

Article

Emotion in Words: The Role of Ed Sheeran and Sia's Lyrics on the Musical Experience

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Abstract

Music plays an increasingly vital role in modern society, becoming a fundamental part of everyday life. Beyond entertainment, it contributes to emotional well-being by helping individuals express their feelings, process emotions, and find comfort during different life moments. This study explores the emotional impact of Ed Sheeran's lyrics and Sia's lyrics on listeners. Using an exploratory approach, it applies a text mining tool to extract data, identify key dimensions, and compare thematic elements across both artists' work. The analysis reveals distinct emotional patterns and thematic contrasts, offering insight into how their lyrics resonate with audiences on a deeper level. These findings enhance our understanding of the emotional power of contemporary music and highlight how lyrical content can shape listeners' emotional experiences. Moreover, the study demonstrates the value of text mining as a method for examining popular music, providing a new lens through which to explore the connection between music and emotion.

Keywords: songs; Ed Sheeran; Sia; text mining; Leximancer; emotions



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1. Introduction

Over the years, music has been an essential medium of expression among human beings, allowing the sharing of emotions and experiences. As Davies states, it is a universal language that communicates human experiences. Studies indicate that certain musical elements can trigger different emotional reactions in listeners [1].

The analysis of song lyrics has been explored across various academic fields, including psychology, sociology, and linguistics. This study aims to understand the role of lyrics in the music of Ed Sheeran and Sia, artists who use their compositions to engage with the public. For this study, two artists were selected to allow for a more in-depth and comparative analysis rather than diluting the focus across an excessive number of cases. The selection was based on their relevance in the contemporary music scene, the thematic diversity in their compositions, and their widespread popularity. In this way, the study focuses on the works of Ed Sheeran and Sia, internationally renowned artists who use their lyrics to establish an emotional connection with the audience.

Ed Sheeran is known for his introspective lyrics, which address everyday themes in an intimate manner [2], while Sia stands out for the emotional intensity with which she explores themes such as resilience and vulnerability [3]. The popularity of both artists allows for an observation of how different audiences interpret and identify with their lyrical content.

This research focuses on the impact of lyrics on contemporary society and listener behaviour using text mining techniques. This technique has proven useful in identifying predominant sentiments and categorising them emotionally [4], enabling the identification of key themes and emotions present in each artist's work.

Through this detailed analysis, the study investigates how each artist conveys their experiences and perspectives on the world. The application of text mining, still relatively uncommon in lyric analysis, reinforces the contribution of this research to a growing field.

Unlike many previous studies on song lyric analysis, which often focus on a limited set of songs, a single artist, or isolated themes, this work adopts a comprehensive approach that covers the complete discography of two internationally recognised artists, Ed Sheeran and Sia. Using concept mapping generated by LexiPortal 5, the online version of the Leximancer tool, it is possible to identify recurring themes and understand the narratives that differentiate the two artists.

Given the increasing importance of music in people's lives, it is essential to understand the benefits and emotions it brings. Thus, the following question arises: What are the main dimensions—in terms of themes and concepts—that stand out in the works of Ed Sheeran and Sia?

In this context, two objectives are defined:

- To identify the main dimensions—based on themes and concepts—that stand out in the lyrics of songs by Ed Sheeran and Sia;
- To compare these dimensions and, in particular, the emotions that characterise each artist.

1.1. Theoretical Framework

1.1.1. Music

It is highly complex to define music, as it varies from person to person, resulting in a diverse range of definitions. According to Davies, although it is possible to know music intuitively, reaching a universal definition is more complex [1]. Thus, according to Nikolsky and Benítez-Burraco, it is essential to understand what distinguishes it, since different authors refer to various concepts under the same designation: music [5].

In this sense, Nikolsky and Benítez-Burraco define music as the tonal organisation of expressive elements such as melody, rhythm, meter, dynamics, and timbre, where musical sounds differ from other sounds that do not have intentional organisation, emphasising that, to be considered music, sounds must provoke an emotional or physiological response in the listener [5]. On the other hand, Currie and Killin prefer a pluralistic approach and consider that different disciplines and contexts may lead to different definitions of music [6].

Music has very ancient origins and, according to Montagu [7], it emerged before language, developing among early humans as a means of communication. As music evolved, new uses began to appear. In Babylon and Syria, music played a crucial role in religious contexts, often accompanying ceremonies. For the Greeks, it was an indispensable part of the moral and intellectual education of citizens. During the Middle Ages, music gained a new interpretation within the Christian context, especially in psalms and hymns dedicated to devotion, while similar central roles of music can also be observed across other cultural and religious traditions. In ancient civilisations, music played a role that went beyond simple entertainment and served as a form of expression [7].

According to Lê, Jover, Frey, and Danna, music is not just an auditory stimulus [8]. Corrigan defends the importance of music in emotional communication, as it is capable of expressing and modifying emotions in listeners. She also highlights studies showing that listening to emotionally intense music can alter heart rate and breathing [9].

Another important role of music is highlighted by Menzel et al., who associate its practice with greater life satisfaction and improved health [10]. Adding to this, Arjmand, Hohagen, Paton, and Rickard emphasise that music can be used to influence emotional states, helping regulate mood and even reduce symptoms of anxiety and depression [11]. In continuation, Rivera, Smyth, Pike-Rowney, and West, in their study, conclude that musicians tend to experience less anxiety compared to non-musicians [12].

Cognitive and Emotional Function of Music

A central debate in the psychology of music concerns whether music genuinely evokes emotions in listeners or merely communicates perceived emotions. Corrigan and Schellenberg [9] highlight this controversy, noting that although there is an almost universal consensus that music conveys emotion, some researchers argue that these emotions are perceived rather than felt, while others emphasise evidence of induced emotional responses. Similarly, Arjmand et al. [11] describe this issue as one of the most intriguing debates in the field, raising the question of whether the emotions reported by individuals when listening to music are, in fact, genuine.

To address this, recent scholarship has proposed several mechanisms by which music may elicit emotion. Juslin and Västfjäll [13] introduced the BRECVEMA model, which outlines eight distinct mechanisms: brain stem reflexes, rhythmic entrainment, evaluative conditioning, emotional contagion, visual imagery, episodic memory, musical expectancy, and aesthetic judgment. These mechanisms help explain how music can induce both basic and complex emotional states, from physiological arousal to nostalgic reverie.

Music has long been considered a form of emotional communication that predates verbal language, facilitating social bonding and group cohesion. This idea is explored in depth in *The Oxford Handbook of Music and Emotion* [14], which presents music as a universal medium for affective expression and interpersonal connection. Garcia-Ventura et al. reinforce this perspective by acknowledging music's capacity to elicit deep emotions across diverse cultural contexts [15].

Corrigan and Schellenberg [9] argue that music plays a central role in emotional communication, capable of expressing and modifying affective states in listeners. This influence is mediated by musical characteristics such as tempo and intensity, and mode, which interact with individual preferences and cultural conditioning. These preferences, shaped by exposure and enculturation, affect the emotions experienced and may provoke opposing feelings such as joy or melancholy. Lehmann, Sloboda, and Woody [16] further emphasise that musical preferences are not static but evolve over time, influenced by social context, identity, and personal history. Their work in *Psychology for Musicians* highlights how emotional responses to music are shaped by both cognitive and experiential factors, including training, familiarity, and cultural norms.

To fully understand how lyrics contribute to emotional experience, future research should distinguish between semantic triggers (e.g., narrative content) and musical cues (e.g., harmonic tension) and explore how these elements interact to produce emotional resonance. This requires a robust theoretical framework that integrates cognitive psychology, affective neuroscience, and musicology.

Ed Sheeran

Ed Sheeran was born in 1991 in Halifax, England [17]. During his childhood, he faced various challenges, including feeling out of place at school and being the target of bullying [18]. He found solace in music as a source of joy [18], and with the support of his parents, he was able to explore this area from a very young age [19]. At the age of 14, he

released independent CDs [20] and later left school to move to London to pursue a career in the music industry, although he faced several difficulties [21].

Ed Sheeran stands out for his ability to compose emotional and accessible lyrics [20] that address universal themes such as love and human relationships [14], combining styles like pop, folk and hip-hop [16]. Yansyah, Arifin, and Setyowati revealed in their study that the artist frequently uses stylistic figures, such as metaphors and metonymies, to convey deep emotions, create a poetic impact, and strengthen the emotional connection with the audience [2].

Throughout his career, he has collaborated with artists such as One Direction, Taylor Swift [18] and Eminem, which provided him with new perspectives in his creative process and music production [19]. He also received recognition at the 2012 Brit Awards, winning Best British Male Solo Artist and British Breakthrough Act of the Year [20].

Sia

Sia Furler was born in 1975 in Adelaide, Australia [3]. Throughout her career, she released several albums, starting with her debut solo album *OnlySee*, before moving to the United Kingdom, where she began working with other artists [22]. However, it was with “1000 Forms of Fear” in 2014 that she chose to hide her face in public appearances and music videos by wearing a wig. This decision was motivated not only by a desire to avoid or minimise the negative aspects of fame but also to focus on her music instead of her image [23].

In the album “1000 Forms of Fear”, Sia intensively uses stylistic devices to explore themes such as resilience, emotional pain and overcoming adversity [3]. Among the techniques used are metaphor, which conveys intense and complex emotions; irony, which highlights the contrast between expectation and reality; and hyperbole, which amplifies emotion by exaggerating feelings and circumstances. These uses of figurative language help establish a deeper connection with the audience, exploring themes such as pain, strength and vulnerability [3].

Sia built a global reputation in the music industry as both a songwriter and performer, being recognized as one of the most sought-after songwriters, having written several hits for Beyoncé (“Pretty Hurts”), Rihanna (“Diamonds”), and David Guetta (“Titanium”) [22,23].

The artist faced various personal difficulties and challenges, including losses and periods of depression, which influenced her vulnerability and emotional expression in her music [22,23]. In 2021, she released a film titled *Music*, combining music and narrative to explore emotional and complex themes [22]. As a result, Sia has received multiple award nominations and wins throughout her career, including the APRA Music Awards, NRJ Awards, ARIA Music Awards, MTV Video Music Awards, and Billboard Music Awards [3].

1.1.2. Text Mining—Leximancer

Text mining is a complex field of study that encompasses data mining, natural language processing (NLP), machine learning and information retrieval [24]. It consists of converting raw or unstructured text into meaningful and useful data [25], allowing the analysis of texts, the recognition of their structure and the identification of existing linguistic patterns to obtain insights that help to understand concepts, themes or even feelings expressed in the texts [26].

Text mining can be applied to a wide variety of analyses and studies, Wankhade, Rao and Kulkarni [27]. A notable example is the study by Oğul and Kirmaci, where they succeeded, through text mining, in predicting authors, genres, and release dates of songs based solely on the lyrics, using models such as bag-of-words, N-grams, and text statistics.

Martins, Godoy, Monard, Matsubara and Amandi [28] explain that the text mining process is structured into four steps: document acquisition, pre-processing, information extraction and result evaluation.

In this context, the use of tools such as Leximancer becomes relevant, as it allows for semantic analyses of large volumes of unstructured text, identifying concepts, themes, relationships, and patterns based on the words used and their connections [29]. Haynes et al. [30] add that this technology introduces a new dimension by automatically revealing patterns and relationships between terms, facilitating the identification of interrelationships that would be difficult to detect through manual analysis.

The approach allows for the creation of network clouds, lists of semantically related words, and concept maps [31,32]. The latter visually represent themes through colours and points, with warmer colours, such as red, corresponding to topics that occur more frequently, while the size of the points indicates the strength of the relationship between concepts [31]. The maps are generated through a stochastic process, so it is advisable to create each map multiple times to ensure that the concepts are consistently and reliably organised [33].

This tool is highly comprehensive as it also provides structured reports and insights for both quantitative and qualitative analyses. However, it also presents limitations such as high dependence on the quality of the texts analysed and difficulties in interpreting sentiments like irony and sarcasm [29]. According to Jones and Diment, it is essential to use a clear methodology and view the software as a support tool, considering that it does not replace the scientific method [34].

Qualitative Research

Qualitative research is a multidisciplinary method focused on the interpretation of analyzed information, aiming to understand the meanings of social interactions [35,36]. Unlike the quantitative approach, which seeks statistical correlations between groups and the number of occurrences [35,37], qualitative research values the researcher's perspective and promotes deep and contextual insights [37]. Becker (1996) notes that the differences between these approaches are not absolute, as they share certain characteristics, and therefore should not be evaluated based on the same criteria [35,38].

This type of research does not focus on quantifying data, but rather on interpreting its meanings, going beyond the mere identification of patterns [36,37]. The validity of the analysed data is considered essential and can be ensured through triangulation, which involves combining different perspectives, methodological transparency, and comparison between researchers [37]. One of the key concepts in this context is saturation, used as a criterion to conclude the analysis. Jennings & Yeager [39] describe different types of saturation: when no new codes emerge in qualitative analysis, it is referred to as code saturation; when no new relevant data appears, it is called data saturation; when no new themes are identified, it is theme saturation; and finally, when the researcher reaches a complete understanding of the meaning of the data, it is considered meaning saturation.

Within the scope of qualitative research, several text mining tools can be applied, among which Leximancer stands out. This tool performs semantic analyses and enables the identification of concepts, themes, relationships, sentiments, and patterns in large volumes of unstructured text [29].

Application of Text Mining in Song Lyric Analysis

Text mining can be applied to a wide range of analyses and studies, with the analysis of song lyrics being a particularly relevant example. This approach allows for a deeper examination of music and sentiment analysis, identifying predominant emotions within

the lyrics [4]. However, analysing song lyrics can offer valuable information and additional insights into the sentiment and meaning of the music without extracting any features from the audio itself [4,40].

In the study conducted by Oğul & Kirmaci [40], text mining was used to predict musical metadata through lyric analysis automatically. The authors developed a classification model based on Multinomial Naive Bayes to predict the author, genre and release date using only the lyrics. They extracted textual features such as bag-of-words (word frequency), word N-grams (word sequences), character N-grams (character sequences), text statistics (for example, total number of words and unique characters) and line structure (for example, variation in line length) [39].

The study by Saluja et al. applies text mining and sentiment analysis to song lyrics to improve music recommendation systems. Throughout the study, this technology encompasses the automatic collection of lyrics, their preprocessing, and the application of sentiment analysis to identify the predominant emotions in each artist and their works. This makes it possible to classify songs and artists based on the emotions expressed, thereby enhancing the effectiveness of music recommendation systems [4].

Another study that highlights text mining techniques is that of Hu, Downie and Ehmann [41], which investigates how the analysis of song lyrics can contribute to the automatic classification of a song's mood. For this purpose, the authors built a dataset containing various songs, organised into 18 mood categories based on social tags collected from Last.fm. In this way, several textual features were analysed, such as Bag-of-Words (with different representations such as tf-idf), Part-of-Speech (POS) and functional words, revealing that lyrics are an excellent resource for textual analysis. The study's results show that in some categories, such as sadness, romance and anger, lyrics can outperform audio data by providing clearer semantic cues about the emotions expressed. The combination of text and audio demonstrated improvements in classification performance across several categories, reinforcing the role of language as an essential component for understanding the emotional content of songs and for developing more effective recommendation systems [40].

2. Materials and Methods

The artists analysed, Ed Sheeran and Sia, were selected due to the relevance of their musical productions, considering that both address sensitive topics and explore deep emotional themes, such as overcoming adversity, vulnerability, and personal experiences. They use lyrical language rich in figurative expressions, which intensifies the emotional impact of their compositions [2,3].

To ensure a comprehensive analysis, all songs available on the artists' albums were selected, excluding EPs and singles. This decision was made to guarantee greater consistency in the analysis, as album tracks generally follow a cohesive narrative and developmental flow, whereas EPs and singles are released independently. The sources used to collect lyrics were platforms such as Vagalume, Spotify (version 1.2.74.477) and Genius, chosen for their extensive databases and credibility in providing song lyrics.

After the initial review, additional exclusion criteria were identified. Songs without lyrics, such as instrumental versions, remixes and live performances, were removed from the study. This process resulted in the selection of 13 albums, comprising a total of 196 songs by Ed Sheeran (see Table 1), and 17 albums, comprising a total of 217 songs by Sia (see Table 2).

Table 1. Distribution of Ed Sheeran songs per album included in this study.

Album Name	Year	Number of Songs	%	Cumulative %
Live at the Bedford	2010	6	3.1	3.1
Loose Change	2010	7	3.6	6.7
+	2011	16	8.2	14.9
No.5 Collaborations Project	2011	8	4.1	19
X (Deluxe Edition)	2014	16	8.2	27.2
X (Wembley Edition)	2015	23	11.7	38.9
/ (Deluxe)	2017	16	8.2	47.1
No.6 Collaborations Project	2019	15	7.7	54.8
=	2021	14	7.1	61.9
= (tour)	2022	23	11.7	73.6
—	2023	18	9.2	82.8
Autumn Variations	2023	14	7.1	89.9
X (10th Anniversary Edition)	2024	20	10.2	100
Total	-	196	100	-

Table 2. Distribution of Sia songs per album included in this study.

Album Name	Year	Number of Songs	%	Cumulative %
Healing Is Difficult (10th Anniversary Edition)	2003	11	5.1	5.1
Healing is Difficult	2003	11	5.1	10.2
Colour The Small One (Deluxe Edition)	2004	15	6.9	17.1
Colour the Small One	2005	11	5.1	22.2
Lady Croissant	2007	9	4.1	26.3
Some People Have REAL Problems	2008	15	6.9	33.2
Live from Sydney	2009	7	3.2	36.4
We Are Born	2010	13	6	42.4
1000 Forms Of Fear	2014	12	5.5	47.9
1000 Forms Of Fear (deluxe version)	2015	12	5.5	53.4
This is acting	2016	12	5.5	58.9
This Is Acting (Deluxe Version)	2016	18	8.3	67.2
Everyday Is Christmas (Deluxe Edition)	2018	13	6	73.2
Labrinth, Sia & Diplo Present... LSD	2019	10	4.6	77.8
Everyday Is Christmas (Snowman Deluxe Edition)	2021	19	8.8	86.6
Music—Songs from and Inspired by the Motion Picture	2021	13	6	92.6
Reasonable Woman	2024	16	7.4	100
Total	-	217	100.0	-

Since some albums contain repeated songs, either as collaborations or as part of updated album versions, further exclusion rules were applied. Lyrics of similar songs were removed to create a more refined dataset. For Ed Sheeran, 60 repeated tracks were identified, reducing the final number to 136 usable songs across 13 albums. For Sia, 78 repeated tracks were identified, totalling 139 usable songs across 14 albums. In total, 275 songs by both artists will be analysed. Table 3 below provides a detailed summary of these figures.

Table 3. Counts of unique and repeated songs per artist.

	Repeated		Total
	No	Yes	
Ed Sheeran	136	60	196
Sia	139	78	217
Total	275	138	413

After collecting all the necessary data for analysis and applying the defined inclusion and exclusion criteria, the songs were organised into text files (.txt) by artist. All of Ed Sheeran’s lyrics were placed into a single file, and the same was done for Sia’s lyrics to allow for a deeper analysis.

The text files were subsequently uploaded and analysed separately using LexiPortal 5, the online version of the Leximancer tool, which enables the automatic extraction of concepts and themes based on predefined rules.

Leximancer [42] is a proprietary software developed by Dr. Andrew Smith and colleagues at the University of Queensland. It is available as a standalone desktop application for Windows and macOS and offers a web-based interface for institutional users. The software performs automated content analysis and concept mapping using machine learning algorithms to detect semantic patterns in textual data. For this study, we used Leximancer version 4.5, which includes updated algorithms for concept extraction and enhanced visualisation tools. The analysis was conducted on a UTF-8 encoded plain text corpus exported from the original dataset. Key parameters included English language settings, automatic concept seed generation, default stopwords filtering, paragraph-level segmentation, and a co-occurrence window of three sentences. Concept frequency thresholds were set at 50%, and thesaurus building was enabled to refine semantic groupings.

These settings were selected to balance sensitivity and interpretability, allowing Leximancer to identify dominant themes without overfitting to rare terms. The resulting concept map reflects semantic proximity between key ideas and serves as a guide for further qualitative interpretation. Leximancer’s approach is grounded in Bayesian theory and has been validated in academic literature, notably by Smith and Humphreys [43]. For transparency and reproducibility, future studies should consider sharing metadata, preprocessing scripts, and de-identified outputs via platforms such as GitHub or OSF. This would support open science practices and allow others to replicate or extend the analysis.

The rules used by Leximancer to prepare the text for analysis include the removal of punctuation, numbers, and special characters, as well as the elimination of irrelevant words (stop words), such as “the”, “is”, and “and”. Additionally, the analysis differentiated between words like “fall” and “falling”, which proved to be a challenge.

It is important to mention that throughout the analysis, the identification of concepts such as ‘love’ resulted solely from the automated analysis carried out by Leximancer, without any manual coding. This software uses its own dictionaries and co-occurrence algorithms, although a limitation of this type of tool is the difficulty in automatically distinguishing contextual or negative expressions. Nevertheless, its conceptual visualisations provide robust thematic patterns, which were subsequently interpreted qualitatively to take linguistic nuances into account.

After applying the rules and following all the procedures mentioned, the software automatically generates the relevant concepts and themes. These are then displayed in conceptual maps that can be analysed in relation to the research question and study objectives. It is important to note that the software automatically chooses the colours used in the concept maps and have no inherent meaning, serving only to distinguish the main themes identified.

Table 4. Information on the top 10 concepts from all Ed Sheeran albums.

Concept	Count	% Relevance
love	255	100
feel	139	55
Cause	112	44
night	113	44
eyes	103	40
time	100	39
down	92	36
life	90	35
take	84	33
day	80	31

Time emerges as a silent yet insistent character. Night appears as a privileged setting, perhaps due to being a moment of intimacy, secrets or the kind of loneliness that hurts more when the world grows dark. Time and day bring a duality between the passage and speed of time, but also the hope that is reborn with the morning.

The body is a territory of conflict and connection. Eyes function as mirrors of the soul, gateways to truths that cannot be spoken with words. The heart appears as a classic metaphor, yet no less powerful, while hands and the act of holding reveal the desire to touch and be touched, whether to save or to lose oneself.

There is a constant tension between permanence and rupture. Words like stay and leave outline fragile relationships, where the decision to go or stay weighs like a verdict. Break and pain are common consequences, but they are not definitive. Even cold can be broken by light. The language used is informal, almost confessional. Expressions like “wanna”, “gonna” and “ain’t” give the text a tone of friendly conversation or whispered secrets. This colloquial style reinforces the authenticity of the emotions, as if the speaker or singer is more concerned with being truthful than with being perfect.

Finally, there is a clear emotional geography. Home is both a refuge and a place to escape from. The world seems too large for those who feel alone. Yet even in solitude, there is movement, a desire to fly, to change, and the promise that tonight may still be different from yesterday. These results reveal a portrait in which a dualistic perception of love, characterised by its concurrent association with emotional vulnerability (the ‘wound’) and emotional support (the ‘remedy’), time is both enemy and ally, and the body, with its eyes, hands and heart, becomes the map where all these battles are drawn. It is a human narrative, profoundly human, where even pain finds its place within the beauty of the whole.

3.2. Sia: Emotional Themes and Concepts

In the analysis of Sia’s songs, it was essential to explore the lyrics of all her music. This made it possible to extract keywords and identify five main themes: love, down, place, pain and head (Figure 2), each of which is associated with various concepts. Table 5 presents the distribution of key concepts in Sia’s lyrics, complemented by a concept map, which facilitates the examination of thematic and emotional patterns. Additional text is provided to clarify its interpretation. As shown in the table, the concept of love has the highest frequency and relevance, with 172 occurrences and 100% relevance, respectively. It emerges as the central theme, while the other main themes are also notably frequent.

creating a feeling of being trapped in emotional cycles. Even light and sun clash with darkness in their usual battle of duality.

Death appears in this narrative. Terms like die and pain occur frequently, while live seems almost an act of resistance. Even the world feels more hostile, likely in contexts such as “against the world” or “escaping the world.”

Interestingly, colloquial language also appears, but with less intensity. Expressions like wanna and gonna suggest a slightly more introspective tone. Narrative elements emerge—a friend appears as a potential lifeline, while the girl introduces a more defined gender aspect than the vague baby seen previously.

These data tell a story where love is both anchor and storm. There are more tears here, more fear, more Christmas, more fire and a stronger sense of mortality. Yet hope is still peeking through—just enough to keep the flame alive, even if hesitantly, in this complex and deeply human emotional landscape.

4. Discussion

Before analysing in detail the lyrics of Ed Sheeran and Sia, it is essential to situate the results of this study within the existing literature context. Table 6 presents a comparison between selected studies on text mining applied to song lyrics and our research. Each row of the table corresponds to a previous study, summarising its objectives and a description of the study, as well as how our research differs from these works. This comparison highlights that, although some studies have applied text mining to song lyrics, the present work stands out by using Leximancer to identify recurring concepts and themes, enabling a detailed and comparative analysis of the emotions conveyed in the lyrics of Ed Sheeran and Sia.

Table 6. Comparison of previous text mining studies on song lyrics with the present study.

Author of the Study	Objective of the Study	Focus/Description of the Study	Comparison with Your Study
Oğul & Kirmaci (2020) [40]	Predict musical metadata (author, genre, release date) from lyrics	Does not specifically focus on emotions, but on textual features to predict metadata	My study explicitly focuses on emotions and themes in lyrics, using Leximancer to create concept maps and present recurring themes
Saluja et al. (2021) [4]	Improve music recommendation systems using sentiment analysis	Identification of predominant emotions for music/artist classification to enable music recommendations	My study identifies emotions and thematic patterns, but does not provide recommendations; it allows comparison of two artists and the emotional styles present in their music
Hu, Downie & Ehmann (2019) [41]	Automatic classification of music mood	Emotions such as sadness, romance, anger; combined with audio analysis	My study uses only lyrics and focuses on a detailed comparison of emotions and concepts between the two artists

After analysing the songs of both artists, the goal is to discuss the relevance of the dimensions identified based on the themes and concepts extracted from the lyrics, reflecting on how these elements translate emotional patterns and express different types of feelings. In addition, the aim is to explore how these themes evolve throughout the albums, delving into possible differences in the dimensions found according to each artist’s musical journey.

Ed Sheeran presents an intense and emotional path, marked by profound feelings and personal meanings. Perlovsky [44] also highlights this connection between music and emotion, which emphasises that music precedes language as a form of emotional communication. Throughout his musical career, the artist explores various dimensions, with love being the most central and recurring theme, reflecting different forms of love such as romantic, familial and even absent love. As noted by Biography.com and Butler, he stands out for addressing universal themes such as love and relationships, making his

lyrics accessible and relatable to a broad audience [19]. According to Yansyah et al., it is through the use of metaphors and metonymies that the artist transforms these sensations into poetic imagery, strengthening the emotional connection with the listener [2].

Throughout his career, Ed Sheeran focuses on the emotional bond he can establish with others, suggesting a strong connection to vulnerability and the passage of time. His lyrics show that not everything is happiness, reflecting human experiences marked by reflective emotions that oscillate between fragility and strength. The artist explores feelings where love, loss, growth and introspection take centre stage. This ability to evoke deep emotions in listeners, as noted by Garcia-Ventura, Tavolieri, and Verderame, is an essential characteristic of music. A clear example of its emotional effectiveness can be found in Ed Sheeran [15].

In Sia's lyrics, a similarly emotional universe unfolds. Her writing is shaped by metaphors related to the body, time and space, revealing a constant internal struggle between vulnerability and resilience. Sia constructs powerful narratives around pain, courage and emotional strength. Perlovsky helps to understand the impact of her lyrics by reinforcing that music emerged as a form of emotional communication [44]. The theme of love in Sia's work assumes various shapes. It appears as romantic, sensual, needy and spiritual, but also merges with sadness and introspection. This reflects a continuous search for emotional and physical safety as well as inner balance. Garcia-Ventura et al. confirm that music is capable of awakening intense emotions, something consistently seen in Sia's musical expression [15].

By examining Sia's complete collection of songs, it becomes evident that she explores human emotions with remarkable intensity. She explores themes of pain, hope, courage, and healing. Her writing reveals a continuous internal confrontation shaped by fragility and strength. Sia does not merely sing about emotions; she transforms them into rich and moving narratives filled with emotional highs and lows. Her work suggests that living deeply, even in the face of pain, is an act of courage and authenticity.

The contrast between Ed Sheeran and Sia allows for a deeper understanding of how different artists interpret universal themes such as love, pain, and emotion. Each artist assigns their meanings through distinct use of language and feeling. While both focus on similar themes, Ed Sheeran presents his lyrics with a more direct and intimate tone, leaning toward introspection, vulnerability and romanticism. Sia, on the other hand, employs a more introspective style, emphasising intense emotional weight and darker undertones that highlight moments of despair. Both artists use symbols such as the heart and the eyes to express connection and sorrow. However, Ed Sheeran emphasises physical touch through references to hands, while Sia introduces the head to portray mental conflict and emotional burden.

Throughout the analysis, the distinctive styles of each artist were highlighted, along with their unique approaches to expressing their art. Ed Sheeran adopts a more autobiographical style, exploring personal dilemmas. Sia builds dramatic narratives that present an intense confrontation with suffering.

This analysis confirms that the study's two objectives were achieved. It reveals deep thematic dimensions in the lyrics of Ed Sheeran and Sia. Love appears as a central element in both, though expressed in different ways. The emotional and narrative progression across their albums traces a path from pain and loneliness to themes of growth and resilience. The conceptual maps and sentiment analysis demonstrate a strong link between themes and emotions. Both artists rely on figurative language to create emotional closeness with their audience, transforming personal experiences into universal messages and enhancing the artistic and human value of their compositions.

5. Conclusions

This research aimed to explore the impact of the lyrics of Ed Sheeran and Sia, analysing the main themes that each artist conveys in their compositions. Throughout the study, it became clear that both artists express a range of feelings and emotions throughout their musical journeys. Several main themes were identified, such as love, pain and hope, and both artists share some of these topics, although each uniquely highlights them. Ed Sheeran presents a more relational and autobiographical lyrical narrative, exploring everyday moments of vulnerability, reflection and human relationships. In contrast, Sia addresses intense and introspective themes, marked by emotional contrasts such as fragility and strength.

This emotional contrast reveals that while Sheeran's lyrical journey often mirrors relational growth and personal connection, Sia's narrative style embodies emotional survival, healing and courage. Together, they offer complementary emotional landscapes that help listeners process their own inner experiences.

In direct response to the research question—What are the main dimensions that stand out in the works of Ed Sheeran and Sia?—this study found that Ed Sheeran's lyrics predominantly revolve around love, relationships, vulnerability, and autobiographical storytelling, whereas Sia's lyrics are characterised by themes of emotional pain, resilience, empowerment, and inner strength. These recurring dimensions reflect distinct emotional landscapes and lyrical intentions, offering complementary perspectives on human emotion and experience.

The two main objectives of this study—identifying the key dimensions in Ed Sheeran's lyrics and Sia's lyrics and comparing the emotions that characterise each artist—were successfully achieved. Using Leximancer, the analysis revealed recurring themes such as love, resilience, and vulnerability, offering valuable insights into the lyrical structures of both artists. While the focus on textual content enabled a detailed thematic exploration, limitations include Leximancer's inability to fully capture figurative devices (e.g., irony and metaphor) and the exclusion of non-textual elements such as vocal tone and rhythm. Nonetheless, the study enhances our understanding of how mainstream artists convey emotions through lyrics and demonstrates the value of combining computational tools with interpretative analysis.

The originality of this study lies in its comprehensive scope and comparative analysis. By examining the complete discographies of Ed Sheeran and Sia, it was possible to identify thematic and emotional patterns that might go unnoticed in smaller samples. The integration of concept mapping through Leximancer with sentiment analysis provided a dual perspective, both structural and affective, which enabled a richer interpretation of the lyrical content. This approach, still rarely explored in song lyric analysis, reinforces the interdisciplinary contribution of the study by combining textual analysis techniques with interpretations in the fields of music and psychology.

In addition to the automated analysis generated by Leximancer, this study incorporated an interpretative and interdisciplinary reading of the concept maps and sentiment analysis, contextualising the results within the scope of music psychology and lyric studies, and contextualising these findings within broader emotional, psychological and artistic frameworks. This approach made it possible to identify emotional and narrative relationships, such as vulnerability, resilience and symbolic expression, which would not be evident through the technical interpretation of the tool alone, thereby enriching the understanding of lyrical content and highlighting the human contribution to the analysis. By bridging computational methods with reflective interpretation, the study transforms technical data into meaningful insights about lyrical storytelling and emotional depth.

Apart from the technical outputs of Leximancer, this study contributes original insights by interpreting conceptual patterns through the lens of emotional psychology, lyrical theory, and symbolic analysis. Although Leximancer identifies co-occurring concepts, it does not explain their emotional significance, narrative function, or symbolic resonance. This research fills this gap by revealing how recurring themes such as love, pain, and resilience are not only present but also evolve in emotional tone and complexity across each artist's discography. For instance, the study shows how Ed Sheeran's autobiographical storytelling gradually shifts from romantic idealism to reflective maturity, while Sia's emotional lexicon transforms from raw vulnerability to empowered defiance. These findings were not visible in the raw concept maps but emerged through interpretive synthesis. By interpreting a computational analysis within a humanistic framework, the study demonstrates how digital tools can support—but not replace—critical reflection, emotional decoding, and cultural interpretation. This approach offers a model for future research that seeks to combine empirical precision with artistic and psychological depth.

Nevertheless, the investigation is not without limitations. Leximancer, while effective, cannot fully interpret figurative devices such as irony or metaphor, which are fundamental to lyrical storytelling. For example, metaphorical constructs like Sia's "elastic heart"—a symbol of emotional endurance—remain undetected by purely automated tools. The focus on two artists and one language also narrowed the scope of comparison. Moreover, despite the support of computerised tools, interpretation remains influenced by subjective analysis.

Another major limitation of this study is that other fundamental elements of emotional expression, such as vocal tone and other nonverbal aspects present in the music, were not considered. While the textual focus allowed for a detailed analysis of words and concepts, a complete understanding of a song's emotional expression would require integrating analyses that also take these nonverbal elements into account.

The significance of this study lies in its ability to bridge technology, lyrical art and emotional psychology. By decoding how mainstream artists convey emotional depth through language, this research contributes to understanding music not just as entertainment but as a psychological and cultural medium for emotional expression and connection. It reinforces the notion that song lyrics serve as mirrors of human experience, shaping empathy, introspection, and shared emotional identity.

Looking forward, future research could expand its scope to include artists from a wider range of musical genres, languages, and cultural backgrounds. Regarding audience studies, incorporating audience reception research could offer deeper insight into how lyrical themes are emotionally experienced by listeners. Sentiment analysis can be conducted using lexicons or classifiers adapted for song lyrics, with cross-validation between methods. Investigating how different demographics respond to various emotional tones in lyrics—whether by age, culture, or musical preference—could shed light on the universality or specificity of emotional storytelling through music. From a longitudinal perspective, an analysis of each artist's discography may also reveal compelling evolutions in emotional tone and narrative style. In addition, future research could explore which concepts most differentiate the artists using log likelihood keyness, test the robustness of the results—for example, by removing one album at a time—and normalise frequencies by word count or by song, allowing more consistent comparisons between corpora of different sizes. Finally, employing advanced analytical tools, such as machine learning models capable of detecting complex figurative language, would allow for richer textual interpretations. In this type of research, concept maps can be complemented with bar charts to make emotional patterns clearer and more accessible. Mapping lyrics against listeners' psychological responses could also transform the study into a multidisciplinary exploration involving music therapy, cultural studies, and affective neuroscience.

Ultimately, this research underscores the power of lyrics as emotional narratives that transcend melody, offering listeners not only entertainment but also a profound space for reflection, healing, and connection. By illuminating the dynamic between music, emotion, and audience, the study opens new pathways for understanding how songs contribute to mental well-being, cultural identity, and the collective processing of emotional experiences.

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