



# Analysis of big data on the manifestations of cultural alienation on the X platform in Saudi Arabia

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## ABSTRACT

This study aims to analyze the manifestations of cultural alienation in Saudi society as reflected in tweets on the X platform during the period 2022–2024, using big data analysis tools, the Python programming language, and the Power BI software. The results indicate the following rankings for the four manifestations of cultural alienation: social isolation (38%), rebellion (30%), aimlessness (29%), and anomie (4%). The study adopted a quantitative content analysis methodology, employing social media data analysis, which contributed to providing accurate and up-to-date findings. Additionally, the results highlight both alignment and discrepancies with previous studies on the ranking of cultural alienation manifestations, emphasizing the importance of digital data in offering new insights to understand this phenomenon. The study concludes with recommendations to address the manifestations of social isolation, which ranked first, and to work on fostering belongingness and goal orientation among individuals in relation to Saudi society.

**Keywords:** big data, cultural alienation, X platform, data analysis, Power BI

## INTRODUCTION

Social media platforms can influence the values, principles, and local cultures of societies. These shifts or changes in an individual's culture and consequent detachment from their community is referred to as cultural alienation. Saudi Arabia is witnessing tremendous development in its technological systems, including social media, which has played a significant role in introducing various global cultures to citizens. As such, the concept of cultural alienation has begun to surface in Saudi society, particularly among some youth. Cultural alienation among Saudi youth might lead to them feeling distanced from their rich Saudi cultural heritage and lead them to reflect some aspects of Western culture in their behaviors and thoughts, which might conflict with societal moral values. Among the most concerning manifestations of cultural alienation are those identified by Shtiwi et al. (2019).

The manifestations of cultural alienation are represented in the following dimensions: anomie, which refers to the loss of social standards that influence an individual's actions in certain situations; meaninglessness, which pertains to an individual's ability to perceive the consequences of their actions; objectification, which is the feeling of losing one's identity and detachment from reality; social isolation, referring to an individual's estrangement from the prevailing culture and their disconnection from members

of their community; egocentrism, which relates to an individual's perception of matters from their personal perspective and self-interest; aimlessness, which is the feeling of lacking a goal to aspire to; and rebellion, which denotes a sense of defiance against societal principles and traditions (Al-Zahra & Nuwara, 2022).

It is crucial not to ignore these effects due to their impact on national identity. The sense of isolation and lack of belonging among youth may lead to a crisis in their Saudi cultural identity and, consequently, result in cultural alienation (Ati, 2021; Boutoura & Mansouri, 2021). Given the importance of this topic, most countries have sought to confront cultural alienation, which threatens the cultural and intellectual identity of societies, while focusing on building and refining a sound national character (Ati, 2021).

One of the mediums used by many countries worldwide to analyze how to promote their local culture is social media. These platforms produce vast amounts of data that can be analyzed to derive real indicators of public opinion, trends, and significant issues by relying on modern technological tools (Abdulrazzaq, 2020). In this context, many organizations have successfully relied on social media data analysis tools, which have enabled them to identify actual indicators of societal trends and aspirations relating to specific topics and issues. This capability has allowed these organizations to provide various services tailored to the needs of their target audience, to keep pace with developments, and to ensure the achievement of desired goals. It is worth noting that data analysis involves many specialized tools capable of text analysis, sentiment analysis, and understanding and interpreting trends. One of the advantages of social media data analysis tools is their ability to analyze content, summarize results, and compare them with other findings (Al-Badi, 2017). Furthermore, data analysis tools save users time and effort since they can collect, analyze, and extract the best information to aid in decision-making (Abdullah et al., 2022).

This study contributes to filling the research gap in previous studies by identifying the most prevalent manifestations of cultural alienation among Saudi youth on the X platform. To the best of our knowledge, this study is one of the first to aim at identifying manifestations of cultural alienation in the Kingdom using social media. It is also one of the first studies to rely on big data text analysis techniques of content published in Arabic on social media platforms. Furthermore, the study covered a large sample of data, totaling 20,000 tweets, and focused on a recent time period to capture contemporary manifestations of cultural alienation.

## RESEARCH PROBLEM

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The number of social media users in the Kingdom of Saudi Arabia reached 29.5 million in 2022, accounting for 87% of the Kingdom's population (VEODATA, 2023). Social media platforms have contributed to increased intellectual and cultural openness to the world, serving as one of the most influential tools shaping the ideas and beliefs of a significant portion of society. They constitute a digital social system built on relationships that can influence individuals to the extent of altering their beliefs, social status, and cultural identity. Furthermore, these platforms are among the most effective tools in steering public opinion, highlighting key topics and issues (Al-Harbi, 2018; ALshareef, 2022).

Foreign customs and traditions, broadcast through social media, have impacted the psychological, intellectual, and behavioral traits of Arab youth, causing some to experience frustration and contradictions between their aspirations and the achievements they can realize (Shtiwani et al., 2019).

The rapid evolution of digital communication technologies and the proliferation of social media as a form of new media have enabled communication with people from all over the world. However, this has led to various negative consequences, including the spread of Western cultures that threaten Saudi national identity (Jefal & Talha, 2018). Consequently, cultural alienation is considered one of the adverse effects of social media, with some Arab youth experiencing this phenomenon due to media influences that distance them from their culture and societal norms, ultimately leading to the erosion of their identity (Dar Qali & Boumshta, 2022).

Some studies have emphasized the existence of cultural alienation in the Arab world. Nofal's (2021) study explained that the presence of manifestations of cultural alienation in Arab societies stems from the inability of some Arab countries to accommodate rapid scientific and technological advancements, thus increasing the degree of cultural alienation. The study suggested reforming the education system by introducing educational programs based on national identity and Arab values to contribute to the prosperity of Arab culture. Similarly, a study by Malla and Malla (2017) indicated that cultural alienation results from openness, which affects

students, causing them to feel conflicted and experience a gap between their aspirations and reality. This weakens their absorption of national values at various levels, such as history, language, and belonging, in addition to reinforcing the negative relationship between alienation and national identity.

Selective exposure theory is one of the main theories explaining how media and social media influence individuals, especially in relation to manifestations of cultural alienation. It emphasizes that individuals choose social media content that matches their previous beliefs and ideologies, while ignoring content that contradicts their opinions and ideas. Rather than accepting messages randomly, people tend to select information that confirms or supports their previous opinions (Al-Sakahawi, 2021; LoBello, 2018).

When individuals selectively engage with content on social media that is contrary to their Saudi cultures and national identity, and is incompatible for societal values and norms, this leads to an increase in their manifestations of cultural alienation. These manifestations are represented in a sense of social isolation from members of their Saudi society, where they avoid dealing with people who differ in opinions and cultures, as well as they may affect the manifestation of rebellion against social traditions due to the exposure to content on social media, which constitute for people principles and ideas that contradict their Saudi culture. It also affects the appearance of aimlessness through the loss of aim and purpose of life and face difficulties in communicating with members of society due to exposure to content conflicts to cultural or social reality. Consequently, exposure to this content amplifies the manifestation of anomie, which is reflects a disruption in values and norms among individual and their weakness to adhere to Saudi principles and value (Al-Zahra & Nuwara, 2022; Dar Qali & Boumshta, 2022; LoBello, 2018).

Social media analysis technologies are among the technological innovations aligned with the Fourth Industrial Revolution, enabling societal perspectives on specific issues to be measured. This can assist in the process of planning and designing responses to enhance the positive aspects of various issues (Abdulrazzaq, 2020). Additionally, big data analysis, through sentiment analysis and data mining using machine learning, facilitates the selection of appropriate topics for targeted groups, their presentation, and the identification of suitable courses for students that contribute to shaping their personalities. Moreover, these data can be used to classify students and understand their educational behaviors, thereby improving the positive image of educational institutions. With the vast amount of data generated by students using social media and the availability of big data analysis tools, there is both a gap and an opportunity for educational institutions to utilize these data to analyze learner behavior and understand students' feelings and concerns during the educational process (Adnan et al., 2020).

Main question of the study is as follows: How does cultural alienation manifest in Saudi society on the X platform during the period from 2022 to 2024?

## LITERATURE REVIEW

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### Cultural Alienation

Cultural alienation is a social phenomenon that particularly affects young people, making them feel estranged, lonely, and isolated from their sense of self, disconnected from their emotions and behavior, with a sense of helplessness and the perception that their contributions are insignificant and ineffective within society. It instills a sense of insecurity and alienation from their homeland (Basiony et al., 2021).

Cultural alienation is defined as an individual's weakened ability to adapt to and interact with the culture of their society, coupled with feelings of helplessness, anticipation of failure, and a perception of being controlled by external forces. It manifests as withdrawal from society and its activities, a lack of standards to regulate behavior and orientations, indifference, limited ambitions, and rebellion against societal norms and systems (Basiony et al., 2021). Similarly, Dar Qali and Boumshta (2022) defined it as the rejection of Arab societal customs and traditions, fascination with Western traditions, and the loss of Islamic Arab identity, evident in behaviors such as adopting Western-style clothing and following fast-food culture, among other trends associated with technological advancement.

In a related context, Shtiwi et al. (2019) have described cultural alienation in Saudi society as the tendency of Saudi youth to distance themselves from Saudi culture while adhering to Western culture. This is reflected

in their detachment from moral values and traditional conceptions of the meaning of life, in favor of a materialistic focus.

The above illustrates that cultural alienation entails the lack of integration of Saudi youth with their society's culture, feelings of isolation from their cultural environment, and non-participation in social activities. These manifestations appear as normlessness, objectification, indifference, and self-rebellion at the individual level.

Cultural alienation in Arab society is influenced by psychological, social, and cultural factors. The psychological factors relate to the development of young people and personal formation in the period of youth, while the social factors are affected by the nature of the society in which the youth live. The cultural factors are tied to the surrounding environment, its prevailing norms, and the youth's experience within it. These causes interact to result in cultural alienation. The causes of cultural alienation can include instability in an individual's psychological state, failure to engage in effective decision-making, a lack of a sense of social justice, studying abroad in Western countries, a loss of religious values, the use of foreign words and their integration into Arabic, and the adoption of fashion and an imitation of Western appearances and behaviors (Basiony et al., 2021).

Al-Faisal (2018) explained that the causes of cultural alienation are both social and economic. The social causes arise from environmental pressures, the diversity of cultures, the rapid development of civilization, detachment from religion, weak adherence to values, poor social interactions, and trouble resulting from social upbringing. The economic causes stem from conflicts, political parties, class divisions, and differences in living standards and income, all of which impact social relationships, further increasing feelings of alienation.

From another perspective, Al-Rawashdeh and Al-Arab (2009) categorized the causes of cultural alienation into general external causes, such as the influence of technology, and internal causes, specific to each society and individual. They also stated that the causes of cultural alienation are linked to social, cultural, and political problems, sectarianism, classism, and a decline in adherence to values and principles.

The manifestations of cultural alienation, as mentioned in several studies (Al-Faisal, 2018; Al-Rawashdeh & Al-Arab, 2009; Al-Zahra & Nuwara, 2022; Basiony et al., 2021; Dar Qali & Boumshta, 2022; Malla & Malla, 2017; Nawi & Slahtnia, 2016) are as follows:

1. Anomie

This refers to a disruption of values and norms, rejection of societal rules, and weak adherence to principles guiding behavior and attitudes. It is characterized by the individual's belief that social norms and values hinder them from achieving their goals. It results in a failure to comply with normative controls, and behaviors once deemed unacceptable by society become accepted, and vice versa. As a result, there is a lack of harmony between norms that guide the individual towards normative actions in a given situation.

2. Rebellion

This is the feeling of being detached from social reality, and out of the ordinary, as well as a refusal to adhere to traditions, customs, and norms. It manifests in hatred for what is commonly accepted in society, attacks on those around, protests against the environment, and rejection of active participation in social activities. Rebellion can be directed at oneself or at society, through its institutions or various issues.

3. Social isolation

This describes a situation in which the individual feels lonely and disconnected from the prevailing culture, unwilling to integrate into society. They adopt concepts that contradict societal values, making it difficult for them to keep up with society's current conditions. They show indifference to social life, living in solitude.

4. Aimlessness

The individual feels a lack of purpose or goal in life, with their existence continuing without a clear objective that aligns with traditional concept of the meaning of life.

5. Self-centeredness

The individual believes that they are the center of their social world and interprets things based on their personal interests. This involves traits such as selfishness and indifference.

#### 6. Helplessness

The individual feels powerless to control their personal actions, decisions, or desires, unable to make decisions or influence others in social situations.

#### 7. Meaninglessness

This is related to how young people perceive the events around them and their ability to anticipate the outcomes of their actions. The individual feels that things lack value or meaning in life due to a lack of goals or ambition and a disconnect between their present and future. They realize that their skills are mismatched with future job opportunities.

#### 8. Objectification

This refers to the individual's sense of losing their identity, struggling to understand themselves, feeling boredom and indifference, and being disconnected from reality. It also involves materialistic control over individuals' lives, whereby a material relationship emerges between people, enhancing their confidence in material things and diminishing their trust in each other.

#### 9. Alienation from the self

This describes the loss of ability to connect with oneself, feeling that one's aspirations are separate from one's reality. It is the loss of communication between the conscious and true self, manifesting in indifference, boredom, and a sense that existence is unreal.

#### 10. Loss of control

This describes a situation in which the individual feels unable to influence the social situations they engage in.

The manifestations of cultural alienation and its dimensions have been addressed in several studies, and ranked according to their frequency, which reflects their importance and influence on the spread of cultural alienation. Anomie ranked first, with all studies agreeing on it being a core manifestation of cultural alienation, followed by rebellion and social isolation, which were agreed upon by most studies. Aimlessness and self-centeredness were noted by some studies, followed by helplessness, meaninglessness, and objectification. Lastly, alienation from self and loss of control ranked the lowest.

Cultural alienation has become prevalent in Arab societies, including among Saudi youth, due to exposure to different cultures and peoples, especially with rapid developments in technology and the rise of digital communication platforms. The digital environment refers to the space that allows individuals to interact with the various dimensions of the digital world, such as satellite television, social media, and other platforms. This digital environment enables individuals to view the world and influences their behaviors and interactions with others (Nawi & Slahtnia, 2016). Furthermore, the digital environment heavily relies on modern digital technology and disseminates various electronic sources that impact the knowledge society, which is based on information production and its efficient utilization to suit society and its activities (Al-Freiji, 2020).

Certain dimensions of the digital environment directly contribute to a fragmentation of the value system and promote a new set of standards, such as selfishness, individualism, materialism, admiration for Western culture, and the adoption of its customs and traditions, while simultaneously prompting people to abandon Arab culture. Additionally, addiction to the digital environment impacts youth, increasing their social isolation, disregard for time, helplessness, unemployment, and frustration, all of which contribute to cultural alienation (Nawi & Slahtnia, 2016).

The technological revolution has led to the spread of cultural alienation in the Arab world, mainly due to the availability of various electronic devices accessible to everyone at almost all times. A constant connection to the internet and exposure to multiple cultures and their threats have led some individuals to adopt different habits, languages, and expressions, causing feelings of alienation (Al-Faisal, 2018).

Media and communication technologies divert youth from their studies, ambitions, and passion for knowledge, and negatively impact on the development of genuine relationships. This is leading to a generation experiencing feelings of alienation and loneliness (Mansar & Ma'laty, 2013). In particular, the use of social media affects youth and spreads manifestations of cultural alienation, such as marginalization, terrorism, extremism, violence, drug addiction, suicide, and mental health disorders (Qnaify, 2019).

The digital generation is closely engaged with the digital environment, which spreads modern culture through social media platforms and promotes Western cultural norms, traditions, and languages that often contradict Arab societal culture. This is primarily due to the widespread use of social media among Arab youth (Bouazza, 2020).

Moreover, the extensive use of social media impacts youth, influencing their thinking and their relationship with their real-world environment. Young people spend most of their free time on meaningless entertainment, distancing themselves from reality. They lose touch with social norms and values, adopting Western ideologies that contribute to cultural alienation (Shtiwil et al., 2019). As a result, the use of social media leads to negative effects, including social isolation, mental health issues, threats, harassment, and cultural alienation (Al-Zahra & Nawara, 2022).

Several studies have addressed cultural alienation among Arab youth. For example, the study by Al-Zahra and Nawara (2022) explored why adolescents are motivated to use social media and identified the manifestations of cultural alienation among them. The study used a descriptive approach, collecting data via a questionnaire distributed to a random sample of 40 adolescents in Algeria. The results indicated that the primary motivations for adolescents were related to study, followed by connecting with friends and escaping family problems. Other motivations included forming new friendships and entertainment. The most prevalent manifestations of cultural alienation, in order of prevalence, were meaninglessness, followed by anomie, and finally social isolation. The study recommended further investigation into the social factors that contribute to cultural alienation and suggested strategies to address them.

Meanwhile, the study by Dar Qali and Boumshta (2022) aimed to examine the relationship between modern media and the phenomenon of cultural alienation in Algeria, clarifying the impact of media use on university students and identifying the manifestations of cultural alienation among them. The study adopted a correlational descriptive approach using a questionnaire distributed to a purposive sample of 194 university students. The findings revealed that university students in Algeria tend to distance themselves from Algerian society and family events, imitating Western culture (self-centeredness), speaking foreign languages more than Arabic, and preferring to watch Western films and programs over Algerian ones (rebellion). They also believed that abandoning traditions was necessary to keep up with progress (anomie), they leaned towards forming online relationships rather than real-life ones and avoided interacting with family and friends (social isolation). The primary goal of using social media was to make friendships. The study confirmed the connection between cultural alienation and social media use, highlighting its impact on students' detachment from their Algerian culture. The study recommended addressing the main causes of cultural alienation and encouraging safe social media usage, as well as using cultural media strategies to promote national identity.

A study by Bakr et al. (2021) clarified the main environmental and social factors influencing cultural alienation among Egyptian youth. The study used a social survey methodology applied to a random sample of 400 high school students from Alexandria Governorate. The results highlighted that the youth involved were influenced by Western culture, blindly imitating it without thought or awareness, as well as showing a lack of concern for aligning with their community's customs and traditions.

In addition, the study identified that the most significant manifestations of cultural alienation are normlessness and purposelessness, both of which are ranked as being most prevalent. This was exemplified by students participating in clubs merely for entertainment. The second manifestation was meaningless, reflected in their feeling that their principles are not stable, as evidenced by their weak participation in scientific and cultural activities. The study recommended that the Ministry of Education (2021) should be encouraged to design cultural programs and activities to address cultural alienation and reduce its manifestations.

Similarly, the study by Al-Sayed (2021) revealed the relationship between social media addiction, specifically TikTok use among the digital generation, and manifestations of cultural alienation. The study involved a descriptive survey of Egyptian society using a questionnaire to measure the digital generation's addiction to TikTok and its associated cultural alienation. It was conducted on a purposive sample of 250 TikTok users, ranging in age from 13 to 26 years. The results proved that addiction to TikTok contributed to the spread of cultural alienation, specifically normlessness, with youth emulating foreign cultures and adopting their customs and traditions, leading to a loss of identity. The study also identified egocentrism,

which results in individualism, a lack of belonging, and consequently, a loss of cultural identity. It further indicated that behaviors among youth reflected a loss of purpose in life, an attraction to other cultures, dissatisfaction with their local culture, distancing from it, and social isolation, forming virtual groups suited to their personal ideologies. The study confirmed that participants used TikTok for reasons including fulfilling emotional needs such as entertainment and self-expression, as well as learning new skills, gaining knowledge, and engaging in social exchange. The study suggested the need to monitor TikTok and conduct research on students' behaviors and their interactions with social media and its impact on their thoughts, beliefs, and social lives.

The study by Shtiwi et al. (2019) aimed to examine the impact of social media (specifically Snapchat) on Saudi youth and the extent of cultural alienation among them. The study followed a social survey methodology using a questionnaire administered to a stratified random sample of 400 male and female students at King Abdulaziz University in Jeddah. The results confirmed that Snapchat contributed to the spread of cultural alienation in Saudi society, with the most prominent manifestations being normlessness at 59.9%, meaninglessness at 56.82%, and reification at 49.13%. The study showed that the primary goals of Snapchat users were to follow their friends, then entertainment, and lastly, to follow celebrities.

One of the main recommendations of the study was to activate the role of educational institutions on social media to promote cultural values, principles, and beliefs, and for Arab media to focus on intellectual issues and instill ethics and values among the youth.

## Social Media

The Kingdom of Saudi Arabia is witnessing tremendous technological advancements and is striving to achieve Vision 2030 and a national digital transformation across various fields, including education. To align with this transformation, the Ministry of Education (2021) has announced its objectives and plans supporting digital education. These include adopting strategies to make education accessible to all members of society with high-quality outcomes, providing lifelong learning opportunities for individuals, developing an educational environment that fosters creative and innovative thinking, encouraging community participation in education and learning, focusing on educational staff to enhance their capabilities, and promoting principles and national belonging (Ministry of Education, 2021).

Badrkhan et al. (2022) define social media as modern technology that provides virtual communities and interactive sites used to exchange ideas, knowledge, and experiences, as well as share opinions and thoughts on various topics. Al-Ladkani and Al-Muqatrin (2022) also define it as interactive websites that allow users to create personal profiles, chat rooms, and photo albums to share images with friends. These platforms allow for dialogue, discussion, and the exchange of ideas, knowledge, and opinions over the internet.

Al-Khawaja and Al-Balushi (2020) define social media as internet-based websites that allow users to create personal pages and connect with other members, such as Facebook, Instagram, and Twitter. Meanwhile, Shtiwi et al. (2019) define it as interactive electronic applications used to display images, with features like commenting, reposting, and liking, which represent the opinions, thoughts, and daily details of users and allow them to add followers who share common interests.

From the above, it is clear that social media consists of interactive applications and websites that facilitate communication between users, enabling them to share their interests, thoughts, opinions, and exchange knowledge and experiences.

Social media applications support interactivity in education by allowing learners to participate and interact around a specific topic, goal, or idea, collect opinions on it, adjust, and exchange information to support the educational process or develop educational institutions. Some of the most important social media platforms used in education include Facebook, X (formerly Twitter), Google Plus, and Telegram (Hassan, 2022a, 2022b).

## Big Data in Social Media

Social media generates billions of big data that can be utilized for scientific research purposes. In the digital age, there has emerged a need to analyze these big data since they reflect the orientations and opinions of individuals in society. Big data can be leveraged to develop the educational sector.

The term big data refers to data sets of an extremely large size, which it is difficult for traditional databases to collect, store, manage, and analyze. This type of data is characterized by high speeds, complexity, and instability, as it changes significantly over time. Consequently, big data requires modern technologies to store, analyze, and interpret results derived from it for optimal use in various fields (Abdelhamid et al., 2023; Abdullah et al., 2022; Musleh & Jirjis, 2018). Big data is distinguished by multiple characteristics: volume, since the data set sizes are exceptionally large; variety, meaning data come in diverse forms and formats such as text, audio, images, and video, as well as varying in quality and reliability; veracity, as data are often unreliable and need to be filtered; velocity, referring to data being generated rapidly and growing exponentially in a short time; value, as proper analysis of the data yields valuable insights; variability, meaning data can represent multiple meanings; and visualization, whereby data are presented after analysis using various forms such as charts, statistics, numbers, and geometric shapes (Abdelhamid et al., 2023; Mohammed, 2022; Musleh & Jirjis, 2018).

Big data can be structured and organized in databases or tables, unstructured and disorganized in various formats such as images, text, videos, or messages, or semi-structured, meaning that some of the data is structured while other data remain unstructured (Abdelhamid et al., 2023; Abdullah et al., 2022). The forms of big data include web data collected through the internet, such as search queries, views, and comment reads; textual data such as posts, news, and emails; location and timing data, including GPS information, site locations, and timestamps; and social media data, which refers to data allowing for analysis of user relationships and identification of their interests (Abdelhamid et al., 2023; Mohammed, 2022).

There are several causes for the increased production and growth of data, leading to the concept of big data. Modern technologies that enable devices to connect through the internet generate vast amounts of data, and various research fields produce massive quantities of data. Additionally, the proliferation of social media platforms means that unlimited data are continuously generated, and the advent of low-cost cloud storage has facilitated the availability of big data (Abdelhamid et al., 2023; Mohammed, 2022).

To make use of big data, data analysis tools are employed to extract valuable information that supports planning and decision-making across various topics. Analyzing data on social media offers numerous advantages, as highlighted in the following studies (Abdelhamid et al., 2023; Musleh & Jirjis, 2018; Al-Badi, 2017):

1. It helps to identify learners' skills and align them with their career directions, as well as to understand their opinions and needs to develop them across different fields.
2. It enhances the quality of education by monitoring student progress, determining the quality level of education, and improving the education system, curricula, and instructors by highlighting weaknesses in the educational framework and addressing them.
3. It aids in predicting the future of teachers and learners and using the results of data analysis to develop educational institutions.
4. It contributes to designing and developing educational environments according to students' needs by utilizing the results of data analysis to create advanced and effective tools for assessing learners' performance and understanding their learning methods.
5. It supports the adaptation of education based on learners' patterns and the creation of suitable educational materials for them.
6. It facilitates the development and restructuring of electronic curricula to increase their efficiency and benefit for learners.
7. It assists in improving training environments and enhancing students' academic achievements and digital skills by analyzing trainees' data in relation to activities and training programs.
8. It plays a role in evaluating the attitudes of students and teachers toward teaching methods and strategies, such as distance education.

A study by Mohammed (2022) and an ORACLE (2024) report mentioned several types of big data analysis, which are as follows:



### 1. Descriptive analysis

This type is used to summarize and describe data, providing insights into numbers, frequencies, locations, times, and explaining problems and events. It answers the question "What happened?" Examples include reports, statistics, attendance records, evaluations, and assessments. On social media, it can identify the most liked topics on a page, information about followers, and other descriptive data.

### 2. Diagnostic analysis

This type helps to identify the causes of an event and the relationships between variables. Data are analyzed to confirm or refute specific hypotheses or ideas in order to understand the relationship between variables. It is used to identify problems, delve into why they have occurred, detect patterns, make appropriate decisions, and answer the question "Why did it happen?" For example, it might show that student absenteeism affects their academic performance.

### 3. Predictive analysis

This type of analysis is used to determine the likelihood of a pattern repeating in the future, predict opportunities and risks, and obtain answers based on future changes. It answers the question "What is likely to happen?" An example is predicting election results based on voters' behavior in surveys.

### 4. Prescriptive analytics

This type guides and directs based on technology and artificial intelligence tools. It uses the results of predictive analysis and takes it to the next level by suggesting optimal responses to expected outcomes. It is characterized by presenting analysis in visual forms such as images and graphs. Some uses include understanding the impact of a specific variable on reducing the likelihood of a disease.

### 5. Statistical analysis

This type is used to find confirmed relationships and relies on available data to predict future numbers. An example is predicting the population of a country in a future period.

Several studies (Abdelhamid et al., 2021; Abdulrazzaq, 2020; Mutasher & Aljuboori, 2023) have highlighted the main applications of social media data analysis, given below:

#### 1. Hadoop

This is an open-source program based on the Java language that stores and processes big data through distribution; for example, it distributes and stores big data across multiple devices and processes it on these devices. It is used by companies like Google, Twitter, LinkedIn, eBay, and Amazon. It consists of three main components: data mining tools, data analysis tools, and dashboard/visualizations tools to display results.

#### 2. NodeXL

This program is used for analyzing social networks and is open-source. It is an extension of Microsoft Excel and is used to gather data from various websites such as YouTube, Twitter, and others, and represent it in charts and graphs. It is notable for its ability to assess content by categorizing positive and negative terms, feeding these lists from both types, and choosing the desired classification. It can also analyze activities related to each type of term or identify supporting and opposing groups, as well as to determine the most commonly used words.

#### 3. IBM Analyst Notebook 12

This software uses the effective license position feature, which is responsible for linking entities (such as people, accounts, or identities on social media or e-learning platforms) and visualizing the relationships between them. It produces analyses in a visual format, to facilitate an explanation of relationships, and it allows data to be filtered based on different variables.

#### 4. Power BI

An advanced AI tool produced by Microsoft, Power BI is a cloud service for gathering, organizing, and analyzing data. It helps in creating reports, summaries, and visualizations such as charts, graphs, and tables, utilizing AI features to save time and effort. Additionally, it allows reports to be shared with others (Microsoft, 2024).

Several studies have explored the benefits of analyzing social media data and its application in educational research. For instance, a study by Pratama et al. (2023) focused on analyzing social media to identify patterns of bullying on social media platforms. Data were collected from users on Twitter from 2010 to 2020; 700 tweets were gathered which contained words related to bullying. The data were manually filtered to remove irrelevant information, followed by analysis of metrics such as degree centrality and the identification of interaction networks between users, including comments, retweets, and replies. The results revealed that perpetrators bully victims using social media, and this pattern occurs with victims who have experienced abuse in at least one tweet. This can potentially lead to repeated bullying through interactions among perpetrators, forming online communities of cyberbullying against the same victim.

The study by Mutasher and Aljuboori (2021) focused on exploring the analytical tools under the Hadoop framework and understanding its directions, as well as modern methods to overcome challenges faced in data processing and analysis. The research employed a systematic review methodology for studies related to social media data analysis. The results showed that analyses accelerate decision-making and report preparation. To address the challenges related to using Hadoop effectively, for example, problems interpreting words with different meanings, the study proposed modifying the data extraction algorithms used in Hadoop to enhance its functionality and improve the program.

The study by Zadeh et al. (2021) explored the analysis of social media and its use as an exercise incorporated into training courses to equip students with social media data analysis skills. A scenario was used involving flu data on Twitter and information on how it spreads. The framework for the study's analysis includes temporal, spatial, and textual mining. The temporal analysis gives an indication of students' ability to use Twitter data to predict flu outbreaks, the spatial analysis allows students to use location data to create a map of flu spread, and the textual analysis allows students to apply text mining algorithms to extract insights and identify types of rumors, among other tasks. IBM Infosphere Biginsights, a platform based on Hadoop, was used to implement the framework. The exercise aimed to guide students in analyzing social media data, enabling them to understand the different aspects of social media and leverage big data to enhance training practices. A descriptive approach was used in a university classroom, where after completing the exercise, 27 students participated in a survey confirming their satisfaction with the effectiveness of the educational framework in analyzing big data on social media, as well as innovating new solutions using big data techniques. The results demonstrated the students' ability to apply technology and enhance their skills in analyzing social media data. The study suggests using the proposed framework to analyze big data on social media across different concepts.

The study by Gunduzalp and Sener (2020) aimed to analyze ideas related to the teaching profession through the recently popular Twitter platform. A framework was designed for interpreting the phenomenon based on a sample of participants' opinions about the teaching topic on Twitter during a specific time frame, from 20/05/2019 to 15/06/2019. The time period was considered the criterion for data collection. Data were collected from Twitter after obtaining official permission to extract data on the research topics using NodeXL and KNIME. The results indicated that most tweets were related to individuals explaining issues concerning education. The most important tweets were related to teachers' retirement, professional exams for teachers, hiring issues, teaching entitlements, and teacher vacations. The study recommended using data mining techniques on social media platforms to explore educational topics.

The research by Adnan et al. (2020) aimed to propose a framework for increasing student interest in science, technology, engineering, and mathematics fields and technical and vocational education and training subjects through social media data analysis. The study also sought to explore social media applications in education and propose a suitable framework for higher education institutions in Malaysia. To achieve the study's objectives, a synthesizing methodology was adopted. The results led to the proposal of a framework made up of four key components: social media, a guiding model, open-source massive open online courses, and big data analysis. The proposed framework is expected to help higher education institutions attract more students, generate economic returns, and enhance their reputation.

## STUDY METHODOLOGY AND PROCEDURES

For this study, content analysis methodology was used, which focuses on the specific words and concepts found in different texts. This methodology can be applied to analyze written, audio, or visual messages in various fields such as media, different sciences, advertising, and business. Content analysis can describe certain phenomena in a detailed manner or analyze a specific concept or trend. It may aim to build a conceptual map or organize these concepts. Content analysis is performed by encoding the words that represent the concept under analysis, and this can be done manually or through special algorithms, or by using both methods together (Gardiner et al., 2018). Content analysis is used to extract important knowledge and information from documents and texts, and then to analyze and interpret it to reach deep results. Content analysis is one of the modern techniques used to interpret and analyze big data in the digital world in various fields, including education. It includes types such as quantitative, qualitative, thematic, contextual, and cultural analysis. Content analysis is useful in explaining information, extracting key concepts, evaluating the credibility of sources and evidence, discovering emerging research trends and topics, and supporting decision-making in various research activities, such as design, analysis, and research guidance.

The aim of content analysis is to find answers to questions focused on understanding texts and their meanings (Tayseer, 2023).

In the current study, a content analysis methodology was used through computer-assisted analysis of big data from social media to achieve the objectives of this study using the X platform. Tweets were filtered within the geographical scope of the Kingdom of Saudi Arabia from 2022 to 2024, and the four agreed-upon manifestations of alienation in previous studies—*anomie*, rebellion, social isolation, and aimlessness—were encoded for data analysis, in order to determine the ranking of these phenomena (Gardiner et al., 2018).

### Content Analysis of the X Platform to Identify Manifestations of Cultural Alienation Among Saudi Youth: Big Data Analysis Using Power BI on the X Platform

Text on the X platform (formerly Twitter) were analyzed quantitatively using the big data analysis tool Power BI to identify the most widespread manifestations of cultural alienation: *anomie*, rebellion, social isolation, and aimlessness, in Saudi society. These manifestations were selected based on previous studies and their results, which indicate that these four manifestations have been the most prevalent in Arab societies over the last two years, specifically in line with recent and ongoing societal changes.

#### Data Analysis Stages

##### *First: Extracting and organizing text data from X platform using Python*

The data were extracted by developing a program through the Twitter API on the X developer platform using Python to retrieve tweets from the X platform. This was done with the aim of understanding and analyzing patterns and trends in the tweets that discuss the four manifestations of cultural alienation: *anomie*, rebellion, social isolation, and aimlessness.

##### *Second: Analyzing the extracted data using Power BI*

Analyzing the extracted data using Power BI involves utilizing the tool's features to process, organize, and visualize the collected data. This allows for better insights, trends, and patterns to be identified through various charts, graphs, and reports.

#### First Stage of Big Data Analysis: Extracting and Organizing Text Data

##### *Step one: Data extraction*

This step aimed to extract text data by relying on the Twitter API/ Tweepy, to access text tweets published in Arabic on the X platform during the period from 2022 to 2024. The following procedures were as follows:

**First: Using the Selenium Library:** This library is designed to interact with web browsers and perform various operations on the data contained in those pages. The process was carried out using the functions of this library given below:

```

from selenium import webdriver
import time

driver = webdriver.Chrome()

driver.get('https://twitter.com/i/flow/login')
out_file = 'Data.txt'

url_to_start = 'https://twitter.com/search?q= بحث في 2020 م src=typed_query&f=live'

x = input("Enter OK to start : ")
x = input("Enter OK to start : ")
print('=====start')

cpt=1
driver.get(url_to_start)
time.sleep(3)

# HTML لبط ةخص ل اى ة حم ظف ح
with open(out_file, 'a', encoding='utf-8') as html_file:
    html_file.write(driver.page_source)

time.sleep(2)

for _ in range(500):
    driver.execute_script('window.scrollTo(0, document.body.scrollHeight);')
    time.sleep(4)
    with open(out_file, 'a', encoding='utf-8') as html_file:
        html_file.write(driver.page_source)

    time.sleep(2)
    print(cpt)
    cpt+=1

```

**Figure 1.** Selenium library (Source: Authors)

1. Automatically running the Google Chrome browser.
2. Accessing the X platform.
3. Identifying the links to the search pages on the X platform.
4. Reading the content of the pages.
5. Extracting the data in their initial form.

**Second: Using the BeautifulSoup Library:** This was used to identify the required data from the dataset extracted from the HTML pages. The final data extracted must meet the following criteria:

1. Data must be written in Arabic and in text format: `twitter/search?q=example&lang=ar`.
2. The data must be published during the period from 2022 to 2024: `twitter/search?q=example&since=2022-01-01&until=2024-01-01`.
3. The data must be within the geographical boundaries of Saudi Arabia (). Geocode = LATITUDE, LONGITUDE, RADIUS.
4. The number of retweets, likes, and replies were determined through codes that identify the most engaging tweets by calculating the average interaction, such as retweets, likes, or page views.

Furthermore, it has been ensured that the selected tweets cover various geographical areas within Saudi Arabia, and for highly active, moderately active, and low-active accounts. The work of the two libraries (Selenium and BeautifulSoup) together contributed to accessing the data and then filtering it in accordance with the objectives and nature of the current study to obtain the data most relevant to the manifestations of cultural alienation.

#### Data extraction method

1. Python was downloaded and installed from the official website: <https://www.python.org/downloads>.
2. The Selenium Library was installed using the following command in the command line or command prompt: `pip install selenium`.

#### Executing the program

The Python program was executed, and the Selenium Library was called up, as shown in **Figure 1**, to initially retrieve the text files of the data. The Selenium Library performed the following actions:

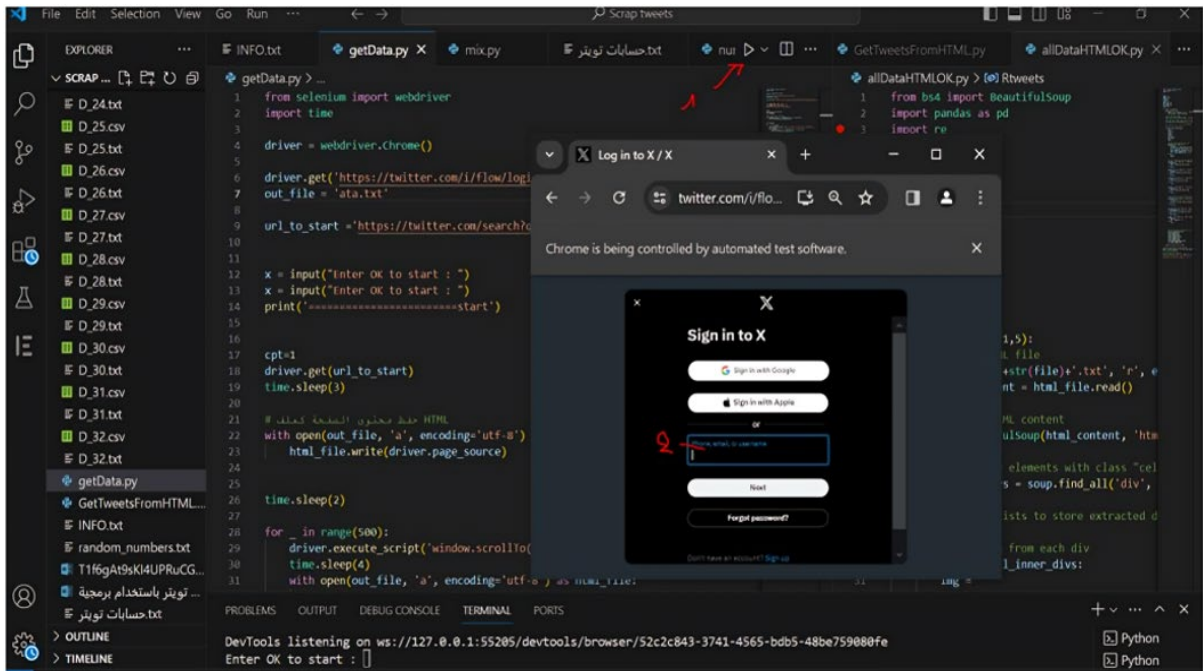


Figure 2. Searching for keywords (Source: Authors)

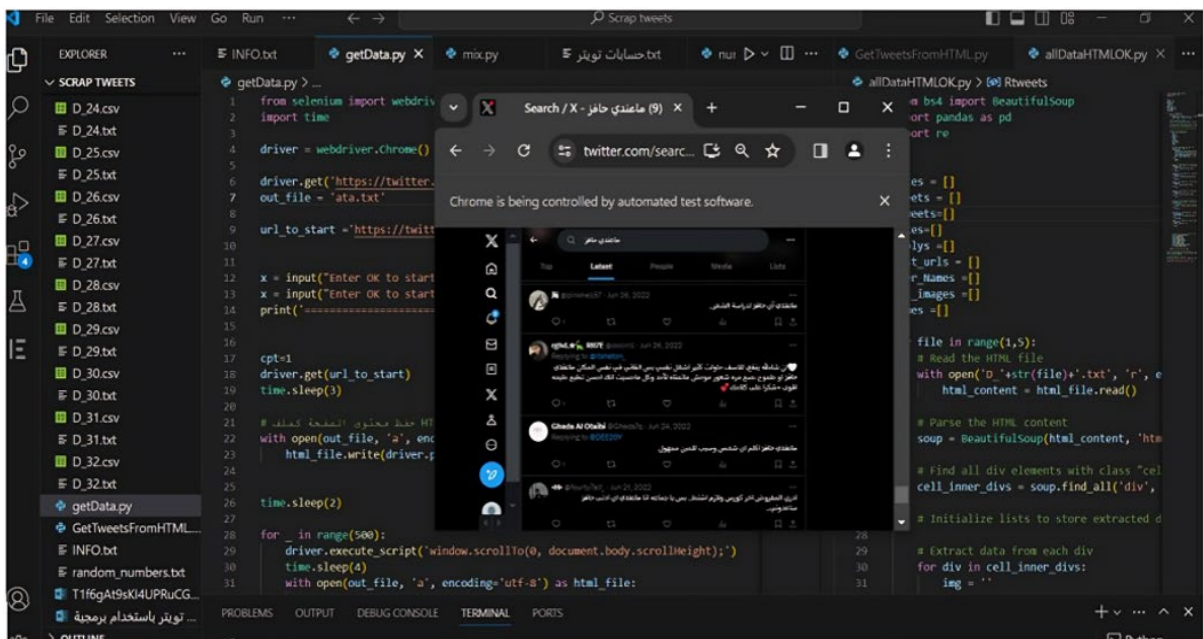


Figure 3. Initial data extraction (Source: Authors)

1. It opened Google Chrome.
2. It automatically navigated to the X platform.
3. It modified the program to use the user's login credentials.
4. The search URL was added to the variable url\_to\_start.
5. The program undertook search using the predefined keywords, as shown in Figure 2, which represent the aspects of cultural alienation in the entered URL.
6. The Selenium Library completed the initial data extraction process, as shown in Figure 3.

```

from bs4 import BeautifulSoup
import pandas as pd
import re

dates = []
tweets = []
Rtweets=[]
likes=[]
replies =[]
post_urls = []
User_Names =[]
url_images =[]
times =[]

for file in range(1,5):
    # Read the HTML file
    with open('D_'+str(file)+'.txt', 'r', encoding='utf-8') as html_file:
        html_content = html_file.read()

        # Parse the HTML content
        soup = BeautifulSoup(html_content, 'html.parser')

        # Find all div elements with class "cellInnerDiv"
        cell_inner_divs = soup.find_all('div', {"data-testid": 'cellInnerDiv'})

        # Initialize lists to store extracted data

        # Extract data from each div
        for div in cell_inner_divs:
            img = ''
            tweet = ""
            Rtweet = ""
            reply = ""
            like=""
            UrlPost=""
            User_Name = ''
            date = ''
            ^:-- ''

```

**Figure 4.** BeautifulSoup Library (Source: Authors)

The program was run and the BeautifulSoup Library was called up, as shown in [Figure 4](#), in order to determine the required data from the preliminary data set extracted in the previous step. The final extracted data had to be textual, fall within the time period from 2022 to 2024, and be within the geographical scope of the Kingdom of Saudi Arabia, while considering the number of retweets, likes, and replies.

### **Step two: Organizing the extracted data**

This step aims to structure the data by organizing it into lists that clarify each type of data. The following actions were taken:

1. A DataFrame was created using the Pandas library to organize the data in a tabular structure.
2. The organized data in the lists were used to create the different columns in the table, such as "POST," "Date," "User\_Names," and others.
3. The organized data in the DataFrame were saved to a CSV file using the "to\_csv()" command from Pandas.
4. The file name was specified and the text was encoded in UTF-8.
5. A confirmation message was printed indicating the successful extraction and saving of the data, as shown in [Figure 5](#).

### **Outputs of the first phase of big data analysis (data extraction)**

1. Textual data of tweets relating to the four cultural alienation aspects were extracted and organized into CSV files.
2. The extracted data were organized according to the specified topics, in preparation for analysis and understanding their trends and social patterns.

**The second phase of big data analysis: Analyzing the extracted data from the X platform using Power BI:** The goal of this phase was to determine the percentage of each aspect of cultural alienation by searching for all the keywords representing each aspect through the following steps:

1. The data were entered (data link).
2. The data were imported using the "get data" feature with an Excel workbook source in Power BI, as shown in [Figure 6](#).

POST	User_Names	Date	times	Tweet	Rtwee	likes	replies	url_images
https://twitter.com/jwar_0012/status/1746012	jwar_0012	2024-03-26	30:05.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا				
https://twitter.com/flu_pp11/status/1746012	flu_pp11	2020-11-12	16:12.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا			1	
https://twitter.com/4Qy75M6UHzetpT2	4Qy75M6UHzetpT2	2021-07-14	44:19.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا	79	13	2	https://pbs.twimg.co
https://twitter.com/NAlasser/status/1905000	NAlasser	2018-10-17	32:37.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا				
https://twitter.com/19sonnn/status/1905000	19sonnn	2024-02-08	58:08.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا				
https://twitter.com/bwmyf/status/1746012	bwmyf	2023-06-06	35:38.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا				
https://twitter.com/6iZoZhaIVAgAV	6iZoZhaIVAgAV	2024-02-19	29:38.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا		6	13	
https://twitter.com/6i35theryghujop	6i35theryghujop	2019-03-16	35:47.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا	8	21	3	
https://twitter.com/dream_n369/s	dream_n369	2023-11-19	27:23.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا				
https://twitter.com/Arashy679783	Arashy679783	2021-03-22	53:49.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا				
https://twitter.com/08Milly/status/108Milly	08Milly	2021-08-13	36:20.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا				
https://twitter.com/intmrdsa/status/intmrdsa	intmrdsa	2018-03-09	45:12.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا	1	2		
https://twitter.com/ii_72/status/1746012	ii_72	2023-03-24	07:08.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا				
https://twitter.com/x802/status/1746012	x802	2024-03-27	11:45.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا				
https://twitter.com/AsmaMotiri	AsmaMotiri	2024-03-07	40:05.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا				
https://twitter.com/Youstin94852003	Youstin94852003	2024-03-23	18:28.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا	1	3		
https://twitter.com/ii_72/status/1746012	ii_72	2023-06-15	27:42.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا				
https://twitter.com/roz_r0/status/1746012	roz_r0	2024-03-31	17:35.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا				
https://twitter.com/5Mudasir01/status/1746012	5Mudasir01	2024-03-26	06:22.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا	16	138	1	https://pbs.twimg.co
https://twitter.com/e714039361/s	e714039361	2024-03-27	34:27.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا				
https://twitter.com/a7rar_bh_news	a7rar_bh_news	2012-09-20	14:12.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا	1			
https://twitter.com/Khadjah_jameel	Khadjah_jameel	2024-01-21	50:45.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا				
https://twitter.com/otherwoman_3	otherwoman_3	2024-03-19	40:52.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا	4	25	2	
https://twitter.com/aljoughouria	aljoughouria	2015-09-30	51:57.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا				
https://twitter.com/AboudBakr/s	AboudBakr	2024-03-24	54:37.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا				
https://twitter.com/TatmaRaouf/s	TatmaRaouf	2015-11-17	25:07.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا				
https://twitter.com/aausat_News	aausat_News	2023-04-20	25:00.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا	2			https://pbs.twimg.co
https://twitter.com/COALITION14	COALITION14	2012-09-20	55:29.0	أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا	2	6	4	
				وضعه ادخل وضع صورته وبنده عنه من	37	4		

Figure 5. Final data extraction (Source: Authors)

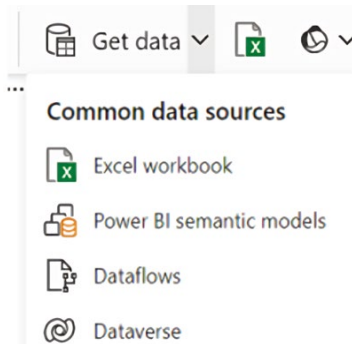


Figure 6. Data entry in Power BI (Source: Authors)

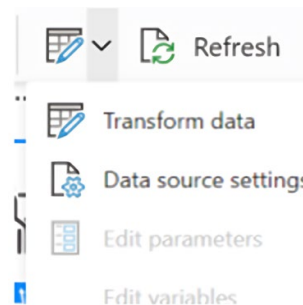


Figure 7. Transform data (Source: Authors)

Tweet	Rtweets	likes	replies
أليس غير منطقي هل انت عايش معاه ؟ تتابعه ؟ هل تعرف مصاريفه ؟ ام انك فقط تصدرا	null	null	null
	null	null	1
	null	null	null

Figure 8. Data cleaning (Source: Authors)

- Then "transform data" was selected, as shown in Figure 7, which was the phase when the data type for each column of data was specified.
- Data cleaning, as shown in Figure 8, was performed to achieve the highest similarity between the keywords and the text in each tweet. This was achieved by filtering the data and replacing letters and symbols that caused confusion.





```

1 الالامعيارية =
2 VAR tt = TwitterPost[Tweet]
3 RETURN
4 IF(
5     CONTAINSSTRING(tt, "فجوة القيم")||CONTAINSSTRING(tt, "فجوة أقيم"),
6     IF(
7         CONTAINSSTRING(tt, "فقدان القيم") ||
8         CONTAINSSTRING(tt, "فقدان التوجه")||
9         CONTAINSSTRING(tt, "فقدان أقيم") ||
10        CONTAINSSTRING(tt, "فقدان ألتوجه"),
11        "فقدان القيم / التوجه",
12        IF(
13            CONTAINSSTRING(tt, "انحراف السلوك") ||
14            CONTAINSSTRING(tt, "انحراف القيم")||
15            CONTAINSSTRING(tt, "أنحراف السلوك") ||
16            CONTAINSSTRING(tt, "أنحراف القيم")||
17            CONTAINSSTRING(tt, "أنحراف ألسلوك") ||
18            CONTAINSSTRING(tt, "أنحراف أقيم")||
19            CONTAINSSTRING(tt, "انحراف ألسلوك") ||
20            CONTAINSSTRING(tt, "انحراف أقيم"),
21            "انحراف السلوك / القيم",
22        IF(

```

Figure 13. Analyzing tweets related to the aspect of rebellion (Source: Authors)

```

1 الالامدافية =
2 var tt = 'TwitterPost'[Tweet]
3
4 RETURN
5 IF(
6     CONTAINSSTRING(tt, "فقدان الهدف") ||
7     CONTAINSSTRING(tt, "فقدان الرؤية") ||
8     CONTAINSSTRING(tt, "فقدان التوجيه") ||
9     CONTAINSSTRING(tt, "فقدان أهدف") ||
10    CONTAINSSTRING(tt, "فقدان ألتوجيه") ||
11    CONTAINSSTRING(tt, "فقدان ألتوجيه")||
12    CONTAINSSTRING(tt, "فقدان الأتجاه")||
13    CONTAINSSTRING(tt, "فقدان الأتجاه"),
14    "فقدان الهدف/ الرؤية/ التوجيه/ الاتجاه",
15
16 IF(
17     CONTAINSSTRING(tt, "ضياع الحياتي") ||
18     CONTAINSSTRING(tt, "ضياع ألمستقبل")||
19     CONTAINSSTRING(tt, "أنضياع الحياتي") ||
20     CONTAINSSTRING(tt, "أنضياع أحياتي")||
21     CONTAINSSTRING(tt, "ضياع ألمستقبل"),
22     "ضياع الحياتي/ ألمستقبل",

```

Figure 14. Analyzing tweets related to the aspect of aimlessness (Source: Authors)



Figure 15. Calculating measurements for the four aspects (Source: Authors)

```

العزلة الاجتماعية 1 = DIVIDE([تمرد 1],[تمرد 1]+[اللامعيارية 1]+[اللاهدفية 1]+[العزلة الاجتماعية 1]),
اللامعيارية 1 = DIVIDE([اللامعيارية 1],[اللامعيارية 1]+[اللاهدفية 1]+[العزلة الاجتماعية 1]+[تمرد 1]),
اللاهدفية 1 = DIVIDE([اللاهدفية 1],[اللامعيارية 1]+[اللاهدفية 1]+[العزلة الاجتماعية 1]+[تمرد 1]),
تمرد 1 = DIVIDE([تمرد 1],[اللامعيارية 1]+[اللاهدفية 1]+[العزلة الاجتماعية 1]+[تمرد 1])

```

Figure 16. Ranking the four aspects of alienation (Source: Authors)

8. Some measurements (measures) were calculated to assist in the analysis and derive the correct percentages, as shown in Figure 15.
9. The data were represented and the aspects of cultural alienation were ranked through graphs and charts, as shown in Figure 16.

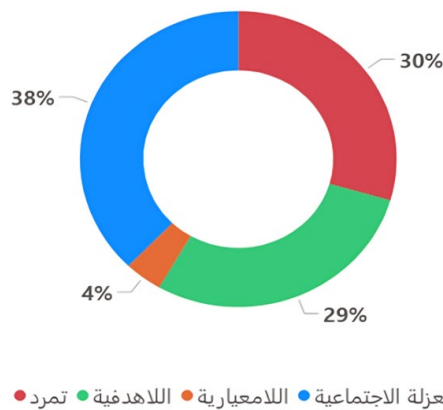


Figure 17. Representation of the four manifestations of cultural alienation (Source: Authors)

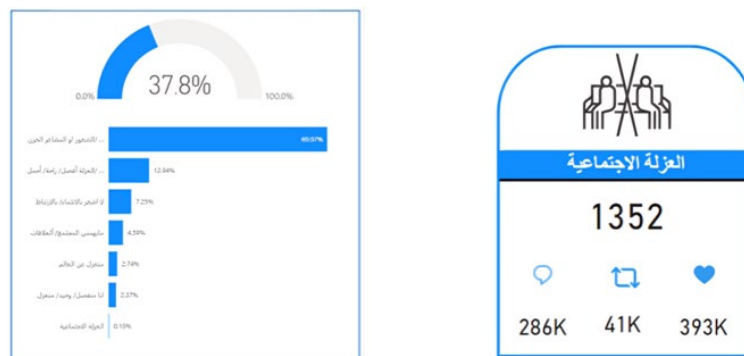


Figure 18. Representation of social isolation data (Source: Authors)

## RESULTS

Main question is as follows:

How does cultural alienation manifest in Saudi society on X platform during the period from 2022 to 2024?

The results of the big data extraction from the X platform using Python and its analysis with the Power BI tool, as detailed previously, indicate that cultural alienation manifests itself in Saudi Arabia through tweets posted on X platform from 2022 to 2024 in the following order of significance: social isolation ranked first at 38%, rebellion ranked second at 30%, aimlessness ranked third at 29%, and anomie ranked last at 4%, as shown in Figure 17.

### Social Isolation

Social isolation achieved 1.3K tweets, representing 37.8% of the total manifestations of cultural alienation. The most widely used keywords were: "sadness" (69.97%), "isolation" (12.94%), "I don't feel a sense of belonging" (7.25%), "I don't care about society" (4.59%), "isolated from the world" (2.74%), and "lonely" (2.37%). These were the most discussed and controversial topics, as shown in Figure 18.

### Rebellion

Rebellion accounted for 1K tweets, representing 29.5% of the total manifestations of cultural alienation. The most widespread keywords were "We refuse to surrender" (45.55%) and "I love adventure" (22.32%), as illustrated in Figure 19.

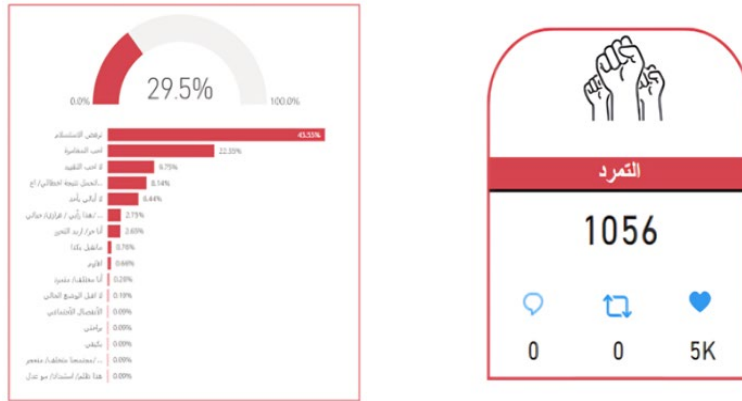


Figure 19. Representation of rebellion data (Source: Authors)

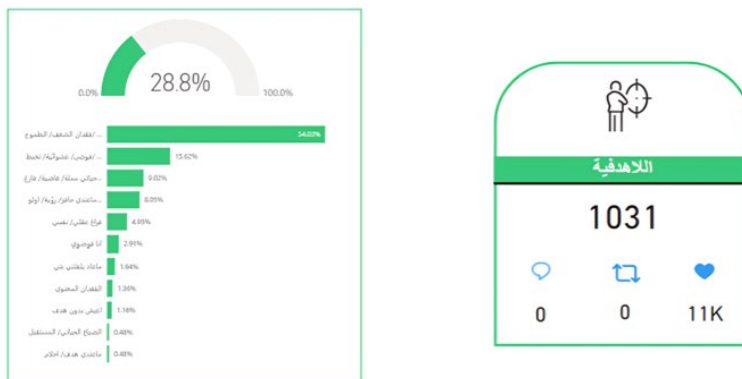


Figure 20. Representation of aimlessness data (Source: Authors)

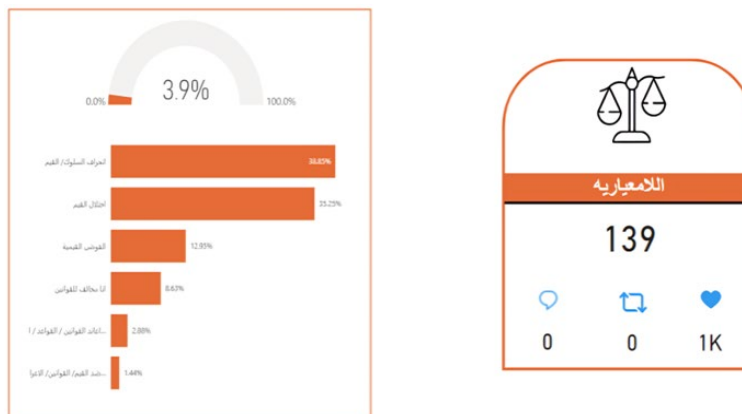


Figure 21. Representation of anomie data (Source: Authors)

### Aimlessness

Aimlessness accounted for 1K tweets, representing 28.8% of the total manifestations of cultural alienation. The most prominent keywords were “loss of passion and ambition” (54.03%) and “chaos” (15.60%), as illustrated in Figure 20.

### Anomie

Anomie accounted for 139K tweets, representing 3.9% of the total manifestations of cultural alienation. The most frequently repeated and widely spread keywords were “deviance in behavior and values” (38.85%) and “displacement of values” (32.25%), as illustrated in Figure 21.

## DISCUSSION

The analysis of data from the X platform using the Power BI tool revealed that cultural alienation manifested itself in Saudi Arabia from 2022 to 2024 in the following order of significance: social isolation ranked first, followed by rebellion, then aimlessness, and finally anomie.

The findings are consistent with some previous studies, while differing from others. Studies by Bakr et al. (2021), Al-Sayed (2021), and Shtiwi et al. (2019) identified anomie as the primary manifestation of cultural alienation. Meanwhile, anomie ranked second in the study by Al-Zahra and Nawara (2022) and third in the study by Dar Qali and Boumshta (2022). Al-Zahra and Nawara (2022) highlighted meaninglessness as the top manifestation of cultural alienation, while Bakr et al. (2021) and Shtiwi et al. (2019) placed it second. Dar Qali and Boumshta (2022) diverged by prioritizing self-centrality as the first manifestation, whereas Al-Sayed (2021) ranked it second.

Additionally, Bakr et al. (2021) confirmed that aimlessness ranked first alongside anomie, in contrast to Al-Sayed (2021), who placed aimlessness third. Al-Zahra and Nawara (2022) found social isolation to be in third place, whereas Dar Qali and Boumshta (2022) and Al-Sayed (2021) agreed it ranked fourth.

The current study found cultural alienation to manifest in the following rank order: anomie, meaninglessness, aimlessness, and social isolation. The study relied on social media data analysis to verify their prevalence within Saudi society.

The percentage of social isolation was 38%, which can be explained by the fact that Saudi youth aged 13 and older have access to smart devices, which have facilitated their use of social media accounts. Recent statistics confirm that the number of youth users on Twitter is 5.8 million, 1.3 million on Instagram, and 9.8 million on TikTok. Additionally, they rely on social media for most social occasions such as congratulating on holidays, condolences, and others. As a result, youth have turned to virtual communication, which has led to a decline in their social communication skills, contributing to the isolation of Saudi youth from real-life interactions (VEODATA, 2023).

The rebellion rate reached 30%, which can be explained by several overlapping factors such as psychological factors and social influences. Youth tend to psychologically seek personal independence and reject authority or adherence to values, which leads to rebellion. Additionally, the generational gap and differences in cultural norms may lead youth to rebel against traditional norms. The influence of social media also plays a role by providing a platform for expressing opinions without social restrictions (Al-Omari, 2018).

The aimlessness rate was 29% among Saudi youth due to the rapid social, economic, psychological, and technological transformations, and the relationship with the rapid digital transformation occurring in Saudi Arabia. Despite the positive impacts of these transformations, they may lead to internal conflict, confusion, and uncertainty about determining their goals and career interests. Youth may also experience psychological and emotional pressure from society's high expectations, which affects their goals and aspirations, as well as their inability to set personal goals that align with their ambitions (Nawi & Slahtnia, 2016).

The anomie rate was 4%, representing the least common manifestation of cultural alienation among youth. This is attributed to Saudi Arabia's Vision 2030, which focuses on strengthening national identity through the cultural and entertainment sectors, such as cultural events and theaters. It also emphasizes the educational sector through curricula and media to foster a sense of belonging. Additionally, the establishment of clear social standards and laws has helped define the cultural framework individuals are expected to adhere to within Saudi society, encouraging them to engage positively with their community (Saudi Vision 2030 Document, 2022).

In addition, the study employed a quantitative approach based on tangible data and precise results to illustrate the prevalence of cultural alienation in Saudi society. By leveraging data analysis tools on social media platforms, the study identified the manifestations of cultural alienation and their prevalence. In contrast, most of the following studies adopted a survey methodology. For instance, Bakr et al. (2021) and Al-Sayed (2021) utilized the social survey method, while Shtiwi et al. (2019) followed the descriptive survey approach. Similarly, Al-Zahra and Nawara (2022) and Dar Qali and Boumshta (2022) adopted the descriptive method. The descriptive survey approach focuses on examining the phenomenon of cultural alienation, its

prevalence, dimensions, and proposing solutions to address the issue. Questionnaires were employed as data collection tools for large samples in all the aforementioned studies.

The current study aligns with Gunduzalp and Sener (2020) by establishing a framework for analyzing Twitter data and setting a temporal benchmark for data collection from the platform. This approach is consistent with the present study, which also collected data from Twitter and set a time frame for analyzing cultural alienation manifestations over a two-year period.

However, the current study diverged from the following studies in the nature of the results sought: Pratama et al. (2023), Mutasher and Aljuboori (2021), Zadeh et al. (2021), and Adnan et al. (2020). Nonetheless, it concurred with Gunduzalp and Sener (2020) in identifying the most and least prevalent tweets. This aspect is crucial in the present study for determining the most widespread manifestations of cultural alienation in Saudi Arabia.

### Limitations

1. **Reliance on a single platform, which is the X platform:** Using more than one platform would help reach a larger number of users, thereby ensuring greater diversity in the data.
2. **Covering a longer period:** This contributes to giving a more comprehensive context for the manifestations of cultural alienation over time, linking them to social, educational, and other changes.
3. **Targeting a larger number of tweets:** This would help reach more users, ensure data diversity, and reduce potential biases.
4. **Relying on a quantitative approach for text analysis:** Using multiple methodologies, such as qualitative methods, would help reduce potential biases and provide deeper human insights into the results.

### Future Research

1. Utilizing this data to design visual/audio content to enhance national belonging and cultural identity, and to reduce manifestations of cultural alienation through social media.
2. Analyzing students' experiences in discussions and participation in learning management systems to determine the impact of education on cultural identity.
3. Studying the role of Saudi vision 2030 in reducing manifestations of cultural alienation on social media.
4. Using sentiment and text analysis tools to explore the relationship between psychological disorders and cultural alienation.
5. Encouraging relevant institutions and stakeholders to develop policies for social media use, based on several educational theories such as the value determinism theory of media.

## CONCLUSIONS

This study demonstrated that the manifestations of cultural alienation in Saudi society, as analyzed through tweets on the X platform from 2022 to 2024, were ranked in the following order in terms of significance: social isolation (38%), rebellion (30%), aimlessness (29%), and finally, anomie (4%). This indicates that social isolation represents the most prevalent phenomenon among X platform users, followed by rebellion and aimlessness, while anomie appeared to be the least recurring manifestation.

When comparing these results with previous studies, it is evident that the ranking of cultural manifestations differs. This study's findings diverged from those of Bakr et al. (2021) and Al-Sayed (2021), which emphasized anomie as a primary manifestation. The study also highlighted the importance of analyzing data from social media platforms to identify cultural manifestations accurately and directly, unlike prior research that has relied on descriptive or survey methods.

This study contributes to filling the research gap in previous studies by identifying the most prevalent manifestations of cultural alienation among Saudi youth on X platform. To the best of our knowledge, this study is one of the first to aim at identifying manifestations of cultural alienation in the Kingdom based on social media. It is also one of the first studies to rely on big data text analysis techniques for content published

in Arabic on social media platforms. Furthermore, the study covered a large sample of data, totaling 20,000 tweets, and focused on a recent time period (2022–2024) to capture contemporary manifestations of cultural alienation, which include social isolation, rebellion, aimlessness, and anomie.

The results of this study will provide valuable insights that can be relied upon for policy development, planning, program preparation, and suggesting appropriate research interventions. The findings emphasize the need for policies and standards for social media use to reduce manifestations of cultural alienation and foster a generation connected to its culture, proud of its identity, while also being exposed to other cultures.

Additionally, by identifying the most prevalent manifestations in Saudi society, this study will particularly contribute to the development of the educational field in Saudi Arabia and support the Ministry of Education (2021) in introducing new curricula and training programs suited for the youth generation to reduce these manifestations. It will also encourage teachers and school counselors to understand these widespread manifestations among students and use modern educational strategies and theories to overcome them and strengthen students' cultural identity.

The findings emphasize the need for policies and standards for social media use to reduce manifestations of cultural alienation and foster a generation connected to its culture, proud of its identity, while also being exposed to other cultures.

This study confirmed the significance of employing a quantitative analysis approach and big data tools, such as Python and Power BI, to obtain precise insights into the manifestation of cultural alienation. These findings could be leveraged to develop strategies and solutions to address these manifestations in Saudi society by fostering social belonging and encouraging positive goals and values.

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**Ethics declaration:** This study did not require ethical approval, as it solely involved the collection of publicly available data from Twitter. No confidential or sensitive information, such as names or professional details, was accessed or utilized. Additionally, no direct interaction with individuals took place; the research only involved analyzing publicly posted tweets. As a result, the study does not raise ethical concerns related to privacy or human subject involvement.

**Declaration of interest:** The authors declared no competing interest.

**Data availability:** Data generated or analyzed during this study are available from the authors on request.

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