
The Language of Lyrics

An Analysis of Popular *Billboard* Songs Across Conditions of Social and Economic Threat

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The lyrical content of *Billboard* No. 1 songs for each year from 1955 to 2003 was investigated across changes in U.S. social and economic conditions. Consistent with the environmental security hypothesis, popular song lyrics were predicted to have more meaningful themes and content when social and economic conditions were threatening. Trends for more meaningful, comforting, and romantic lyric ratings were observed in more threatening social and economic times. Using Linguistic Inquiry and Word Count software, songs with more words per sentence, a focus on the future, and greater mention of social processes and intergroup themes were popular during threatening social and economic conditions. Limitations and possible implications are discussed.

Keywords: *music; lyrics; Billboard charts; environmental security hypothesis*

Music is one of the oldest forms of entertainment and cultural transmission, found in every known culture in various forms across time (Wallin, Merker, & Brown, 2000). When accompanied with words, songs allow us to communicate emotions, tell stories, and even express our opinions and attitudes. Through a number of recent technological advances in popular media (e.g., online song download sites, portable MP3 players), individuals' options for obtaining and listening to music have expanded greatly. Furthermore, recent psychological research suggests that individuals' particular music preferences are both a reflection of their personality (Rentfrow & Gosling, 2003) and a representation of their attitudes, beliefs, and

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needs (North & Hargreaves, 1999, 2007). Expanding on this literature, the current study considers how song preferences, via their lyrics, may be related to normative social conditions, specifically, indices of social and economic threat.

On Lyrics

Lyrics are an important form of communication, serving a variety of purposes as documented in the psychology of language literature. Lyrics tell stories and communicate with audiences in a manner similar to how people have conversations with each other. For example, speech act theory has been applied to the analysis of seductive strategies in blues lyrics, with results revealing that songwriters add the same types of language requests to songs as would be found in real-life relationship situations (Kuhn, 1999). Specifically, lyrical requests for making love contain internal and external modifiers, including flattery, promises, and reasons for submitting to the request. Others have analyzed song lyrics for their content, similar to the manner in which other forms of communication, such as political speeches and ordinary conversations, have been investigated. Cole (1971) surveyed the top 10 *Billboard* songs during each year in the 1960s and conducted a content analysis of the song lyrics for mood, love–sex, religion, violence, and social protest themes. Although no systematic formula for popularity was found, love–sex was identified as a predominant theme during this time period. Other researchers have focused on an analysis of the language used by specific songwriters and musical groups.

Bob Dylan's lyrics have been studied in the context of the different events and phases of his life (Whissell, 2008). Interestingly, Dylan used more active words and more imagery words at the height of his critical acclaim. Conversely, Dylan used more passive words in stressful times, such as when he was injured and withdrawn. Furthermore, his songs contained more pleasant words during times of new direction and when he was the recipient of several awards (Whissell, 2008). The language of the songs of the Beatles has also been a popular topic of empirical study. Whissell (1996) used traditional stylistic measures (i.e., word usage, word length, and word repetition) and measures of emotionality to analyze the songs composed by Paul McCartney and John Lennon between 1962 and 1970. Stylistic and emotional differences were found across time. Lennon wrote songs that were sadder and less pleasant than McCartney, and Lennon–McCartney lyrics became less pleasant, less active, and less cheerful over the period investigated (Whissell, 1996). In a different study, West and Martindale (1996) applied a theory of artistic evolution to the Beatles songs' lyrics. Results revealed that words in the lyrics of Beatles songs increased in complexity and were repeated less often as the artists developed, supporting the theory that writers tend to regress cognitively to a more basic form of consciousness to deal with the extra pressures of developing and pleasing the listeners. Although lyrical analyses uncover interesting trends in language usage, the

reasons behind why particular lyrical themes and language are more popular at different times remain unclear.

Societal Conditions and Social Preferences

Past archival research has considered how social, economic, and politically threatening conditions can globally influence the preferences of people in a number of domains. Societal measures of threat in the United States have been related to powerful and charismatic presidential candidate preferences (McCann, 1991, 1997; McCann & Stewin, 1987), authoritarian church affiliation, literary characters with strong personalities, attack dog preference, and an increase in the frequency of violent sporting events (Doty, Peterson, & Winter, 1991; Sales, 1972, 1973). In the media, social and economic threat has been related to mature facial feature preferences in popular American actresses (Pettijohn & Tesser, 1999) and mature facial feature and larger body size preferences in *Playboy* Playmates of the Year (Pettijohn & Jungeberg, 2004). McIntosh, Schwegler, and Terry-Murray (2000) had judges rate popular television shows from 1960 to 1990 for meaningfulness of content and found that during times of threat, audiences chose to watch shows that dealt with important issues and had meaningful content, as well as shows with more realistic characters and complex plots. These authors suggest that during threatening social and economic times, individuals may prefer such programs because they offer positive outcomes to complex problems, which may be especially reinforcing under such conditions. Similarly, Pettijohn and Sacco (2009) had participants listen to and rate the *Billboard* No. 1 songs for the years 1955 to 2003. Participants listened to each song, in random order, in its entirety, during three 1-hour sessions in a controlled lab setting. Directly after hearing each song, participants completed ratings that asked them to consider to what extent the songs explored real, meaningful issues, and whether the songs were comforting and romantic by marking their agreement with each statement on a 7-point Likert-type scale. Consistent with study predictions, songs were rated as more meaningful, comforting, and romantic when social and economic conditions were threatening. In addition, musical performers with more mature facial features were also more popular during times of social and economic threat. It seems that even our seemingly insignificant likes and dislikes appear to be influenced, at least in part, by environmental conditions and perceptions of threat.

Environmental Security Hypothesis and Study Predictions

Building on the tentative theoretical explanation offered by previous research, and using a content analysis of popular song lyrics, Pettijohn and Tesser's (1999) environmental security hypothesis (ESH; see Nelson, Pettijohn, & Galak, 2007, for

a review) may offer both a more specific and parsimonious theoretical model for understanding the relationship between variations in social and economic conditions and popular media preferences. The ESH is a context-dependent theory of social preferences in which our perceptions of environmental security influence our social preferences and what we find most desirable during different social and economic conditions. Specifically, safety and security concerns are more salient in threatening and uncertain times, which causes people to make decisions that are more pragmatic and utilitarian. Thus, more meaningful themes and mature characteristics should be preferred during these threatening conditions to help reduce threat and uncertainty. Conversely, when times are more certain and less threatening, preferences for more meaningful thematic content and mature characteristics are less necessary, so themes and items related to fun, celebration, and the expression of carefree attitudes should be preferred.

Previous research has not specifically explored how preferences for song lyrics might be influenced by changes in social and economic conditions. Because the ESH has been found to be related to a number of preferences for specific thematic content across conditions of social and economic security and insecurity in a variety of domains, perhaps such a theoretical framework might be useful in explaining a portion of the variance in individuals' preferences in music across such conditions as well. Specifically, the current study explores the relations between the lyrical content of the *Billboard* No. 1 songs for each year (1955-2003) and a measure of social and economic threat. Based on the ESH and previous research, we predicted that song lyrics with more meaningful content would be preferred to a greater extent during periods of social and economic threat compared with less threatening times. Meaningful lyrics explore serious, complex, important issues that are of greater societal significance, whereas less meaningful lyrics express more lighthearted, simplistic issues with lesser societal significance. When songwriters experience increased threat from social and economic environments, this threat may cause internal tension, aversive arousal, and unresolved conflicts, which could be reduced through writing (Pennebaker & Beall, 1986; Pennebaker, Zech, & Rimé, 2001). Also, individuals experiencing these threats may reduce their own stress and arousal by consuming and listening to music that allows them to collectively share these experiences and contemplate social issues.

We tested our predictions using two lyrical assessment methods: (a) participant ratings of the lyrical content and (b) computer software analysis of song lyrics for thematic content. Similar to the methodology of past research (McIntosh et al., 2000; Pettijohn & Sacco, 2009), we were interested in how individuals' subjective ratings of lyrical content might relate to conditions of economic and social security/insecurity. However, we wanted to extend such an analysis beyond a handful of independent raters to a larger population of participant raters. For this subjective rating component of our lyrical analysis, we hypothesized that songs containing lyrics rated as more meaningful and more comforting would be popular during times of economic hardship and threat, and songs containing lyrics rated as less meaningful and less comforting would be more popular during social and economic prosperity. In addition to themes related to

meaningfulness and comfort, we also predicted the popularity of song lyrics with romantic themes would systematically vary with social and economic conditions, consistent with the tenets of ESH. Love is a popular theme touted throughout books, movies, and music. We considered romance, including positive and negative elements of close relationships and love, to be a meaningful topic and predicted romantic themes to be expressed more often when times were troubling. Love songs also express a need for social affiliation, which reflects a desire for increased closeness during bad times. Researchers have cited the importance of romantic themes in music by exploring expressions of love, sex, and hurt in popular songs (Dukes, Bisel, Borega, Lobato, & Owens, 2003), whereas other researchers have found that unhappy lovers prefer love-lamenting music (Knobloch, Weisbach, & Zillmann, 2004).

We also chose to perform a more objective analysis of thematic content of popular song lyrics. To conduct the thematic lyrical assessment, we selected the Linguistic Inquiry and Word Count (LIWC; Pennebaker, Francis, & Booth, 2001) software package. Pennebaker, Francis, and Booth (2001) developed the LIWC program to analyze text for more than 70 dimensions of language. Many research studies have used the LIWC software for text analysis and have found connections between expressive writing and psychological and physical health in a wide variety of situations (e.g., Pennebaker, 2004; Slatcher & Pennebaker, 2006). To the extent that the songs are a means of coping with uncertainty, we anticipated that during difficult and threatening social and economic times, *Billboard* songs with higher total word counts and more words per sentence would be more popular. We considered more words to be related to greater expressivity, which is associated with psychological health (Gortner, Rude, & Pennebaker, 2006). Increased lyrical content may also indicate more serious, complex, and meaningful exploration of a topic.

Based on the standardized categories produced by LIWC, we also predicted that songs that expressed more future references, more money and financial issues, and less leisure activity would be popular when social and economic times were difficult and threatening. References about the future may indicate a desire for better times, whereas discussing financial circumstances is common when resources are absent. When times were less threatening, an increased mention of leisure activities in popular song lyrics was expected, corresponding with individuals having a more fun and carefree attitude about life. When times are more threatening, however, more meaningful issues take precedence over leisure activities in individuals' day-to-day lives.

Within the context of threatening conditions, we were also interested in exploring the social motivational aspect of lyrical content. Classic social psychology research suggests that people desire more social affiliation during stressful conditions (i.e., Schachter, 1959) and more recent research suggests that people might be more likely to associate with groups they identify with and value when faced with uncertainty and threat (i.e., Grieve & Hogg, 1999; Mullin & Hogg, 1999). Consistent with these ideas, we hypothesized that songs with a greater content focus on social activities and social interactions, such as friendships and romantic relationships, would be

preferred when social and economic conditions were threatening. The increase in sports and game-playing lyrics may be a social function used to cope with uncertain conditions. Watching and participating in sports also provides us with groups (e.g., teams to join or root for) to affiliate and bond with, which might be especially appealing under conditions of uncertainty. Specifically, these social affiliation and motivation themes could be expressed through the LIWC categories of person pronouns, social processes, person references, and sports (Pennebaker, Francis, & Booth, 2001).

To review, as social and economic times become more threatening, preferences for popular music will include the following:

1. song lyrics that address more meaningful issues and contain more meaningful content,
2. songs with more words and thus, songs possessing more expressive content, and
3. song lyrics that focus on social motivational themes, such as in-group regard and intergroup themes.

Method

Data Collection

We compiled a list of the *Billboard* No. 1 songs in the United States for each year from 1955 to 2003 (Whitburn, 2001; *Billboard* yearly reports; see Appendix for listing).¹ *Billboard* songs are ranked based on sales and radio airplay success, which provides an indication of societal preferences for popular music across time. Based on the list of songs, we obtained the lyrics for each song from the Web site www.lyricsdepot.com, which contains an extensive online lyric database. The song lyrics were then assembled into a randomized collection.

As a measure of change in the social and economic climate of the United States from 1955 to 2003, we adopted the general hard times measure (GHTM) used in previous research (see Pettijohn & Jungeberg, 2004; Pettijohn & Sacco, 2009; Pettijohn & Tesser, 1999), updated for the current sample years. The GHTM is a standardized, global measure of social and economic threat consisting of U.S. unemployment rate, change in disposable personal income, change in consumer price index, death rate, birth rate, marriage rate, divorce rate, suicide rate, and homicide rate. Individual measures were adjusted and aggregated into a single factor where larger values represent relatively greater hard times, whereas smaller values represent relatively greater good times.

Lyric Ratings

To assess the lyrical content of the songs, we created a questionnaire based on the current set of predications and content assessments used in past investigations (McIntosh et al., 2000; Pettijohn & Sacco, 2009). Specifically, the questionnaire

assessed whether the lyrics explored real, meaningful content, were comforting, and were romantic. Each of these dimensions was rated using a 7-point Likert-type scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. The questionnaire also included the demographics of rater gender, race, age, and music listening habits and preferences.

Fifty-four, mainly Caucasian (85.5%), participants (63% women) with ages ranging from 18 to 56 years ($M = 19.48$, $SD = 5.18$) served as our lyric raters. Most of these raters were enrolled in introductory psychology college courses and received partial course credit for their participation. To make the sample more representative and include raters from a variety of age groups, volunteer participants from the greater community were also included in the sample. As a group, the raters indicated that they often listened to music ($M = 4.53$, $SD = 0.75$, on a 5-point Likert-type scale ranging from 1 = *never* to 5 = *all the time*) and their musical interests were wide and varied.

After obtaining informed consent, the raters were told that the purpose of the study was to assess the content of popular song lyrics. In a controlled laboratory setting, with the experimenter present, participants read the lyrics for each song in random order and completed lyrical content question ratings. Raters were not made aware of the true nature of the research until the debriefing session, which followed all the rating procedures.

Linguistic Inquiry and Word Count Analysis

The complete lyrics for each of the top *Billboard* songs were saved as text files and analyzed using the LIWC software program. The program counts word usage and calculates the degree to which people use different categories of words, such as emotions, self-references, and topics relating to sex or religion.² We were interested in the relations between social and economic conditions and the LIWC categories dealing with word count, person pronouns, person references, social processes, sports, future references, leisure activity, and money and financial issues.

Results and Discussion

Lyric Ratings

The raters were consistent in their ratings of each of the lyrical dimensions (alpha for each dimension was $>.95$). However, correlational results revealed no statistically significant relationships between the GHTM and participants' subjective ratings of lyrical content. Specifically, there were no significant relationships between social and economic conditions and ratings of song lyrics' meaningfulness of content, $r(47) = .16$, $p = .15$; how comforting the lyrics were, $r(47) = .11$, $p = .23$; and how romantic the lyrics were, $r(47) = .16$, $p = .14$. However, considering the relatively

small sample size of years, there were trends in the predicted directions such that lyrics were rated as more meaningful, more comforting, and more romantic when social and economic conditions were more threatening.

When assessing participants' subjective ratings of song lyrics, several obstacles may account for the statistically weak results. Our lyrical analysis relied on individual raters to read lyrics and provide subjective ratings. However, it would have been best to obtain ratings during the year in which each *Billboard* song was popular to capture the true impact of the lyrics in their environmental context. If these ratings were available, it may have been possible to find stronger rating correlations with social and economic conditions because these dimensions may have been difficult to assess outside the songs' original social and temporal context. Raters may have also had a hard time rating lyrics in the absence of their original context, specifically in the absence of the songs' music. Although the language of lyrics is an important component of songs, lyrics are generally paired with melodies when experienced. When words are associated with music, they provide greater organization in the mind and serve as a source of emotional expression (Mott, 1921). In addition, lyrics have been found to have a greater impact on the mood of listeners than music alone (Stratton & Zalanowski, 1994). Therefore, our lyrical ratings results suggest that music and lyrics together may be a necessary combination to produce the predicted relationship between popular music preferences and socioeconomic threat, as found by Pettijohn and Sacco (2009). Indeed, previous research has found that song lyrics and song melodies are not processed equivalently by the brain (Howard & Datteri, 2004), and lyrics can sometimes detract from and sometimes enhance the emotional experience of listening to melodies (Ali & Peynircioglu, 2006). In addition, raters could have provided further specificity for their ratings of meaningfulness (such as political themes, social themes, etc.) and romance (positive love experiences, relationship break-ups or victimization themes, fantasy themes, etc.).

Linguistic Inquiry and Word Count Analysis

The results of the LIWC analyses were also correlated with the GHTM. As predicted, when social and economic times were difficult and threatening, songs with more words per sentence and more future references were popular. We also found the anticipated relations between social and economic hard times and social motivation categories. When times were more difficult, lyrics of popular songs included more person pronouns (first, second, and third person), discussed more social processes (friendship, talking, etc.), and had more sports references. These findings support past results related to increased social affiliation and a focus on valued in-groups under conditions of threat (Grieve & Hogg, 1999; Mullin & Hogg, 1999; Schachter, 1959).

There was no significant relationship between the GHTM and leisure activity, and there were only trends in the predicted directions for higher total word count and

more money and financial issue words when conditions were more threatening. In retrospect, more words per sentence may have been a more direct measure of lyric meaningfulness content and expressivity than total word count. Total word count included repeated choruses and refrains, which may have introduced additional error variance because some songs had more repetition than others, and this specific type of increased word count did not add to the meaning of the song. To explain the lack of a relationship between the GHTM and leisure activity, the specific word catalog for leisure activity may have been too general to capture the carefree attitude and activity involvement predicted when times were less threatening. For example, television was included in this category, but previous research has documented that people prefer different programming depending on social and economic conditions. The context of the leisure activities would be required to analyze this relationship further.

The exploratory relationships between the GHTM and other LIWC categories provided some interesting results. When social and economic times were more threatening, popular song lyrics highlighted body state and symptoms less and used less exclamation points. It may be the case that songwriters emphasize how good the body feels during less threatening times. Furthermore, to the extent that exclamation points in song lyrics are associated with greater positive affect (Hancock, Landrigan, & Silver, 2007), their reduced frequency during social and economic times may be quite sensible. Further exploration of these possibilities and consideration of other categories and coding strategies may be used to explore lyrics in future research. See Table 1 for all LIWC outcome and GHTM correlations.³

Terror management theory (Greenberg, Pyszczynski, & Solomon, 1997; Solomon, Greenberg, & Pyszczynski, 1991) may also be relevant to understanding these results. Terror management theory posits that when we are made aware of the unavoidable fact of death, we strongly identify with a cultural worldview, which buffers our self-esteem and makes us feel as though we are part of something more important. When times are more threatening, identifying with popular song lyrics that represent our worldviews may help ease threats to the self. Specifically, we found that songs that were judged to be more meaningful and comforting were popular during social and economic down times. Also when times are difficult, we may focus on intimacy derived from close relationships. Research suggests that when people focus on death, the desire to increase intimacy by forming and maintaining close relationships increases (Florian, Mikulincer, & Hirschberger, 2002; Mikulincer & Florian, 2000; Mikulincer, Florian, & Hirschberger, 2003). Indeed, we found that when times were bad, lyrics that were more romantic, and had greater future references and mention of social processes, were most popular.

Limitations and Future Directions

We recognize certain limitations with the current investigation of *Billboard* No. 1 song lyrics and social and economic threat. *Billboard* charts are only one of a

Table 1
Predicted and Exploratory Correlational Relationships
Between the General Hard Times Measure and Billboard No. 1 Song
Linguistic Inventory and Word Count Analysis Outcomes (1955-2003)

Relationship	<i>r</i>
Predicted	
Total word count	.18
Words per sentence	.33*
Future references (will, might, shall)	.31*
Leisure activity (house, TV, music)	.01
Money and financial issues (cash, taxes, income)	.13
Second-person pronoun you (you, you'll)	.42**
Social processes (talk, us, friend)	.37**
Other references to people (first-, second-, third-person pronouns)	.36*
Sports (football, game, play)	.29*
Significant exploratory	
Body state and symptoms (ache, heart, cough)	-.41**
Exclamation points	-.30*

Note: $N = 49$ years. All tests were two tailed. Larger values on the General Hard Times Measure indicate relatively more threatening social and economic times. Example words within Linguistic Inventory and Word Count categories are provided in parentheses.

* $p < .05$. ** $p < .01$.

number of methods to identify song popularity within a culture and the GHTM is not a perfect measure of social and economic threat. We understand that the current relationships are based on global assessments of social and economic circumstances and global assessments of music popularity. Future investigations of individual threat and individual song preferences are necessary to understand how environmental threat influences individual musical preferences.

We also recognize that individual differences contribute to musical preferences. For example, Fox and Williams (1974) investigated the relationship between political orientation and musical involvement and music preferences. Results revealed that conservatives showed a greater preference for current popular hits and easy listening music, whereas liberals were more likely to favor blues, folk music, and protest music. Liberal students also bought more music, attended more concerts, and spent more time listening to records and tapes than conservative students. Interestingly, rock and country music were not strongly related to political orientation, despite the belief that rock music is commonly associated with a more leftist orientation. The results of this study suggest that music contains a variety of liberal and conservative political elements, which may be differentially popular depending on the listener's political orientation.

Future research may refine these lyrical analysis methods and consider how other elements of language in popular songs connect with listening audiences. More

specifically, lyrics could be analyzed using stylometry and the *Dictionary of Affect in Language* (as used in Whissell, 2008) to explore how pleasantness, activation, and imagery usage in popular lyrics have varied with social and economic conditions. Lyrics may also be explored across the categories of friendship, joy, comfort, knowledge, religion, and love, as discussed in Levitin's (2008) book *This is Your Brain on Music*, as part of an analysis of how our preferences have evolved.

Despite these limitations, our findings suggest that lyrical content of the *Billboard* No. 1 songs vary with changes in social and economic threat in America. The current results of our subjective ratings suggest that there are preference trends for more meaningful, more comforting, and more romantic *Billboard* song lyrics during more threatening social and economic conditions. Furthermore, our objective lyrical content analysis suggests that when social and economic times are more threatening, *Billboard* songs with more words per sentence, more future references, and more coverage of social processes and other references were popular. Songwriters, artists, promoters, and the general music consumer may be interested in these results and their implications. Specific word selection and the total number of words used to express ideas in popular music may combine with certain environmental conditions to produce hit songs.

Appendix *Billboard* No. 1 Songs, 1955 to 2003

Year	Song Title	Artist
1955	Cherry Pink and Apple Blossom White	Perez Prado
1956	Don't Be Cruel	Elvis Presley
1957	All Shook Up	Elvis Presley
1958	At the Hop	Danny & The Juniors
1959	Mack the Knife	Bobby Darin
1960	The Theme From "A Summer Place"	Percy Faith
1961	Tossin' and Turnin'	Bobby Lewis
1962	I Can't Stop Loving You	Ray Charles
1963	Sugar Shack	Jimmy Gliner & The Fireballs
1964	I Want to Hold Your Hand	The Beatles
1965	(I Can't Get No) Satisfaction	The Rolling Stones
1966	I'm a Believer	The Monkees
1967	To Sir With Love	Lulu
1968	Hey Jude	The Beatles
1969	Aquarius/Let the Sunshine In (The Flesh Failures)	The 5th Dimension
1970	Bridge Over Troubled Water	Simon and Garfunkel
1971	Joy to the World	Three Dog Night
1972	The First Time Ever I Saw Your Face	Roberta Flack
1973	Killing Me Softly With His Song	Roberta Flack
1974	The Way We Were	Barbra Streisand

(continued)

Appendix (continued)

Year	Song Title	Artist
1975	Love Will Keep Us Together	The Captain and Tennille
1976	Tonight's the Night (Gonna Be Alright)	Rod Stewart
1977	You Light Up My Life	Debbi Boone
1978	Night Fever	Bee Gees
1979	My Sharona	The Knack
1980	Lady	Kenny Rogers
1981	Physical	Olivia Newton-John
1982	I Love Rock 'N Roll	Joan Jett and The Blackhearts
1983	Every Breath You Take	The Police
1984	Like a Virgin	Madonna
1985	Say You, Say Me	Lionel Richie
1986	That's What Friends Are For	Dionne & Friends
1987	Faith	George Michael
1988	Roll With It	Steve Winwood
1989	Another Day in Paradise	Phil Collins
1990	Because I Love You (The Postman Song)	Stevie B
1991	(Everything I Do) I Do It For You	Bryan Adams
1992	I Will Always Love You	Whitney Houston
1993	Dreamlover	Mariah Carey
1994	I'll Make Love to You	Boyz II Men
1995	One Sweet Day	Mariah Carey & Boyz II Men
1996	Macarena	Los Del Rio
1997	Candle in the Wind 1997	Elton John
1998	The Boy Is Mine	Brandy & Monica
1999	Smooth	Santana featuring Rob Thomas
2000	Independent Women, Part 1	Destiny's Child
2001	Hanging by a Moment	Lifehouse
2002	How You Remind Me	Nickelback
2003	In Da Club	50 Cent

Notes

1. We considered investigating a larger collection of top *Billboard* songs for each year (i.e., the top 10 or all No. 1 hits), but we decided to limit our sample to the single top song from each year. Having raters read the lyrics of nearly 500 songs did not seem feasible, and more important, using a combination or average of multiple song ratings to represent each year makes the false assumption that each song is equally preferred. By selecting only the top song from each year, we can provide an identifiable example to illustrate our findings.

2. The development of the LIWC program, psychometric properties, and further details of the coding categories are available online at www.liwc.net/liwcdescription.php.

3. We also considered how song lyrics have changed over time. We correlated lyrical content ratings and LIWC analysis data with time (year). Over time, songs had higher total word counts, $r(47) = .54$, $p < .001$. No other statistically significant relationships were observed when considering time.

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