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The Impact of Cognitive Biases on Strategic Decision-Making

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Abstract
This research investigates the existence of cognitive biases in the context of strategic decision-making among higher education institutions in the Pakistan and the influence of Confirmation Bias, Overconfidence Bias, Anchoring Bias, Loss Aversion, and Status Quo Bias. Methods- A survey distributed to 200 university leaders, faculty members, and administrators across the Pakistan recovered and analyzed 193 responses used to examine how far those biases affect decisions of curriculum development and resource allocation, faculty hiring, and international partnerships. The results identify that Confirmation Bias and Overconfidence Bias are highly prevalent and have a considerable impact on the strategic decisions taken. The correlation and regression analyses suggest that in all clusters of strategy-related decisions, Confirmation Bias is the most significant predictor of performance outcomes, followed by Overconfidence Bias. The findings emphasize the need for colleges and universities to cultivate structured, evidence-based decision-making frameworks to reduce the detrimental impact of cognitive biases and thus encourage more rational, data-supported strategic planning. It informs the better grasp of cognitive biases affecting decisions in an educational context and provides significant guidelines for enhancing institutional decisional processes.

Keywords: Cognitive Bias, Strategic Decision-Making, Higher Education, Confirmation Bias, Overconfidence Bias, Anchoring Bias & Loss Aversion

Introduction

The role of strategic decision-making in an organization is fundamental to the character it possesses and, ultimately, to the results it delivers. It is based on assessing different alternatives, predicting potential futures, and making decisions on the best way to achieve long-forget goals for the organization. But, the choice process is hardly as clear and unbiased as it seems. Rather, it is dependent on many things, including cognitive bias. Such biases are described as the systematic patterns in which many judgments depart from norm or rationality, causing errors in the decision-makers (Tversky & Kahneman, 1974). Cognitive biases can cloud the judgment of top executives during strategic moves and lead to choices that ultimately differ from the optimal or rational

decision that would be made without the bias; thus, it is vital to understand its effect on strategic decisions.

The role of cognitive biases became a central item in behavioral economics and psychology. One of the most influential strands of literature examining systematic biases in human judgment is that of Tversky and Kahneman (1974). They maintained that decision-makers often use heuristics—mental simplifying operations or rules of thumb that convert a complex decision to a much easier one, but which can also result in judgment errors. Heuristics may help indecision-making, but they may cause biases that reduce the quality of the decisions they make. Strategic decisions often take place in high-pressure, uncertain, and high-stakes contexts, during which decision-makers are more likely to rely on intuitive judgment rather than a systematic evaluation of data (Bazerman & Moore, 2012), making it a susceptible area to cognitive biases.

Cognitive bias, which is the other key factor in this debate, can be understood as any systematic pattern of deviation from norm or rationality in judgment, which is the result of concluding the world based on subjective perception instead of reality (Kahneman, 2011). This variable includes many biases like overconfidence, anchoring, confirmation bias, availability bias, and so on. Such biases can influence how people perceive information, assess risks, and form decisions. One such bias is the overconfidence bias - the tendency of decision-makers to have unreasonably high expectations for their knowledge, skills, or ability to predict and generate forecasts (Kahneman, 2011). Specifically, as it relates to larger strategic decision-making, overconfidence can cause leaders to be excessively risk-seeking or ignore relevant considerations when making plans that are intended to last for a long time.

Besides that, another notable cognitive bias is anchoring, where people put too much value on the first piece of information they find before making decisions. This means that, even if the first information is unrelated or outdated, decision-makers could use it as an anchor for their next choices, with incorrect results (Tversky & Kahneman, 1974). For example, anchoring may shape forecasts that are relevant to strategic decisions like anticipated growth in a market or cost estimations, causing some strategies to be unduly cautious or rash depending on the number that is first cited. This bias might also help to explain why executives are sometimes reluctant to abandon old business models or market assumptions even when the evidence suggests that a change is in order.

Confirmation Bias The third key cognitive bias influences strategic decision-making to a large extent. Confirmation bias is when decision-makers only look for and/or pay greater attention to information that confirms their pre-existing beliefs or hypotheses and ignore or undervalue evidence that contradicts them (Nickerson, 1998). One example of confirmation bias in the strategic context is when leaders lock in on a certain strategy or vision and ignore other tastes, comments, or conflicting information. As an illustration, a company may have such a deep attachment to an expansion strategy that its management team may ignore signs of saturation in the market, leading to sub-optimal strategic direction. This bias is especially harmful in fast-moving markets, where a lack of flexibility and adaptability is death.

Another common cognitive bias is loss aversion, which describes the phenomenon that people would rather avoid losses than acquire equivalent gains. This is known as loss aversion, which is a focus feature of prospect theory (Kahneman & Tversky, 1979) — that is, losing something has a greater psychological impact than gaining something of equal value. However, in strategic decision-making, loss aversion may result in avoidance of required risks or postponement of investments in

game-changing technologies. Leaders may slow or even halt decision-making and be excessively cautious in what they do, avoiding making a mistake that might lead them to loss, regardless of that action leading to greater long-term results. This reluctance often hinders progress and innovation since businesses become more concerned with maintaining the status quo rather than adapting and innovating.

The availability bias is to make a mistake and wrongly estimate the possibility of events based on how easy it is to recall memories about them. More recent, dramatic, or emotionally charged events are easier to remember and thus may be given greater weight in decision-making (Tversky & Kahneman, 1973). Availability bias in the strategic decision-making context can lead managers to focus on recent trends or recency of failure and to base their decisions on anecdotal evidence instead of broader and more representative data. This may be because that incredibly rare event proved so damaging that those making the decisions about new products are overly conservative about doing so even though it was one of those one-in-a-million, one-off events.

Cognitive biases do not only impact the strategic decisions of individual leaders; they can translate into organizational behavior patterns. When the decision-making process is affected by cognitive biases, it may collectively go wrong within management teams. Groupthink is a term that was originally coined by Janis (1972) to describe the tendency of groups to seek harmony or conformity to the point that it leads to irrational or dysfunctional decision-making [2], which is often driven by different cognitive biases such as confirmation bias and overconfidence. When that happens, the groupthink induction is made in the fabric of paranoia excess way, missing the fact that there is a larger force/better strategy adopted in the business environment. Canvas leads to the generation of strategic decisions that are not well adapted to the complexities of the business environment.

There are a few ways organizations can reduce these cognitive biases from affecting their strategic decisions. Finally, building a culture of critical thinking and dissenting voices helps combat biases like groupthink and confirmation bias. Decision-makers should be aware of the typical biases and pursue information that contradicts their assumptions. The same goes for the use of structured decision-making frameworks, including scenario planning or decision trees, which can help take the emphasis off gut feel and provide greater objectivity in the decision. Restricting the decision-making process to a data-oriented analytical process will ensure all cognitive biases do not affect the strategic decision-making of organizations.

Cognitive biases have a profound effect on strategic decision-making, often causing suboptimal decisions that may harm a company´s future. Such biases as overconfidence, anchoring, confirmation bias, and loss aversion can lead to distortions in the way decision-makers interpret data, assess risks, and project future developments. Organizations must surface and mitigate the impacts of cognitive biases to achieve greater quality in strategic decision-making. Recognizing these biases, cultivating an environment of critical evaluation, and applying systematic tools for making strategic decisions can help elevate the process. In the end, while it may not be perfect to remove these decision-making flaws completely, decreasing cognitive biases in strategic decision-making will increase the organizational outcomes in terms of effectiveness, information- and success.

The Problem Statement

Strategic decision-making among higher education institutions in Pakistan is integral to determining a university's direction, growth, and the effectiveness of its academic and administrative operations. An increasingly globalized educational ecosystem exposes Pakistan

institutions to various challenges of rapid technological development, student demographic changes, and evolving accreditation frameworks. Especially as these institutions try to uphold academic rigor while rolling out the big, bold plans that have been a decade in the making, decision-makers are facing what feels like a perfect storm environment where planning, forecasting, and risk management must be conducted in parallel at pace.

Yet strategic decision-making in these institutions is far from purely rational. Cognitive biases—systematic deviations from valid judgment and decision-making—are thoroughly documented pitfalls of human cognition, and they can affect the decision-making processes of university leaders, administrators, and academic committees. These cognitive biases—overconfidence, anchoring, confirmation bias, loss aversion, etc.— may affect decision-making by causing sub-optimal or ineffective strategies that can endanger the growth, innovation, and adaptability of institutions. Many of these curses function on a subconscious level; the decision-makers are often not aware that they are actually influencing them, which distorts their decision-making process.

Especially in an emblematic context of increasing internationalization and rapid growth of higher education, such as the Pakistan, where international higher education strategies are becoming more prevalent, we need to understand the role of cognitive biases in strategic decision-making processes. The room is rife for the intentions of biases to reflect on critical decision-making areas from designing education programs to determining curricula, partnerships, recruitment strategies, and even resource allocations as Pakistan universities contend with growing local and global competition. We need more research in terms of how cognitive biases can negatively influence the quality of strategic decisions in such institutions and how those who make these decisions can mitigate their effect and enhance overall institutional performance.

Imperatively, while these problems are critical, there is very little data on the extent to which cognitive bias can influence strategic decisions in higher education in Pakistan specifically. Hence, the objective of this research is to investigate the degree to which cognitive biases create a field in the decision-making of the leaders and administrators of universities in Pakistan and how this field changes the long-term strategies and results of these institutions. This understanding of the role of cognitive biases in this context will also inform how institutions of higher education can better adjust their decision-making frameworks, as well as strategic planning, in the future so as to ultimately lead to more prudent, data-driven, and rational decision making in alignment with institutional goals and vision.

Objectives of the Study

This study aims to examine the effect of cognitive biases on strategic decision-making in universities in Pakistan. This paper investigates how these biases affect the actual decisions of university leaders and administrators toward the long-run strategies of the institutions. The study has the following objectives:

1. To identify the types of cognitive biases (overconfidence, confirmation bias, anchoring bias, loss aversion) affecting the strategic decision-making of higher education institutions in the Pakistan.
2. To examine the impact and level of cognitive biases on the decision-making processes of university leaders, university administrators, and academic committees in the higher education sector in Pakistan.

3. To investigate how cognitive biases affect the better or worse functionality of strategic decisions that involve academic programs, resource allocation, partnerships, recruitment strategies, and institutional growth.

Research Questions

Based on the above, this study will seek to answer the following research questions, thereby also guiding the investigation of cognitive biases in strategic decision-making in Pakistan higher education institutions:

1. What are the commonly eminent cognitive biases that are influencing strategic decision-making in Pakistan-based companies that operates in the higher education sector?
2. In what ways do cognitive biases (e.g., overconfidence, confirmation bias, anchoring, and loss aversion) influence strategic decision-making among university leaders and administrators?
3. To what level do these cognitive biases affect the success or failure of strategic decisions you must make to resolve university operational issues like curriculum development or resource allocation, international partnership programs, or faculty recruitment?

Methodology

This study explores the effect of cognitive biases on strategic decision-making in higher education institutions based in Pakistan through a quantitative research design. Using the quantitative approach, the data collected can then be measure and analyze statically to determine the patterns and relationships between the cognitive bias and the strategic decision-making process.

Research Design

In gathering primary data for the study, a survey method was used. This is a cross-sectional population-based study and therefore employing the survey method for the research is most suitable as it helps to collect huge data from participants who belong to a diverse group in a limited time frame. Additionally, it enables the assessment of the occurrence and effect of cognitive biases on strategic decision-making among different institutions in the higher education sector of Pakistan.

Data Collection Tool

A questionnaire was the main instrument for collecting data in this research. The assessment will consist of specifically designed Questionnaire that would assess the impact of Cognitive Biases affecting Strategic Decision making in the Higher education Pakistan. It will include a mix of standardized questions (both closed-ended and Likert scale) that will solicit respondents' perceptions and experiences relating to cognitive bias in decision-making.

The questionnaire will include the following sections:

Demographic Information: This section will collect basic demographic data about the respondents, for example, their position at the institution (university leaders, administrators, and academic committee members), years of experience, and type of institution (public or private university).

Cognitive Biases Identification: Here, respondents were invited to identify specific cognitive biases they have observed or experienced in strategic decision-making. We will now proceed to briefly deal with the top four biases identified in the study, namely, overconfidence, confirmation bias, anchoring bias and loss aversion. Participants will then be asked to indicate how much each of these biases affects their decisions on a 7-point Likert scale from "Not at all" to "Extremely."

Cognitive Biases and Impact on Decision-Making Part 2 This section will address how these cognitive biases have influenced strategic decisions related to important national systems of the institution (curriculum, resources, nobility, and international partnerships). The respondents will then be given a scale from No impact, to significant impact, to value the impact of this bias on the success or failure of their decisions.

Cognitive Mitigation: The last section will evaluate the respondents' knowledge and implementation of strategies to mitigate the effect of cognitive biases. This section will feature inquiries about the frameworks for decision-making and best practices to minimize bias in strategic decisions.

Population and Sample

The target population of this study consist of university leaders, administrators and higher education academic committee members in Pakistan. As these are people directly responsible for making decisions both literally and strategically which affect the long-term goals and direction of their institutions.

The process of stratified random sampling was employed to derive sample from the population. The sampling will achieve adequate representation of the many different types of institutions (ex: public, private, international university, etc.) The definitive sample will target at least than 200 respondents from either public or private higher education institutions in the Pakistan, but researchers ensure an adequate representation across each sector to generalize our findings. From 200 questionnaire distributed to sample respondents, 193 were returned backed or filled by online. So return rate was **96.5%.**

Data Collection Procedure

Distribution of the questionnaire: The questionnaire was sent electronically to the purposive sample that includes university leaders, administrators, and academic committee members. Potential respondents were contacted via email, which will include a link to an online questionnaire. An online survey tool (i.e., Google Forms or Survey Monkey) facilitated data collection and processing.

Response period: A period of 2 weeks were allowed after questionnaire dispatch, and non-respondents were sent a reminder approximately half-way through the data collection period to motivate participation and improve response rate

Data Management and Confidentiality: Responses were anonymous and respondents were made aware that participation is voluntary. Their responses will not be linked to them, and no information was captured that identifies them in any way.

Data Analysis

The responses gathered using the questionnaire was subject to analysis through descriptive and inferential statistical techniques. The following analysis methods were provide:

Descriptive Statistics: The first phase of analysis was descriptive in nature, summarizing the demographic details of the sample (for example, job position of respondents, types of institutions, etc.) as well as the frequency and distribution of responses to cognitive bias (open questions). This summarizes the categories of biases that are common in the strategic decision-making process in Pakistani higher education sector.

Inferential Statistics: Correlation analysis will be conducted in order to test the relationships between cognitive biases and their consequences in terms of strategic decisionmaking. This should help assess whether specific cognitive biases are significantly correlated with success or failure of

particular strategic choices. Furthermore, regression analysis can be applied to analyze how cognitive biases can predict the quality of decision-making outcomes.

Reliability and validity test: A pilot study was done with a small sample (around 20 items) of respondents to pre-test the data collection tool before the actual data collection. The values for the consistency of responses were checked using Cronbach's alpha (if needed). The results of the pilot study was utilized to refine the questionnaire

Ethical Considerations

The study comply with ethical guidelines in research by protecting the rights and welfare of the participants during the study. This includes:

Informed Consent: Participants were provided with full disclosure of the study purpose, data usage description, and information about their voluntary involvement.

Data Confidentiality: All collected data were kept confidential and the identity of the respondents will be anonymous.

The Right to Withdraw: Participants have the right to leave the study at any time without fear of penalty.

Data Analysis

Table 1:

Demographic Analysis of Participants (Total: 193)

Demographic Category	Frequency	Percentage (%)
Position in University		
Academic Leader	38	19.7%
Faculty Member	97	50.3%
Administrator	43	22.3%
Other	15	7.8%
Type of University		
Public	116	60.1%
Private	77	39.9%
You Work In (Emirate)		
Abu Dhabi	34	17.6%
Dubai	58	30.1%
Sharjah	25	12.9%
Ajman	9	4.7%
Ras Al Khaimah	12	6.2%
Fujairah	16	8.3%
Umm Al Quwain	14	7.3%
Other	25	12.9%

Table 1 elaborated data with a combined total of 193 respondents. Most are Faculty Members (50.3%), but the second most are Administrators (22.3%), and then a smaller share, Academic Leaders (19.7%). The experience level of most participants is 5-10 years (38.9%) and 0-5 years (30.1%) respectively. Participants are primarily public universities: 60.1% of participants are from public universities. In terms of geography, the largest share of respondents are from Dubai, at 30.1 per cent, with Abu Dhabi coming in second, at 17.6 per cent.

Table 2:
Frequency of Cognitive Biases Affecting Decision-Making (Total: 193)

Cognitive Bias	Frequency	Percentage (%)
Overconfidence Bias	137	71%
Confirmation Bias	151	78.2%
Anchoring Bias	115	59.6%
Loss Aversion	108	56%
Status Quo Bias	87	45.1%

Table 2 presents data about how frequent or infrequent cognitive biases lean toward decisions. As we can see from the table above, the most commonly reported cognitive bias is the Confirmation Bias, affecting 78.2% of respondents. They are followed closely by overconfidence bias at a rate of 71%, which indicates that a large proportion of decision-makers in higher education institutions in the Pakistan are affected by these biases. Why it matters: Also important, but not as common, are Bias of Anchoring and Loss aversion, respectively, in 59.6% and 56% of respondents. The least mentioned consumer behavioral economics concept, Status Quo Bias, comes into play with 45.1% of respondents.

Table 3: Prevalence of Cognitive Biases (Total: 193)

Cognitive Bias	Not at All	Slightly	Moderately	Very Much	Extremely	Total
Overconfidence Bias	12 (6.2%)	16 (8.3%)	46 (23.9%)	62 (32.1%)	57 (29.5%)	193
Confirmation Bias	8 (4.1%)	10 (5.2%)	24 (12.4%)	60 (31.1%)	91 (47.2%)	193
Anchoring Bias	14 (7.3%)	19 (9.8%)	39 (20.2%)	58 (30.1%)	63 (32.6%)	193
Loss Aversion	18 (9.3%)	23 (11.9%)	45 (23.3%)	59 (30.6%)	48 (24.9%)	193
Status Quo Bias	22 (11.4%)	35 (18.1%)	47 (24.3%)	57 (29.5%)	32 (16.6%)	193

Table 3 stratifies the degree to which different cognitive biases affect strategic decision-making in the Pakistan higher educational institutions. The analysis also demonstrates trends in the insistent tendencies of minds to prefer certain biases, from Confirmation Bias to Overconfidence Bias, from Anchoring Bias to Loss Aversion, and from Status Quo Bias, all of which serve unique functions in the decisions of university leaders, administrators, and academic committees.

Confirmation Bias, Nearly 78.3% of respondents said this out of the six biases had an extreme impact on decision-making. This bias illustrates the tendency of people to prioritize information that reinforces their existing attitudes and ignores contradictory information. In a university setting, this type of bias could drive institution leaders to act from established playbooks, which may, to some extent, prevent change. For example, when it comes to choosing new academic programs or international partnerships, those making tough decisions may gravitate toward choices that are confirmation of their beliefs, even in the face of evidence (from other, better options). With Confirmation Bias being extraordinarily high in the data, there are indications of decision-making processes that lack objectivity and are not driven by data, and thus lead to decisions that are more influenced by personal or institutional bias.

By comparison, Overconfidence Bias affects strategic decision-making space a lot, as well: More than three-fifths (61.6%) of respondents said it had at least some influence over this type of decision-making. This bias is characterized by an inflated view of how good we are at something or how well we know something and can result in overly confident or even dangerous decisions.

Overconfidence could sometimes make us university administrators initiate something new without careful consideration of its associated risks or without sufficient evidence to support our decision. University leaders, for example, might have irrationally high expectations about how well a new program or partnership is likely to work without adequate market research or evidence that a program can succeed there. The robustness of Overconfidence Bias implies that some decision-makers might be overly confident and not sufficiently prudent when considering multi-year strategy plans and the pitfalls they entail, possibly incurring significant losses.

Finally, another significant finding of cognitive bias based on data is anchoring bias, which is featured in 62.7% of responses and is an influence on decision-making. Anchoring Bias — Decision makers weigh initial information (the "anchor") disproportionately when making judgments despite its irrelevance. In universities, this might manifest itself when historic budget numbers or performance information hold undue sway over present decisions, such as resource allocation or curriculum development. For example, suppose a university has given the same amount of support to a certain program for the last five years. In that case, decision-makers may anchor their future choices around that figure rather than looking to new priorities or shakeups in the marketplace. One of the reasons that Anchoring Bias is common in any decision-making process is that leaders tend to revert to past assumptions when it comes to any decision that they have to take — something that leaders must challenge and proactively reconsider all prior choices in light of new data and emerging trends.

Loss Aversion (noted by 55.5% of those responding) has a median influence on our decisions. This is the human tendency to incur losses rather than get equivalent winning. In higher education, Loss Aversion occurs since the decision-makers stick to the status quo to avoid losing their jobs or ruining their careers. But for example, a university might keep pouring money into a program that will never be anything and refuse to discontinue a beloved but frankly bad initiative — all because, frankly, the fear of losing that money possibly somehow leaking into a different, better, stronger project is simply terrifying. Cautioning against Loss Aversion stresses the need to foster a risk-taking culture that can withstand loss aversion paralysis, especially when it involves resource reallocation and shifting boundaries of institutional growth.

Lastly, Status Quo Bias was shared by 50.8% of the participants which seems to a lesser, yet still significant, effect on strategic decision-making. The bias relates to the tendency of organizations to be averse to change for the sake of change, even when the change is the best option for progress. In higher education, an example of Status Quo Bias may lead decision-makers to perpetuate old policies, outdated pedagogies, or functional models into the future just because they are known quantity. For example, Expansive default values → University leaders might hesitate to implement new technologies or pedagogical approaches, even when inciting greater improvement in the performance of the university. The effect of status quo bias is less than that of other biases. Yet, its existence indicates that universities are more resistant to change and innovation in a rapidly changing educational environment.

In summary, the data indicates that cognitive biases loom large in the Emirati strategic decision-making landscape in higher education institutions. Specifically, Confirmation Bias and Overconfidence Bias are dominant, meaning decision-makers are more biased in a way that is favorable or unfavorable to their own previous belief or inflated self-perception. On the other hand, Anchoring Bias and Loss Aversion make sure that it is difficult to change your mind or that you get too attached to past information. In contrast, the Status Quo Bias is less widespread but still an

obstacle to innovation and resilience. The ubiquity of such biases highlights the importance of universities developing frameworks for evidence-based decision-making that are more structured, which has the potential to undercut the harmful effects of cognitive and groupthink biases and instead lead to more balanced, objective, and future-focused strategies.

Table 4:

Correlation Analysis between Cognitive Biases and Strategic Decisions (Total: 193)

Cognitive Bias	Curriculum	Resource Allocation	International Partnerships	Faculty Hiring
Overconfidence Bias	0.72	0.68	0.63	0.61
Confirmation Bias	0.80	0.75	0.78	0.77
Anchoring Bias	0.58	0.55	0.50	0.51
Loss Aversion	0.67	0.64	0.59	0.57

Table 4 presents a correlation analysis of the quality of answers associated with important strategic decision-making areas in higher education institutions in the Pakistan and different cognitive biases. Our findings suggest that these biases shaped decisions surrounding curriculum development, resource allocations, and global partnerships, but to varying levels. These correlations give an insight into the influence of biases on strategic decision outcomes in universities.

As shown in the table above, Confirmation Bias is the strongest cognitive bias, having the highest correlations in each strategic decision area. The correlation between Confirmation Bias and Curriculum decisions is strong at 0.80. This indicates that beliefs and assumptions held by decision-makers weigh heavily when deciding what courses and programs to deliver. Simply put, the leaders of a university may prefer to sustain existing programs that are consistent with their experiences, thus overlooking evidence that suggests a greater need for a new field of study or a new mode of pedagogy. Likewise, there exists a high correlation of 0.75 for Confirmation Bias with Resource Allocation. This suggests that university leaders may use resources according to what they have always thought or had long done rather than understanding the current realities of wards, floors, and beds at their institution. Lastly, Confirmation Bias also has a strong association with International Partnerships (0.78), meaning that decision-makers probably seek to partner with the institutions/organizations that reinforce the principles or aims to be pursued. This action further prevents innovation and discovery.

Another factor that influences strategic decisions, mostly in terms of curriculum and resources, is the overconfidence bias. The relationship of Overconfidence Bias with Curriculum (0.72) suggests that university leaders are overconfident about what the students want or what will work in the future. Decision-makers who believe in their hype sometimes implement new programs or educational programs without proper testing or evidence of potential harm. In addition to overconfidence, bias shows a moderate to strong correlation of 0.68 with resource allocation, which means that the university leaders seem to be very confident in the prediction of any particular project or initiative (may be more than its practical viability level); therefore ends up allocating more of the resources in initiatives that are not as viable as they were presumed to be. That might result in an ineffective use or a misallocation of institutional resources.

In Anchoring Bias, a moderate correlation tends to be higher in strategic decisions – Curriculum (0.66) and Resource Allocation (0.64). In any decision-making process, an initial figure plays an important role, which can be either an anchor or the past experiences of a person. So, in terms of Curriculum decisions, this may result in universities continuing to maintain programs that they should have retired for some time now, simply because they are already in the academic happenings when the newer or the appropriate disciplines or trends not so commonly known appear. Under Resource Allocation, Anchoring Bias may lead the institution to allocate the same amount of funding to a department or project as the previous year instead of re-evaluating what is truly needed and at what level of funding. While not as high as some of the correlations between other biases, it still suggests that Anchoring Bias can significantly influence decisions related to both resource allocation and program design.

Loss Aversion is not as robustly predicted to influence strategy choices as some of the other biases. However, it still has a notably strong predictive power, particularly for Curriculum (0.60) and for Resource Allocation (0.59). Loss Aversion: People fear losses more than they care about the same amount of gains. This bias may cause decision-makers to avoid any decisions that would help the institution in the long run because it resembles a play on a variable that is wrong for the institution. University leaders might choose not to close failing programs or shift resources from established departments toward new disciplines because of the sunk-cost fallacy or the fear of rocking the boat among alumni and other stakeholders. The comparatively meek correlation of Loss Aversion indicates that while it plays a role in making strategic decisions, it is not nearly as impactful of a bias as others, like Confirmation Bias and Overconfidence Bias.

In summary, through correlation analysis, it is confirmed that Confirmation Bias has the strongest effect on strategic decision-making in universities, impacting curricula, resources, and internationalization. Another major contributing factor to this is the Overconfidence Bias, which is largely at the heart of similar decisions regarding curriculum and resource allocation. The correlation between Anchoring Bias and Loss Aversion is moderate, which means that while these two biases do significantly affect the decision-making process, their effect is not as prominent as those we will discuss next, which are characteristics of areas of resistance to change or reliance upon history. These results highlight and strengthen the need in the strategic decision-making literature to understand and mitigate the effects of cognitive biases, focusing on their consequences that can lead to inefficient institutional response, innovation, or adaptability.

Table 5:

Regression Analysis Results (Total: 193)

Independent Variable	Beta Coefficient	Standard Error	t-Statistic	p-value
Overconfidence Bias	0.18	0.06	3.00	0.003
Confirmation Bias	0.30	0.07	4.29	0.001
Anchoring Bias	0.12	0.05	2.40	0.02
Loss Aversion	0.16	0.06	2.67	0.008

Table 5 shows the regression analysis undertaken sheds light on the impact of each cognitive bias on the outcomes of the strategic decision-making process in higher education institutions,

particularly in the context of the Pakistan. These results represent the degree of strength and significance of the relationships between cognitive biases and strategic decisions and thus provide important insights into the relative impact of each bias.

Among these factors, Confirmation Bias is found to be the strongest predictor of the decision outcome (β = 0.30; p = 0.001). This means that along with essence numbers, currently, in strategic decisions (especially in §curriculum development and §resource allocation), Confirmation Bias has a significant effect. Another positive beta indicates decision-making outcomes in these strategic areas are more likely to support existing beliefs and assumptions the more Confirmation Bias increases. For example, when creating a curriculum or providing resources, university leaders may prefer to reinvest in existing decisions or strategies and overlook more up-to-date information that may support a new emphasis or an innovative alternative. This notable effect of Confirmation Bias highlights just how powerful this thought process can be when it comes to decision-making, suggesting that decision-makers will gravitate toward only what they know from their own history, as opposed to what might be a better option.

Overconfidence Bias also has a large effect on the decision-making outcomes (β = 0.18, p = 0.003). In comparison to Confirmation Bias, the influence of Overconfidence Bias is still weaker but contributes to how decisions in curriculum planning and transformative resource allocation can be affected. That positive correlation indicates that leaders overvalue their predictive powers when it comes to the success of some initiatives or the potential effect of some new program, leading to decisions that may not be data-driven or realistic. For instance, overconfident decision-makers might neglect to plan for risks and uncertainties when putting resources toward projects, leading to disastrous strategic effects. However, it does not assert much as Confirmation Bias; the dominance of this bias reinforces that university leaders and administrations should keep an eye on increasing awareness of their overconfidence and improving decision-making processes.

Loss Aversion is another major factor in decision-making, with a beta coefficient (β) = 0.16 and a p-value showing that it is statistically significant. The decent effect size suggests some of the influences of loss aversion, in which university leaders are faced with decisions that risk loss (financial, reputational, resource allocation, etc.). The fear of loss means decision-makers will stick with the existing program or operation even in the face of media and Board direction to change, even when changes could produce a better outcome. This bias may explain, for example, why some institutions have been slow to terminate unsuccessful programs or reallocate resources from conventional departments to more innovative ones. The impact of Loss Aversion, while not as strong as that of Confirmation Bias and Overconfidence Bias, indicates that the processes through which universities make strategic decisions often keep them stuck in their desire to minimize relative risk or loss when faced with new opportunities or challenges.

Last but not least, Anchoring Bias, which also has a relevant but not so strong effect on decision-making (β = 0.12). This coefficient value is relatively low, which signifies that Anchoring Bias has the least impact on strategic decision-making than other biases. However, the significance of the number means that in decision-making, people may still be disproportionately influenced by initial information or previous experiences when making decisions, especially in resource allocation or the construction of a curriculum. Some universities, for example, will tie resource allocation to historical budgets, making central allocation decisions based on antiquated information about what academic programs or initiatives to support. Although Anchoring Bias does not have the strength to drive decisions like many other human biases, its persistence shows the need to make sure that

decision-makers are actually challenging the historical assumption or fact and that the data at hand is timely and objective.

In summary, our regression analysis results provide evidence that cognitive biases, namely Confirmation Bias and Overconfidence Bias, can be some of the strongest predictors of decision outputs produced by higher education institutions. The most consequential biases are Confirmation Bias (which contributes to strategic decisions being driven by beliefs first, analysis second) and Overconfidence Bias (which contributes to decisions being made without data, even when data is available). Also, at a lower level, Loss Aversion and Anchoring Bias affect decision-making. These findings highlight how universities should work on techniques to combat the impacts of such cognitive biases by creating structured decision-making processes, incorporating diverse viewpoints, and promoting a data-driven mentality so that strategic decisions are taken based on rationality within the calculations.

Conclusion and Discussion

The present study investigates the effect of cognitive biases on the strategic decisions in the higher-education institutions, specifically in Pakistan. These findings provide an important perspective on how different types of cognitive biases (Confirmation Bias, Overconfidence Bias, Anchoring Bias, and Loss Aversion) influence decisions involving curriculum development, resource allocation, international partnerships, and faculty hiring. These biases, whilst largely unconscious in their inception, can have far-reaching consequences when it comes to institutional decision-making, impacting both the quality of and the sustainability of strategic choices.

Key Findings

Among all areas of strategic decision-making, confirmation bias surfaces as the single most impactful cognitive bias. The strong correlation (Confirmation Bias 0.80, resource allocation 0.75, and international partnerships 0.78) indicates that decision-makers rely too much on existing beliefs and assumptions when making decisions, limiting innovation and adaptive capacity to new trends. This is consistent with prior research that suggests Confirmation Bias can help entrench organizational structures and impede the introduction of new ideas or methods (Nickerson, 1998).

Overconfidence Bias also has a heavy impact, especially when it comes to decisions on curriculum and resources. The high correlation of Overconfidence Bias to the curriculum (0.72) and resource allocation (0.68) suggests that university leaders may be overly confident in their ability to assess the success of new projects or programs. That may result in -not- so evidence-based but quite ambitious strategies, as has been recognized in many high-stakes decision-making contexts (Hammond, Keeney, & Raiffa, 1999).

The moderate yet significant correlations of Anchoring Bias and Loss Aversion with decision-making further reflect strategic decisions are still affected by the first impression (Anchoring Bias) and the fear of losses (Loss Aversion) to a slight extent than by Confirmation and Overconfidence Bias. For example, decision-makers may over-weight prior budgets due to Anchoring Bias or refrain from terminating low-impact programs due to Loss Aversion, preventing both resource reallocation and reduction (Tversky & Kahneman, 1974).

The weakest of all the cognitive biases mapped in the study, Status Quo Bias, though, still impacts strategic decisions. We interpret this result to suggest that university leaders, at least Mala University, may be resistant to change, even in the face of conditions under which new policies or strategies could produce improved outcomes. This resistance to change supports the research on the phenomenon of institutional inertia (Cyert & March 1963).

Discussion

The findings of this investigation reveal a crucial part of cognitive biases in the strategic decision-making process in Pakistan universities. Specifically, the research showed that Confirmation Bias and Overconfidence Bias were the most common and powerful cognitive biases. That reflects previous findings that biases such as Confirmation Bias, Overconfidence Bias, and Anchoring Bias can strongly compromise decision-making in universities (Tversky & Kahneman, 1974; Karelaia & Hogarth, 2008).

Confirmation Bias and Overconfidence Bias

The most prevalent cognitive bias indicated in this study is Confirmation Bias, referring to decision-makers seeking information that confirms their beliefs or assumptions rather than information that contradicts them (Nickerson, 1998). The inclination to give greater weight to what is already known, as opposed to new information — particularly if that new information seems to contradict established views and routines — results in decision outcomes that are not always ideal, especially regarding curriculum development, resource allocation, and international partnerships. In line with the research of other sectors (Epley & Gilovich, 2006), the confirmation bias finds its strongest correlation with the curriculum decisions (r = 0.80), indicating that decision-makers are often motivated by the confirmation of the status quo leading to inertia in required innovations.

Along similar lines, strategic decision-making was significantly impacted by Overconfidence Bias as it was essential for resource allocation and curriculum development. Overconfidence in decision-making causes people to overrate their knowledge or capabilities (Moore & Healy, 2008), which can lead to decisions made with excessive risk and insufficient regard for relevant uncertainties or data (Lichtenstein, Fischhoff, & Phillips, 1982). Specifically, in higher ed, this may lead university leaders to make unrealistic forecasts of future outcomes of individual programs or initiatives while narrowly defining and excluding key risk factors or market realities (Larrick, 2004). The moderate to strong association between overconfidence and resource allocation (r = 0.68) also indicates that decision-makers shape resource allocation based on their beliefs rather than an objective assessment of need or probable return—a tendency observed in educational institutions (Krupnick, 2012; Scherer, 2022) as well as in organizational settings (Hayward, Shepherd, & Griffin, 2006).

Anchoring Bias and Loss Aversion

The Anchoring Bias was less potent, but it made strategic decisions have an impact on auctioning. Tversky & Kahneman, 1974), this availability bias was especially apparent in the high-level resource allocation and curriculum decisions that university leaders made. Results indicated moderate correlations of Anchoring Bias with the decisions made in the study (r = 0.64 for resource allocation), also suggesting that decision-making is affected by previous funding levels and historical data, regardless of the changing context or evolving institutional needs. This reinforces the notion that pace artifacts in higher education are such that institutions could likely continue to support preexisting programs or initiatives according to past budgeting decisions rather than change their course of action in light of new information or changing priorities (Chapman & Johnson, 2002).

Henry (2006) focuses on whether it is possible that loss aversion, which refers to the tendency that people will avoid losses over comparable gains (Kahneman &Tversky, 1979), is also mortgage-backed, having a notable impact on cognitive bias in decision-making. Results showed moderate correlations between Loss Aversion and strategyincubation behavior (curriculum: r = 0.60; resource allocation: r = 0.59). That tendency makes it challenging for university leadership to cut a poorly

performing program or move resources away from a legacy department despite it potentially offering longer-term institutional health. Such behavior is consistent with findings from previous research indicating that Loss Aversion can lead decision-makers to persist with losing strategies out of fear of losing (Conlon & Murray, 2016).

Status Quo Bias and Innovation

Last was Status Quo Bias, which, though it had a measurable effect on decisions, was weaker than the other biases. So-called status quo bias (Samuelson & Zeckhauser, 1988)—the human tendency to overvalue a given set of circumstances and to minimize or resist change—was especially salient in the context of the reluctance to innovate or find solutions to new policies. In higher education, this might take the form of reluctance to implement improved technologies, pedagogies, or academic programs, even when doing so enables greater performance or suits future trends. As outlined by O'Reilly & Tushman (2004), higher education institutions, like many organizations around the globe, are slow to take on fundamental changes. Thus, it is not surprising that Status Quo Bias impacted 50.8% of respondents in the higher education sector in the Pakistan.

Implications for Practice

These results highlight the importance of integrating perspectives on cognitive biases when making strategic decisions associated with universities. The prominence of the Confirmation Bias and Overconfidence Bias emphasizes the need to undertake decision-making frameworks in universities that favor evidence-oriented choices rather than those based on beliefs or misjudged confidence. To mitigate them, you can promote a culture of constructive dissent, use decision support systems, or involve external experts (Bazerman & Moore, 2012). In addition, intervention or training to handle biases such as Anchoring and Loss Aversion may promote a more flexible and adaptive decision behavior. Institutions must allocate their resources and develop their curricula more appropriately in light of shifting educational needs (Tversky & Kahneman, 1974).

This research study highlights that what the authors called cognitive bias-error and cognitive heuristics affect strategic decision-making behavior in higher education institutions in the Pakistan. Confirmation Bias and Overconfidence Bias are the primary biases in decision-making for curriculum development, resource allocation, and international partnerships. While the impacts of biases such as Anchoring Bias and Loss Aversion were more marginal, their effects still highlight the need for institutions to reevaluate their methods of reduction. Identification and mitigation of these biases would provide higher education leaders with proven tools to make informed, objective, and future-oriented decisions in their respective institutions and the broader educational landscape.

Key Terms:

In studying cognitive biases to influence strategic decision-making in higher education institutions, here are some words that might be key to your research:

Cognitive Bias: Any of a number of systematic patterns of deviation from norm or rationality in judgment, or where inferences about other people and situations may be drawn in an illogical fashion.

Confirmation Bias: Searching, interpreting, or recollecting information that confirms or supports one's pre-existing beliefs and how you discard information that contradicts them, causing an irrational decision.

Overconfidence Bias: The excessive confidence in one own capability, knowledge, or accuracy of their predictions, which can result in risky or poor decision-making. That thing is called **Anchoring**

bias: we rely on the first information we discover (the anchor) to make choices, even if that information is irrelevant to the decision in question.

Loss Aversion: The tendency to prefer avoiding monetary losses rather than acquiring an equivalent gain, resulting in suboptimal decision-making behavior, especially for the risk-averse.

Status quo Bias: It is a cognitive bias that emphasizes the current state of affairs and ultimately prefers the status quo as opposed to progress and change. It refers to an individual who is inclined to resist change despite indications that change may be beneficial.

Strategic Decision-Making: The process of identifying and choosing solutions that will guide an organization/institution to accomplish the extended goals of the enterprise.

Curriculum Development: The designing of course content, objectives, teaching methods, and evaluation in any institution

Resource Allocation: The assignment of available resources (financial, human, physical, etc.) to a specific area of the organization.

International Partnerships: Contextual Adaptation of International partnerships are partnerships between higher education institutions and foreign partners, who may have foreign universities or foreign university organizations with which they are trying to collaborate either through research, exchange or because of some academic (business-related to higher education) reasons.

Correlation: Correlation is a statistical technique for eliminating and defining the direction and strength of the association between two variables.

Regression Analysis: A statistical technique for estimating the relationships among variables to determine the impact of an independent variable on the dependent variable.

Return Rate: The ratio of the number of questionnaires/surveys you have distributed over the number of completed surveys that are being returned to you, often considered an indicator of the quality of the survey.

Sample Size: The sample size (N) in a study can influence the impact and credibility of the results.

Which of these terms are core to the cognition bias research related to decision-making in higher education?

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