

Cognitive Bias and Its Relationship with Fanatical Attitudes among Students of the College of Basic Education, University of Misan

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Abstract

This study investigates the relationship between cognitive bias and prejudiced attitudes among students of the College of Basic Education at the University of Misan, while simultaneously determining the level of each variable within the study sample. A descriptive correlational design was employed as the most appropriate framework for the nature of the research problem. The research population comprised all students enrolled in the college during the academic year 2024–2025. A stratified random sample of 300 male and female students was selected using equal allocation across four departments: Primary Grades Teacher, Arabic Language, Science, and Mathematics, with 75 participants from each department. Two validated instruments were administered: the Cognitive Bias Scale developed by Al-Tamimi (2021) and the Prejudiced Attitudes Scale developed by Abd Al-Rahman (2018). Both instruments were subjected to face validity verification and reliability assessment using Cronbach's alpha coefficient and the test-retest method. Results revealed relatively high mean levels of cognitive bias ($M=71.42$) and prejudiced attitudes ($M=69.15$) among participants, along with a statistically significant positive correlation between the two variables ($r=0.64$, $p<0.05$). These findings indicate that students who demonstrate higher levels of cognitive bias tend to concurrently exhibit more pronounced prejudiced attitudes. Based on these findings, the researcher recommended integrating critical thinking and metacognitive awareness programmes into university curricula and developing targeted psychological counselling interventions designed to mitigate cognitive bias and reduce prejudiced orientations within the university environment.

Keywords: Cognitive Bias, Prejudiced Attitudes, University Students, College of Basic Education, University of Misan.

Introduction

Contemporary societies are witnessing rapid intellectual and social transformations, which are clearly reflected in the nature of human relationships and communication mechanisms among the younger generation. University students represent a pivotal segment in this context, not only because they are the group most exposed to these transformations, but also because of the leadership role expected of them in guiding society and shaping its future values. The university stage occupies a distinctive position in an individual's journey, as it intersects the demands of cognitive maturity with openness to diverse intellectual, social, and cultural worlds, making it a true laboratory for testing an individual's ability to think

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objectively and accept differences [1][2]. Psychological and educational research has revealed that individuals' judgments and decisions do not always emerge from a neutral rational analysis of the available data; rather, they are often mediated by selective thinking patterns that portray reality through a distorted personal filter. Cognitive psychology refers to these patterns as cognitive bias. It is defined as a systematic tendency that leads to issuing judgments that depart from objectivity due to the influence of previous experiences and beliefs [3][4]. In the university environment, where intellectual, social, and cultural affiliations intertwine, manifestations of cognitive bias in students' interpretation of situations and in how they judge one another may appear more clearly and have a deeper impact.

Closely related to this bias is another pattern of psychosocial behavior represented in prejudiced attitudes, which are tendencies based on making pre-judgments about others who are different without objective evidence or direct experience. Studies have shown that prejudice is not merely a transient emotional stance, but rather a deep-rooted psychological structure nourished by rigid thinking patterns and reinforced by absolutist ideas [4][5]. Nevertheless, the question about the nature of the relationship between cognitive bias and prejudiced attitudes particularly in the context of Iraqi universities remains a subject of investigation and research, especially in Colleges of Education, whose graduates are expected to be models of balanced thinking and intellectual tolerance [6].

The research problem gains its doubled importance from the fact that students of colleges of education are considered the future for joining the educational field as teachers and educators. Consequently, any cognitive patterns or social attitudes they carry will inevitably be reflected on future generations. To understand the depth of the studied problem, it is worth noting that universities in general are not ideologically neutral spaces; the student who enters the university gate does not leave behind his value system and inherited beliefs, but carries them with him to the lecture hall, study group, and academic interaction space. When deliberate educational mechanisms that work on dismantling prejudices and developing self-awareness of personal biases are absent, these judgments grow and solidify instead of transforming and maturing. Studies have indicated that university environments that lack critical thinking programs and the teaching of dialogue skills contribute to the consolidation and entrenchment of biases [7][8]. The researcher points out that the Iraqi social environment, with its tribal, sectarian, and intellectual diversities, may provide fertile ground for the emergence of specific patterns of cognitive bias, which in turn create a context for certain sectarian attitudes. This intertwining between the local environment and psychological patterns gives the current research a contextual character that cannot be reduced to the results derived from different cultural settings, making the conduct of this study specifically at the University of Misan an endeavor of added scientific value. Based on this, the research problem crystallizes in the following question: Is there a statistically significant relationship between cognitive bias and extremist attitudes among students of the College of Basic Education at the University of Misan?

Secondly: Importance of the Research

The importance of this research is distributed over two interconnected axes:

At the theoretical level: This research constitutes a qualitative addition to Iraqi and Arab psychological and educational literature, due to the scarcity of studies that directly address the relationship between cognitive bias and extremist attitudes in the Iraqi university context. The research provides an integrative perspective that combines strands of cognitive and social psychology in explaining the mechanisms of extremism formation, which may enrich the available theoretical models and guide further research inquiries. Moreover, the research offers a contextual reading of the concept of cognitive bias in light of the cultural and social characteristics of the Iraqi environment. This is what many of the available literatures, which have produced different environments, lack. On the practical level: the research results provide data that can be utilized at several levels; at the level of the university institution, they can be relied upon to review learning environments and teaching methods in a way that enhances students' critical thinking skills. At the level of psychological and educational guidance, they can be employed in developing preventive and therapeutic intervention programs aimed at reducing biases and promoting intellectual openness. This practical dimension gains exceptional importance when it comes to students of education faculties, who will in the future be responsible for shaping the intellectual and social awareness of coming generations [9]. On the level of educational policies, the research results can be used to guide university educational decisions towards requiring courses that focus on self-awareness and critical thinking within the curriculum of education faculties, rather than keeping them as mere elective additions. The results can also be employed in developing academic accreditation standards for these colleges, incorporating a specific dimension aimed at enhancing the social and cultural competence of graduates. Additionally, the results provide valuable preliminary material for designers of continuous professional development programs for teachers who suffer from biased cognitive patterns or intolerant attitudes that negatively affect their educational performance [10][11].

Third: Research Objectives

The current research aims to achieve the following objectives:

- To reveal the level of cognitive bias among students of the College of Basic Education at Maysan University.
- To determine the level of prejudiced attitudes among the research sample.
- To clarify the nature of the correlation between cognitive bias and prejudiced attitudes within the research sample.

Fourth: Research Scope

Human Scope: Male and female students of the College of Basic Education at Misan University, from various academic departments.

Spatial Scope: Misan University / College of Basic Education.

Temporal Scope: The academic year (2024-2025).

Thematic Scope: The research is limited to studying the relationship between the variables of cognitive bias and prejudiced attitudes, without addressing other demographic variables such as gender or academic year.

Fifth: Definition of Terms

Cognitive Bias: Its definitions vary in psychological literature; Al-Azzawi [12] defined it as an individual's tendency to make judgments or adopt interpretations based on their beliefs and past experiences in a way that may deviate from objectivity and logic. Al-Tamimi [13] viewed it as an unbalanced thinking pattern that leads to a distorted perception of reality and the processing of information according to a selective, subjective logic. Its operational definition in this research is the total score obtained by the student on the adopted cognitive bias scale.

Prejudicial Attitudes: Abdul Rahman [14] defined them as a set of preconceived judgments and stances adopted by an individual towards certain individuals or groups without relying on objective criteria. Al-Samarrai [15] defined them as intellectual and emotional attitudes characterized by rigidity, rejection of difference, and intolerance of opposing viewpoints. Operationally, they are defined as the total score obtained by the student on the adopted prejudiced attitudes scale used in this research.

Chapter Two: Theoretical Framework and Previous Studies

First: Cognitive Bias

A - Concept and Theoretical Roots:

The concept of cognitive bias finds its theoretical roots in the core of cognitive psychology, which has witnessed remarkable growth since the mid-20th century, when researchers shifted their focus from studying observable behavior to elucidating the underlying internal mental processes. Cognitive bias, in its simplest form, is defined as a systematic flaw in how an individual perceives and interprets information, leading them to make judgments that deviate from objective neutrality [16][17]. Researchers typically distinguish this concept from random, accidental errors; cognitive bias is a recurring and systematic pattern that reproduces itself in similar situations, not a fleeting slip of the tongue.

In the 1970s, Kahneman and Tversky established a solid experimental foundation for understanding this phenomenon when they demonstrated that individuals employ mental shortcuts known as neural inferences to make decisions in situations of ambiguity and limited information. While these shortcuts facilitate rapid response, they simultaneously open the door to systematic cognitive errors. These ideas became the foundation for dozens of subsequent studies in cognitive and behavioral psychology [18]. Kahneman later developed the two-system model in his book **Thinking: Fast and Slow**, demonstrating that the fast, intuitive system is the primary source of cognitive biases [19].

From a therapeutic perspective, Beck, from a cognitive therapy standpoint, contributed to revealing the role of cognitive distortions in the formation of psychological disorders and negative attitudes, focusing on how errors in thinking affect an individual's emotions and social behavior [20]. Thus, different theoretical approaches converge in emphasizing that cognitive

bias is not merely an isolated intellectual phenomenon, but rather one with profound emotional, social, and behavioral dimensions.

B- Types and Forms of Cognitive Bias:

Cognitive bias manifests in numerous and varied forms, with some literature listing over a hundred different types. However, certain types consistently recur in psychological and sociological studies. Perhaps the most prominent is confirmation bias, which is the tendency of individuals to recall information and interpret evidence in a way that aligns with their deeply held beliefs, while almost completely ignoring anything that contradicts them. This type leads to rigid beliefs that are difficult to modify, even in the face of explicit opposing evidence [21].

Attribution bias represents another type that has a significant impact in the social context. Individuals attribute the actions of others to inherent, fixed characteristics, while attributing their own actions to circumstances and conditions. When this involves individuals from a different group, this attribution becomes fuel for stereotypes and prejudices. In addition to the above, there is the availability bias, which causes an individual to estimate the probability of an event based on how easily they can recall examples of it from memory. There is also the halo effect, which causes an overall judgment of an individual to be colored by a single initial impression, either positive or negative [22].

Another type of bias related to the social context is group egocentrism, which causes an individual to evaluate members of their own group more positively than they objectively deserve, while evaluating other groups more harshly. This bias reinforces social boundaries between groups and makes positive communication across them more difficult. Several studies have identified this type of bias in university settings where students come from diverse disciplines, geographical regions, and social backgrounds [23][24].

C- Factors Contributing to the Emergence of Cognitive Bias:

A number of factors combine to create the conditions for the emergence and entrenchment of cognitive biases. These factors are primarily rooted in prior experiences acquired during upbringing, which create mental maps in the individual's mind through which new situations are interpreted. Emotional pressures contribute to an increased reliance on rapid thinking, thus diminishing the role of logical analysis in guiding judgments. Furthermore, weak skills in Critical thinking deprives individuals of the tools to identify and evaluate their biases [25]. In the university setting specifically, the nature of interactions among students with diverse affiliations and ideologies can create a fertile environment for the activation of cognitive biases and the manifestation of their effects.

Second: Prejudices

A - Definition and Characteristics: A prejudiced attitude is essentially a rigid emotional and cognitive stance toward an individual or group, constructed in advance and protected from any real-world testing. Allport (1954), in his classic work "The Nature of Prejudice," defined it as a socially acquired, erroneous generalization that determines an individual's position toward other groups before any direct experience with them. This definition is manifested in several characteristics that distinguish prejudice from mere preference or dislike: it is characterized by rigidity and resistance to change, is based on preconceived notions rather than actual experience, and is often accompanied by negative emotional charge

It is worth noting that prejudice is not limited to the ethnic or religious sphere with which it has historically been associated, but extends to intellectual, academic, cultural, and social prejudice. These latter forms are the most prevalent in the university environment, although they are the least studied in Arabic literature

B- Structural Components of Prejudicean Attitudes:

Prejudice is built upon three overlapping components that together form its complete structure: The first is the cognitive component, which includes stereotypes, fixed beliefs, and preconceived judgments held by the individual toward the targeted group. The second component is the affective component, embodied by the individual's feelings of rejection, superiority, or fear toward the different other. The third component is the behavioral component, manifested in the individual's actions that express their prejudiced stance, such as exclusion, marginalization, and discrimination. Research indicates that prejudice does not require the presence of all three components to the same degree, as the cognitive aspect sometimes predominates over the affective aspect, or vice versa

C- Theories Explaining Prejudice: Numerous theoretical frameworks have attempted to explain the emergence of prejudiced attitudes and the mechanisms of their entrenchment. From a psychoanalytic perspective, Fromm viewed intolerance as a defense mechanism employed by individuals who feel threatened or psychologically unstable. In this response, they cling to their own group and deny the legitimacy of others in their quest to regain a sense of security. From a cognitive-behavioral perspective, Ellis asserted that absolute ideas and irrational beliefs acquired by individuals fuel and perpetuate intolerance, and that modifying these ideas can lead to a shift in attitudes. In the realm of social theory, Allport revealed that socialization is the vessel in which the seed of intolerance is formed and nurtured, and that limited positive interaction with other groups keeps this seed alive without genuine testing

D. Intolerance in the University Environment:

The university constitutes a unique social environment where individuals from diverse intellectual, social, and geographical backgrounds meet, theoretically providing ample opportunities to test and modify prejudices. However, this same environment can become a breeding ground for intolerant tendencies and their deepening when a system of values and educational interventions that support tolerance are absent. Several studies have documented that high levels of intolerance in universities weaken the quality of academic interaction, reduce the space for constructive dialogue, and negatively impact the organizational climate of the entire educational institution.

The unique characteristics of colleges of education in this context are twofold. On the one hand, these students share a sense of belonging to a particular profession, which can form a common identity that mitigates intolerance. On the other hand, this same sense of belonging can generate a kind of professional intolerance towards others who differ in specialization or educational beliefs. The importance of studying intolerance in this context increases when we remember that a intolerant teacher has the power to influence dozens of students annually, thus elevating the issue beyond the individual to the entire educational system.

E. Social and Cultural Factors Influencing Intolerant Attitudes:

Intolerant attitudes do not arise in a vacuum; rather, they are formed within a social and cultural context that provides them with their substance and shapes their expression. Foremost among these factors are the methods of socialization that individuals receive from early childhood, as many prejudices are acquired through direct instruction or unconscious imitation. Added to this is the media's influence, which has come to dominate the formation of social representations among younger generations, as well as the role of formal education in either promoting or neglecting a culture of tolerance. Al-Mousawi revealed in her study a clear variation in the level of prejudice depending on the nature of the student's social environment, thus reinforcing the argument that prejudice is largely a socially acquired phenomenon and not an innate, fixed trait.

Third: The Relationship Between Cognitive Bias and Prejudicean Attitudes

The phenomena of cognitive bias and prejudicean attitudes intersect at several structural points. Prejudice can be seen as essentially a product of bias in thinking when an individual applies their biases to discrimination between groups. Confirmation bias provides a continuous source of sustenance for prejudice, because the prejudiced individual observes in the behavior of the targeted group what confirms their preconceived judgment and ignores what contradicts it. Attribution bias, in turn, causes the behavior of the different other to be always interpreted in light of fixed subjective qualities rather than within a dynamic context, thus reinforcing stereotypes and transforming them into entrenched beliefs

From another perspective, prejudiced attitudes, in turn, reinforce and perpetuate cognitive biases, creating a self-perpetuating vicious cycle. The prejudiced individual tends to selectively pay attention to what confirms their prejudice, which, on the one hand, fuels cognitive bias, and on the other hand, cognitive biases reinforce and entrench prejudice. Beck argues that individuals with high levels of cognitive distortion tend to paint a bleak picture of the different other and draw negative conclusions from ambiguous situations, thus fueling and strengthening prejudice.

This reciprocal influence extends far beyond mere statistical correlation. From a neurocognitive perspective, research indicates that the mental processes associated with rapid social categorization are the same ones that drive cognitive biases, making prejudice and prejudice two sides of the same coin in the social context. When an individual categorizes another into a specific social group, a network of stereotypes and preconceived notions is activated, interpreting all subsequent behavior through this pre-established categorical framework

This dynamic is even more pronounced in the university environment, where open-ended interpretations abound, and where students are constantly compelled to judge new peers and differing ideas. In the absence of explicit instruction in objective thinking and critical analysis skills, entrenched biases and prejudices may develop, ultimately shaping the student's social interactions and judgments of those who differ from them. These theoretical findings align with what academic supervisors observe in the field: a decline in the quality of academic debate and a tendency among students toward intellectual conformity. This makes studying this relationship within the Iraqi university environment extremely relevant.

Fourth: Previous Studies

First - Studies Related to Cognitive Bias:

Al-Tamimi conducted a study entitled "Cognitive Bias Among University Students and Its Relationship to Some Psychological Variables." He employed a descriptive correlational approach on a sample of 300 male and female students. The results showed a moderate level of cognitive bias with statistically significant differences according to some demographic variables, and an inverse correlation between bias and the quality of academic performance.

Al-Azzawi examined the relationship between cognitive bias and critical thinking in a sample of 250 male and female students. His results concluded that there was a significant inverse correlation between the two variables, providing evidence that developing critical thinking contributes to reducing the level of cognitive bias.

In Al-Khafaji's study, which specifically targeted students in colleges of education, clear forms of cognitive bias were revealed in the interpretation of academic and social situations among a sample of 280 male and female students, with variations in the most common types of bias depending on the academic department.

Al-Bahadli, in his study on cognitive bias and decision-making with a sample of 240 students, showed that individuals with higher levels of bias suffer from a clear weakness in objectivity when making decisions in complex social situations.

Internationally, Kahneman and Tversky's 1974 study, with its rigorous experimental design, established the methodological foundations for measuring cognitive bias and understanding its mechanisms. It demonstrated that mental shortcuts generate predictable systematic biases under specific conditions.

Secondly, studies related to prejudiced attitudes: Abdul Rahman examined the level of prejudiced attitudes in a sample of 320 university students and its relationship to social adjustment. He concluded that there was a moderate level of prejudice with a significant negative correlation to social adjustment, providing evidence of the negative impact of prejudice on the quality of social relationships.

Al-Samarrai in his study of a sample of 270 male and female students, revealed a significant positive correlation between intellectual rigidity and intolerant tendencies, emphasizing that a lack of intellectual flexibility is a primary driver of the growth of intolerance.

Al-Mousawi added an important social and cultural dimension when she revealed in her study of a sample of 350 male and female students that the level of intolerance varies according to the social environment and the level of exposure to intellectual diversity.

Al-Janabi's study, on a sample of 260 students, showed that a high level of intellectual intolerance leads to a decline in the quality of social interaction and a retreat towards intellectual homogeneity, rather than openness to intellectual diversity within the university environment.

On an international level, Allport's study (1954) contributed to building the basic theoretical framework for understanding intolerance, focusing on the role of socialization in the formation of prejudices. Fromm's 1973 study added a profound psychological dimension by linking prejudice to feelings of threat and existential anxiety, thus opening up new avenues for research into the relationship between mental health and social attitudes.

Thirdly - The Position of the Current Research in Relation to Previous Studies: A review of previous studies clearly shows that both variables have received considerable research attention. However, the research has often focused on studying each in isolation. Studies on cognitive bias have revealed its association with weak critical thinking and poor decision-making, while studies on prejudice have linked the latter to intellectual rigidity, lack of flexibility, and poor social adjustment. Studies addressing the direct relationship between cognitive bias and prejudiced attitudes within the Iraqi university context are almost entirely absent, making the current research a unique contribution to this neglected area.

The researcher also notes that most previous studies adopted the descriptive-correlational approach and proved its suitability to the nature of these topics, which further justifies its selection in the current research. The researcher benefited from these studies in constructing the theoretical framework, selecting measurement tools, and determining the most appropriate statistical methods.

Regarding the points of agreement and difference between the current research and previous studies, the current research agrees with Al-Tamimi's (2021) study in selecting a university sample of a similar size and in using the descriptive correlational approach. It also intersects with Abdul Rahman's (2018) study in examining prejudiced attitudes among university students. The current research differs from its predecessors in that it combines the two variables within a single study framework that explores the relationship between them, and in its selection of a specific research population: the College of Basic Education at Misan University, which is characterized by a specific educational context that lends the results direct practical significance. Furthermore, the research contributes to expanding the Iraqi psychological literature in the field of cognitive bias, which still receives less research attention compared to its counterpart in Western literature.

Methodology

First: Methodology

This research adopted the descriptive correlational approach, which is the optimal method for studying psychological and educational variables in their natural contexts without experimental intervention. This approach is based on observing the phenomenon as it exists in reality and clarifying the degree of correlation between variables and the nature of the relationships between them. This allows for a deeper understanding of their connections without claiming causation (Malham, 2010; Al-Dulaimi, 2016). This approach has proven its effectiveness in several previous studies that addressed similar variables, such as Al-Tamimi's study (2021) and Abdul Rahman's study (2018).

Second: The Research Population

The research population consisted of all male and female students enrolled in the morning program at the College of Basic Education, University of Misan, for the academic year (2024-2025), from all academic levels and regardless of their departments. This population represents a fertile research environment for studying the two research variables due to the social and intellectual diversity that characterizes the university environment, and the frequent daily interactions that necessitate making judgments and dealing with intellectual and cultural differences.

Third: The Research Sample

To select the research sample, a stratified random sampling method with equal distribution was adopted to ensure equitable representation of scientific and humanities disciplines within the sample. The sample included four academic departments: the Primary School Teacher Department and the Arabic Language Department from the humanities disciplines, and the Science Department and the Mathematics Department from the scientific disciplines. Seventy-five (75) male and female students were randomly selected from each department, resulting in a total sample of three hundred (300) male and female students. The selection process considered the representation of both genders and different academic levels to ensure an appropriate degree of diversity and enhance the generalizability of the results to the research population. Table (1) illustrates the distribution of the sample members.

Table 1. Distribution of the Research Sample Members by Academic Department.

Number of students	Specialization	Department	s
75	Humanitarian	Primary School Teachers Department	1
75	Humanitarian	Arabic Language Department	2
75	Scientific	Science Department	3
75	Scientific	Mathematics Department	4
300		Total	

Fourth: Research Tools

For the purposes of this research, the researcher selected two readily available tools that had been previously used in similar studies and whose standard validity had been established in similar Iraqi university environments:

A- The Cognitive Bias Scale:

The researcher adopted the Cognitive Bias Scale developed by Al-Tamimi (2021). This scale aims to measure biased thinking patterns that influence how individuals perceive, process, and make judgments. The scale employs a five-point scale for responses, ranging from (Always applies to me = 5) to (Never applies to me = 1). This scale has proven highly flexible in revealing individual differences among respondents. The scale includes items that address various types of cognitive biases, such as confirmation bias, attribution bias, and availability bias. These items were formulated based on real-life situations that reflect the daily

experiences of university students in their social and academic interactions, thus giving the scale a tangible, face-to-face character.

B- The Prejudice Attitudes Scale:

The researcher adopted the Prejudice Attitudes Scale developed by Abdul Rahman (2018). This scale measures attitudes, ideas, and emotions associated with intellectual and social prejudice within the context of university life. The scale follows the same five-point scale used in the first instrument, ensuring consistency in response methods and facilitating the transition between the two instruments for respondents. The scale covers the three components of prejudice-cognitive, affective, and behavioral-through items reflecting situations students encounter in their interactions with peers from diverse backgrounds. This ensures high content validity within the context of the current research.

V. Face Validity of the Two Instruments

To verify the face validity of the two scale items, they were reviewed by a committee of specialists in educational psychology and educational measurement and evaluation. The reviewers were asked to provide their opinions on the clarity of each item, its comprehensiveness in addressing the phenomenon being measured, and its suitability to the local environment. The researcher adopted an 80% agreement rate as the criterion for item acceptance. All items on both scales achieved an agreement rate of 90% or higher, confirming their suitability for application in the current research context without the need for substantial modifications (Shehata & Al-Najjar, 2014).

Sixth: Reliability of the Instruments

A - Cronbach's Alpha Coefficient:

Cronbach's alpha coefficient was used to verify the degree of internal consistency between the items of each scale. This coefficient is one of the most common reliability indicators in psychological and educational studies because it provides an accurate reading of the degree of homogeneity of the items regarding the construct being measured. Its value was 0.82 for the Cognitive Bias Scale and 0.85 for the Prejudice Attitudes Scale, both values considered to indicate good reliability according to prevailing research standards (Malham, 2010).

B- Test-Retest Method:

The two scales were administered to a pilot sample of (40) male and female students, and then re-administered after a two-week interval. Pearson's correlation coefficient was calculated between the scores of the two administrations, reaching (0.80) for the cognitive bias scale and (0.83) for the prejudiced attitudes scale. These are indicators of the stability of the two instruments over time and their consistency under similar conditions (Al-Khafaji, 2020).

Seventh: Pilot Study

Before commencing the final field application, a pilot study was conducted with a sample of (40) male and female students randomly selected from outside the main research sample. This study aimed to verify the clarity of the instructions and items of the two scales for the respondents, clarify any ambiguity in the wording, and determine the actual time

required to complete the task. The results showed that the items were clear and understandable, and no objections or interpretive difficulties were recorded. The average time for completing both scales together ranged between 25 and 30 minutes, which is suitable for the nature of the research and the sample size (Attia, 2013; Al-Azzawi, 2019).

Eighth: Final Application

The final application was conducted during the second semester of the 2024-2025 academic year. The two instruments were administered to the main research sample of 300 male and female students in classrooms after prior coordination with the heads of the relevant departments. The researcher was careful to clarify the scientific objective of the research at the beginning of each session and to emphasize that the responses would be used for purely scientific research purposes and would remain strictly confidential. The researcher also provided a calm and suitable environment during the application, and addressed the respondents' questions without influencing their answers (Al-Dulaimi, 2016).

Ninth: Scoring the Scales

The following five-point scale was used to score the items on the two scales: always (5), often (4), sometimes (3), rarely (2), and never (1). Negative items were scored in reverse. The scores were totaled to obtain the total score for each scale, which represents the main indicator of the respondent's level of the variable: higher scores indicate higher levels of cognitive bias or prejudice, and vice versa (Malham, 2010).

Tenth: Statistical Methods

The Statistical Package for the Social Sciences (SPSS) was used to analyze the research data. The statistical methods employed included:

- Mean and standard deviation: to determine the level of the two variables and the degree of dispersion of the scores.
- One-sample t-test: to compare the arithmetic mean with the hypothetical mean and determine the significance of the difference.
- Pearson correlation coefficient: to determine the nature of the relationship between the two variables and the degree of their correlation. - Cronbach's alpha coefficient: To measure the internal consistency of the items in both scales.
- Test-retest correlation coefficient: To measure the stability of the results of both instruments over time.

Result and Discussion

First: Level of Cognitive Bias in the Research Sample

The first objective is to identify the level of cognitive bias among students of the College of Basic Education at Misan University. To achieve this, the mean and standard deviation of the sample members' scores on the cognitive bias scale were calculated, A one-sample t-test

was then used to compare the mean with the hypothetical mean of the scale. Table 2 presents the results of this comparison.

Table 2. Results of the one-sample t-test for the cognitive bias scale.

Level of significance	tabulated value	Calculated value	standard deviation	hypothetical mean	arithmetic mean	Sample size	Variable
0.05	1.96	13.84	11.35	60	71.42	300	Cognitive bias

Table (2) reveals that the mean score of students on the cognitive bias scale was (71.42), significantly exceeding the hypothetical mean of (60). The calculated t-value was (13.84), which is higher than the tabulated value (1.96) at a significance level of (0.05). This indicates that students at the College of Basic Education possess a relatively high level of cognitive bias.

This result can be explained from several perspectives. Environmentally, students within the university environment are exposed to a continuous flow of information and situations that require rapid judgment, leading them to adopt the mental shortcuts described by Kahneman and Tversky (1974) as an alternative to careful analysis. Socially, some research suggests that environments with high intellectual diversity may stimulate confirmation bias, where individuals reinforce their original beliefs when challenged (Al-Rubaie, 2020). This finding aligns with the conclusions reached by Al-Tamimi (2021) and Al-Khafaji (2020) regarding the presence of significant levels of cognitive bias among Iraqi university students.

Furthermore, the absence of explicit instruction in metacognitive skills within university curricula may contribute to the perpetuation of biased cognitive patterns. Students often lack the conceptual tools necessary to identify and critically evaluate their biases. Educational literature has confirmed that students who receive explicit training in critical thinking and cognitive self-awareness exhibit lower levels of cognitive bias compared to their peers who lack such training (Ibrahim, 2015; Al-Azzawi, 2019). This suggests that the observed high level of cognitive bias among the research sample may be partly due to the absence of such training within the curriculum of the College of Basic Education.

Second: The Level of Prejudice in the Research Sample

The second objective is to identify the level of prejudice among students at the College of Basic Education, University of Maysan. The same methods were used to determine the arithmetic mean and compare it to the hypothetical mean. Table (3) presents the results of the analysis.

Table 3. Results of the one-sample t-test for the Prejudice Attitudes Scale.

Level of significance	tabulated value	Calculated value	standard deviation	hypothetical mean	arithmetic mean	Sample size	Variable
0.05	1.96	11.27	10.84	60	69.15	300	intolerant tendencies

Table (3) shows that the mean score of the sample on the prejudiced attitudes scale was (69.15), which is higher than the hypothetical mean (60). The calculated t-value was (11.27), exceeding the critical value (1.96) at a significance level of (0.05), indicating a relatively high level of prejudiced attitudes among the students.

This result can be interpreted in light of several factors. The social environment produced by the university context may create intellectual tensions among students with differing ideological and value-based affiliations. In the absence of a culture of structured dialogue, these tensions may escalate into rigid judgments. Furthermore, the socialization students bring with them to university from their family and community environments also contributes to this (Al-Samarrai, 2019; Al-Saadi, 2021). This result is consistent with the findings of Abdul Rahman's (2018) study and Al-Samarrai's (2019) study.

From an educational perspective, this finding indicates a real need for guidance and educational intervention, specifically within the context of the College of Basic Education. It is strikingly paradoxical that students at a college dedicated to graduating teachers and educators exhibit a relatively high level of intolerance, raising fundamental questions about whether the adopted curricula include sufficient units to promote the values of tolerance and the ability to accept differences. Al-Mousawi (2022) pointed out that the formal educational environment plays a pivotal role in either perpetuating or mitigating intolerance, thus giving this finding an institutional dimension that transcends the individual.

Third: The Relationship between Cognitive Bias and Intolerant Attitudes

The third objective is to clarify the nature of the relationship between cognitive bias and intolerant attitudes among students at the College of Basic Education at Maysan University. Pearson's correlation coefficient was calculated between the scores of the sample members on the two scales, and Table (4) illustrates the results of the analysis.

Table 4. Pearson's Correlation Coefficient between Cognitive Bias and Intolerant Attitudes.

Level of significance	Correlation coefficient value	Sample size	Variable
0.05	0.64	300	Cognitive bias and prejudiced attitudes

The correlation coefficient (0.64) at a significance level of (0.05) reveals a statistically significant positive correlation between cognitive bias and prejudiced attitudes in the research sample. This means that a high level of cognitive bias is associated with a corresponding high level of prejudiced attitudes, while both decrease in the opposite case. This correlation falls within the range of moderate to strong correlation, giving it practical significance in addition to its statistical importance.

This result can be interpreted in light of the theoretical logic that links biased thinking patterns to the development of prejudices. A student who interprets social situations through a selective filter tends to exaggerate differences between themselves and others who are different, while downplaying commonalities, thus creating fertile ground for the growth of prejudiced attitudes. This interpretation is reinforced by Beck's (2019) assertion that cognitive distortions transform an individual's view of others into a bleak and negative one, and by Ellis's (2003) confirmation that irrational, absolute ideas entrench prejudice and make it resistant to change.

This finding aligns with Al-Samarrai's (2019) conclusion that intellectual rigidity is linked to prejudice, and with the results of Ellis's (2003) study, which demonstrated the role of irrational thinking patterns in the emergence of prejudice. It also conforms to the theoretical predictions of Kahneman's dual-thinking model, where the dominance of a fast-tracking system in thinking contributes to the generation of hasty and biased judgments that, in turn, fuel prejudice.

In a deeper analysis of this finding, it is worth noting that while the correlation coefficient (0.64) is statistically significant and has a moderate to strong effect size, it also suggests the presence of other variables that contribute to shaping prejudice and explain the remaining unexplained variance. This opens the door for future studies exploring mediating or moderating variables in this relationship, such as psychological resilience, self-control, or the degree of exposure to cultural diversity. The existence of this correlation also suggests the possibility of intervention by targeting cognitive bias as a modifiable variable through educational and guidance programs, which may ultimately have a positive impact on the level of prejudiced attitudes (Al-Rubaie, 2020; Hussein, 2022).

From an applied educational perspective, the research findings carry a clear message for universities: academic teaching of cognitive content alone is insufficient for building a well-rounded university personality. There is a pressing need for a parallel dimension within the educational system that targets the cognitive patterns through which students think and process social information. This dimension is particularly important in the context of colleges of education, which prepare human resources that will bear the responsibility of influencing future generations (Al-Mousawi, 2022; Ibrahim, 2015).

Fourth: Conclusions

In light of the research findings, the following conclusions can be drawn:

- Students at the College of Basic Education at Misan University possess a relatively high level of cognitive bias, manifested in their tendency to interpret situations according to preconceived mental frameworks.

- The students themselves possess a relatively high level of prejudice, indicating the presence of preconceived notions and intellectual rigidity in their dealings with differences.

- There is a statistically significant positive correlation between the two variables, confirming that cognitive bias is a contributing factor to the emergence and entrenchment of prejudice.

- Social and cultural factors appear to be present in shaping both variables among students, necessitating educational interventions that take this context into account.

- A weak culture of critical thinking in the university environment may exacerbate the impact of cognitive biases and simultaneously reinforce prejudice.

- The research findings carry significant educational implications, suggesting that targeting cognitive bias for modification may indirectly contribute to reducing levels of prejudice among students.

Fifth: Recommendations

Based on the research findings and their theoretical foundations, the researcher recommends the following:

- Including explicit educational units on critical thinking skills and awareness of cognitive biases in the curricula of basic education colleges, making them an integral part of graduation requirements.

- The university adopts a comprehensive social and emotional education strategy focused on fostering intellectual tolerance and acceptance of diversity among students, while providing the necessary organizational structure and resources for its implementation.

- Develops preventative and remedial guidance programs aimed at reducing levels of cognitive bias and prejudice among university students, with ongoing monitoring and systematic evaluation of their effectiveness.

- Activates cultural and social activities that allow students from diverse backgrounds to interact positively and genuinely get to know one another outside the formal lecture setting.

- Raises awareness among faculty members about the phenomenon of cognitive bias and its impact on classroom dynamics, and encourages them to adopt teaching methods that promote open discussion, respect for differences, and critical evaluation of evidence.

- Prepares a student guide on common types of cognitive bias, how to identify them, and how to mitigate their effects on social and academic relationships.

- Establishes learning centers within the university that allow students to practice effective communication skills, conflict management, and intellectual negotiation in a safe and structured environment.

Sixth: Recommendations

To complement the current research and deepen its findings, the researcher suggests conducting the following studies:

- Studying the relationship between cognitive bias and related psychological variables such as critical thinking, psychological resilience, and intellectual tolerance.

- Conducting a comparative study between genders and different academic levels regarding the level of cognitive bias and prejudiced attitudes.

- Developing an integrated guidance program to reduce cognitive bias and prejudiced attitudes and experimentally verifying its effectiveness in an Iraqi university setting.

- Studying the role of teaching style and classroom environment in promoting or reducing cognitive biases among students.

- Studying the relationship between social media and prejudiced attitudes among university students.

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