that the MP3 player is the top method for music consumption for teens around the world. Thirty-nine percent of teens globally say it is their primary method of listening to music, followed not by CDs or radio, but the home computer, which is the primary source of music for 33% of teens globally.

Parikh (1999) analyzes out this business model change in a historical context. He questions whether existing music delivery modes, such as traditional radio, will be ruled obsolete by the newer distribution technologies (Parikh, 1999). Ten years later, his predictions have begun to come true.

Furthermore, of the countless music outlets, narrowcasting rules the day. Gone are Top 40 and MOR formats that once dominated radio, replaced by formats that have broken down genres into sub-genres, and thereby appealing to smaller and smaller groups.

Also occurring with regularity today is the revival of older artists and genres. The recent release of The Beatles Rock Band serves as an excellent example of a band long since gone, but enjoying resurgence in popularity with the grandchildren of the original fans.

There is also a fascination among some listeners for “indie” (i.e., independent) bands, artists that are relatively unknown and often unsigned to a major record label. This is indicative of a broader trend of fragmentation in the industry. Chris Anderson (2006), in *The Long Tail*, shows how opportunity exists in the tails of the market distribution by virtue of the technologies available to reach such markets (e.g., e-commerce and web sites). Fragmentation by razor-thin sub-genres and/or fascination with unheard of artists makes it more difficult for “Top 100” song lists to truly represent the entire population.

The economics of the broadcast era required hit shows—big buckets—to catch huge audiences” (Anderson, 2006). Even a look at billboard.com reveals a fragmented reporting strategy for music consumption aggregators like Billboard, Inc. They list digital albums, digital songs, and even ringtones as important consumption fodder for industry watchers. This is in addition to the many genres that now dot the web pages of music consumption aggregators like *Billboard, Inc.*, *Radio and Records*, and even the *College Music Journal*.

Finally, there is a growing incidence of paid music placements in TV series. In some cases songs are written specifically for a show; in other cases, songs of virtually unknown artists are pitched to series producers. If the show proves to be a success, often the artist will receive cult popularity (for a good example, consider the artist Jackson waters and the use of two of the songs on the series *One Hill Tree*).

The result of all this is that music, which was once limited in availability and thus driven by age-specific consumer groups, is now distributed across the entire market in a variety of formats. This allows artists like The Beatles to be popular once more with an entirely new generation of listeners, alongside a roster of otherwise obscure artists appealing to very refined market segments.

Thus, the original findings reported by Levitin may no longer be as applicable as they once were. A young adult’s formative years may thus span a greater time period than once thought, and be influenced by far more than only the popular artists of the day. Well-known artists such as The Beatles (or artists like them), as well as virtual unknowns like Jackson Waters, could then have value in future TV advertising, in spite of their not being consistent with the idea of only mainstream artists of the day retaining value as future implicit product endorsers.

CONCLUSIONS & FUTURE RESEARCH

The findings above indicate that the age of 14 may not be as “magical” as once concluded. Whereas TV advertising could once easily target age-specific individuals by featuring songs from a specific year (birth year + 14), the results indicate young adults today may not be so easily reached using such a formula. If anything, it appears their entire teenage and college years, not just one year, have fairly similar levels of musical affinity. Thus, rather than the peak age reported by Levitin (purportedly a peak “coming of age” time period for adolescents), it may very well be a peak age range.

There are many differences today in how music is accessed than in previous generations, and there are . While older US adults once accessed their music solely via radio, listeners can now access music online (both for listening and purchase) and via dedicated cable and satellite TV audio and video music channels. Furthermore, the popularity of “indie” bands as well as the long-term staying power of popular artists illustrates that what is mainstream (regardless of time period) may not generate the affinity it once did. The overall relatively low level of liking in general underscores this possibility.

There are a number of limitations in the study and its findings. Because few participants were in the 24-and-up age range, the sample had to be culled to include only those between the ages of 19 and 23. This left 104 qualified participants, enough for the sake of data analysis. Ideally, though, a larger sample with more students in their mid- and late-20s would be ideal for this study so as to make better comparisons across a wider range of birth years.

A further limitation is that the study was performed at but one university, and in a region with somewhat disparate musical tastes (e.g., country and western, as well as contemporary Christian music). Still, the fact that Billboard Top 20 songs were included guarantees that only the most popular songs in the nation, regardless of genre, were utilized for the test years. Multiple data collection points in other regions of the country would help determine if there is a geographic difference in musical affinities.

Another limitation is that this research is limited specifically to the US market. While there are many truly global hit songs, it is not safe to say that the Top 20 songs in the US match those in other nations or markets. Furthermore, the affinities of American residents toward music specifically, and pop culture in general, may differ between nations and cultures. Thus, the application of these finds will necessarily be limited to the US.

Finally, it is possible there is a recency effect taking place with the sample. Because the final sample was between 19 and 23 years of age, it is possible their true musical affinities have not yet been cemented. In other words, it is possible that, for this sample, their liking may one day gravitate toward the age of 14, as indicated in prior research, but only after sufficient passage of time. Thus, it would be fruitful to expand this study to explore substantially different age groups (30s, 40s, 50s, etc.) and music that spans several decades.

AUTHOR INFORMATION

R. Nicholas Gerlich, Ph.D., Dr. Gerlich is Professor of Marketing and Director of Continuous Improvement at West Texas A&M University. He received his Ph.D. from Indiana University, and joined the faculty of WTAMU in 1989. Dr. Gerlich has played a significant role in the development of online courses in the College of Business, and has been teaching in this format since 1997. He has twice won the Distance Learning Innovation Award during this time. His recent research has focused on music piracy as well as assessment-related issues.

Leigh Browning, Ph.D., Five years after her graduation from West Texas A&M University, Dr. Browning joined the WTAMU faculty and now serves as director of broadcasting, coordinator of Maroon Productions, an on-campus student production company, and faculty adviser for KWTS, 91.1 FM, the campus radio station. She received her doctorate from the University of Southern Mississippi in Mass Communication where she also served as a visiting professor. Dr. Browning’s student groups at WT have won more than 20 National Championships in audio and video production, scriptwriting, web design and commercial production.

Lori Westermann, M.A., Lori Westermann received a B.A. in mass communication from Mississippi College and an M.A. in mass communication from Southwestern Theological Seminary. Her industry career includes positions with network affiliates, the cable industry, advertising agencies and corporate public relations efforts. She helped create *The Eternal Flame*, the University year-in-review publication and serves as the faculty adviser for the student chapter of the American Advertising Federation and the Texas Public Relations Society. Westermann received an Emmy Award for her work on the documentary *China: Walls & Bridges* and is the most recent recipient of the AAF 10th District Advertising Educator of the Year.

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NOTES