Beliefs, perspectives and behaviours: An empirical study of the constituent factors of mindset

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Abstract

The data comprises the valid responses of 711 university students and were used to construct the scale of player mindset at a Cronbach alpha of .96.

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Abstract

The primary objective of the study was to understand the concept, functions and constituents of player mindset from their beliefs, perspectives and behaviours. The mindset is the simplified view of an individual’s complex environment of experiences and information and others’ perspectives. It has been found to be a belief, a set of beliefs and worldviews, a temperament, a lens or a mental frame to understand the environment and facilitate a person’s decisions and other behaviours. An instrument of 43 statements was first developed from extant research and refined by the responses of 45 university teachers. It was then administered to 1,260 university students from whom 711 valid responses were used to construct the scale of player mindset at a Cronbach alpha of .96. Seven factors were extracted from exploratory factor analysis and named conviction, experience sharing, uncertainty, unpredictability, insights, preparedness and planning. The differences between gender, type of programme and level of degree in mindset were not significant. The nature of each factor and the limitations, suggestions and implications of the study are discussed.

Keywords

Beliefs, conviction, experience, insights, mindset, uncertainty, unpredictability

Introduction

The mindset is a simplified conceptualisation of an individual’s multiple perceptions of the world, enabling thoughts, decisions and responses to situations (Bernecker & Job, 2019; Huang & Yang, 2020; Miller, 2018). It ensures that people’s reactions and behaviours do not change despite change of situations over time. Risk, flaws, gullibility, probability, challenge, valuations, perceptions, emotions, opportunities, moods, anxiety, volatility, survival, ideation, control, complexity, prediction, empathy, justification, openness, normality,
skepticism, evolution, insecurity, imagination, miracles, black-swan events and insight affect the beliefs that influence our behaviours (Housel, 2022). The bewildering array of the forces suggests that the nature of the mindset is complex and has many aspects and interpretations. A simplified conceptualisation of the mindset would be easy to understand and use, be amenable to deeper enquiry and add to our knowledge of human behaviour.

Mindset is the mental frame that receives, processes and reduces the voluminous information in a person’s environment to easily understood levels to take decisions, solve problems and take corrective and other appropriate actions (Crum et al., 2013). It has a powerful influence on attitudes, beliefs, thoughts, health, assessments and behaviours. Mindsets are evaluative viewpoints that organise and simplify information for automatic use despite contradictory or uncertain information (Crum & Lyddy, 2014). They are products of conscious experience but remain entrenched in the subconscious to shape understanding and behaviour. They shape personality and publicly visible attitudes, beliefs, values and behaviours (Blüttner et al., 2014). Mindfulness poses a radically alternative cognitive mode. It involves vibrantly experiencing the present and using our consciousness to influence perceptions and corresponding goals and behaviours (Crum & Lyddy, 2014). It can create productive mindsets, prevent bias and unfounded opinions and identify how events affect conclusions to harness the enhancing effects of stress.

Mindset theory explains achievement motivation in the context of the malleability of abilities. With an implemental mindset, the urge is to selectively choose the information for a narrow and efficient use, while a deliberative mindset indicates an open-minded personality focused on optimal choices (Gottfredson & Reina, 2021). A prevention mindset avoids pain, discomfort and uncertainty, while the promotion mindset is keen to learn, take risks, invest and grow. Growth mindset affects the numeracy and verbal abilities of early teens as academic performance more than that of older students and the mindset interventions worked best on fixed mindset students (Kapasi & Pei, 2022). These mindsets direct the leaders to choose between means and ends but do not affect every leader’s thinking and actions in the same way. Leaders with positive mindsets focus more on what they must do rather than what they must achieve. Leaders with fixed mindsets change when they become aware of the features and benefits of a growth mindset.

Intelligence and growth mindsets

The implicit theory of intelligence explains the mindset as a creator and shaper of behaviour (Dweck et al., 1988). The nature of the individual’s mindset depends on the choice of goals that maintain self-concept and self-esteem. The implicit theory mindset is measured by self-reports that assess attributes such as ability, traits and character (Bernecker & Job, 2019). It acts as a perception of personal ability and therefore, motivates, shapes and drives one towards either learning or action goals. Individuals are unaware of their beliefs and their perceptions do not appear to change much over time except when confronted by new information, exposures and experiences, whether deliberate or natural. The growth mindset is focused on learning, growth, improvement and development in comparison to the fixed mindset behaviour of seeking perfection and avoiding failure (Buchanan & Kern, 2017). Growth mindset leaders engage in learning and action for purposeful and useful social goals. They demonstrate behaviours of resilience, altruism, self-determination and growth and generate social, ecological and economic benefits. Growth mindset students would see a blended perspective of personal learning, contribution to others, social achievement and community leadership.

Entity mindset individuals believe that intelligence is fixed and focused on performance goals to achieve others’ favorable acceptance of their actions (Dweck et al., 1988). Incremental mindset individuals are certain that intelligence could be enhanced and therefore, learn to enhance their capability and are eager to confront and solve challenging problems. Entity theory individuals tend to believe more in their ability than in their efforts and may cheat to preserve their self-worth (Bernecker & Job, 2019). They may avoid challenges and lose self-esteem when confronted with repeated failures. Incremental theory individuals do not surrender to setbacks easily and are keen to learn and master new information and situations, despite difficulties. The two mindsets differ in the individuals’ beliefs in the value of their efforts and goals, the use of failure for their learning and the nature of their motivation, whether intrinsic or extrinsic, that drives their efforts.
The growth mindset is created from beliefs based on the information and personal experience and enhances perceptions of health (Crum & Langer, 2007). Female room attendants showed better physical health conditions because they believed that they had adequate exercise from their usual work for an active lifestyle. A growth mindset predicts better well-being and persistent effort which enhance work engagement (Zeng et al., 2019). Well-being (composed of elements such as energy, optimism, relationships with others and meaningfulness) and persistent efforts mediate between a growth mindset and work engagement (composed of elements such as resilience, involvement, enthusiasm and focus on tasks). Growth mindset individuals work despite obstacles, are resilient, invest in efforts to understand, solve problems and acquire abilities while those with fixed mindsets may avoid work, give up too easily when facing difficulties and ignore opportunities to learn. Growth mindset students feel stress as an enhancing experience, work harder and are less anxious, while others face debilitating stress and abnormal depression (Huebschmann & Sheets, 2020). Their growth mindset is almost as effective as their self-efficacy in language, grammar and the learning process (Bai et al., 2020). It predicts the use of self-regulated writing such as self-monitoring and response to feedback.

Other mindsets

The deliberative and implemental mindsets are seen as motivational and volitional states of mind because they are rooted in the expected value of decisions and voluntary actions (Gollwitzer & Kinney, 1989). Decision makers with deliberative mindsets search for and consider available information to connect actions to results with impartial judgements and assessments. In contrast, people with implemental mindsets act on decisions with a focus on goals disregarding realistic information. Thus, decision makers, planners and visionaries seem to believe, think and behave differently from executors of plans. Mindset is a gist of the memory of recent operations, and therefore, shapes judgement and behaviour including the recognition of events and acceptance and interpretation of information (Freitas et al., 2004). The deliberative mindset is an abstract mindset that considers the reasons for actions while the implementation-focused mindset is a concrete mindset that would be practical and concerned only about the process and actions to accomplish the objective. The abstract mindset is more open to ideas than the concrete mindset because it is concerned about the overall objective. The deliberative mindset collects, receives and processes situational information to solve a problem. After the decision is made, the implemental mindset takes over and guides the decision makers across a smaller area of attention on the goal to be achieved (Büttner et al., 2014). Mindset is therefore a reaction to the nature of expectations, i.e., the discussion and planning to solve problems versus actions to reach the goal.

Global leader mindset is the ability, attitude and temperament to understand and adapt to a wide variety of others’ perspectives and behaviours and the capacity to coordinate and respond to global transactions, markets and environments (Story & Barbuto, 2011). Global leaders manage teams and individuals in diverse cultures and across international borders and must be open to changes, uncertainties, risks and failures. Respect for hierarchy, collaboration, relationships and time orientation are characteristics of effective Asian leaders who rely on authenticity, trust, benevolence and learning skills (Rowley & Ulrich, 2012). These patterns of leadership behaviour are the results of researchers’ mindsets shaped by leadership concepts of North American origin (Hofstede, 2012). Thus, every mindset may be a summary of observations rooted in researcher bias. Global leader mindset enhances trust and creates committed and productive relationships with stakeholders such as employees, suppliers and customers. It has also been conceptualized by researchers as an attitude, a state of mind, a skill set, a cognitive process, a perspective and a motivational state (Clapp-Smith & Lester, 2014). It enhances the effectiveness of global leadership whose role is to produce growth, change and results despite unpredictable levels of complexity in global situations.

The stress mindset is a belief that stress affects the performance, health, productivity, learning and wellbeing of the individual and could be influenced, manipulated or changed by new information about the nature of stress (Crum et al., 2013). It is the perception and expectation that stress produces beneficial or harmful effects and resolves the complexity and uncertainty of such effects (Crum & Lyddy, 2014). Stress is a person’s emotional response to hurdles and problems expected in future actions. Mindfulness shows that stress is a useful sign to enhance physical and mental wellbeing and personal satisfaction. Langerian mindfulness reshapes mindsets by actively seeking novelty, engagement and flexibility while Eastern mindfulness seeks a
sharp and continuous awareness and acceptance of the present without judgment.

Researchers see mindset as a set of worldviews and cognitive processes to understand information around us (French, 2016). Mindset studies cover various aspects such as values, persuasion, communication, gratification, close and other relationships, risks, behaviours, optimism and attitudes. Mindset processes include procedures, mechanisms and filters to simplify complexity, influence actions and approach and complete tasks and solve problems. Mindset is a person’s view of how information is seen, received and processed (Howe et al., 2019). It summarises the complex situations of the environment and explains the relationships between effects and their causes. Although it influences interpretations and experiences such as the anxiety felt by patients with pre-conceived notions, direct communication could change their mindsets to enhance patient experience and produce better outcomes. A paradox mindset develops the employees’ energy, positive mood, proactivity, learning, growth, satisfaction and motivation in the workplace (Liu et al., 2020). It accepts and thrives on inconsistencies and contradictions to produce novel solutions. It shows characteristic attitudes and behaviours such as exploration, tolerance of ambiguity and failures and the review and use of unorthodox ideas. One who has a paradox mindset is eager to receive and is excited by tensions and uses them to confront conflicts and solve problems. It is therefore a strong facilitator of innovative action to create and implement ideas.

Entrepreneurial mindset is made of cognitive aspects such as learning from experience and reliance on opportunity and growth (Morris & Tucker, 2021). It is affected by feelings of optimism and self-efficacy and is eager to solve problems and control risks with perseverance. It could affect and enhance entrepreneurial attitudes of urgency, innovation and persistence. Poverty mindset individuals are likely to lack material, knowledge and other resources and may be more resourceful and creative due to their limited means. As they lack resources, confidence and adaptability, they are prone to make compromises as decisions. They may seek quick results but refrain from commitments and plans for the future due to low resilience. A scarcity mindset cannot possess an entrepreneurial mindset because of low confidence and the unwillingness to change.

Mindsets are mental lenses for individuals to selectively organize and encode information, thereby orienting them toward a unique way of understanding their experiences and guiding them toward corresponding actions and responses (Gottfredson & Reina, 2021). Leadership effectiveness depends on the mindset as a personality variable such as traits, values, goals and strategies. Leader mindset influences actions, reactions, choices and behaviours. Their fixed and growth mindsets determine the goal orientation and choices between results and learning.

The objectives of the study

The foregoing review of literature showed that the mindset may be a belief, a set of beliefs and worldviews, a temperament, a lens or a mental frame to understand the environment and facilitate a person’s decisions, actions and other behaviours. The mindset affects the individual’s perspectives and therefore, the persistence, development and ability to act of a student, an entrepreneur, a leader or other diverse roles. Players’ beliefs of superior performance and victory in games are determined by innovation, experimentation and conviction. Players’ learning in business simulation games arise from their perceptions of business goal orientation, collaborative action and competitiveness (Dumblekar & Dhar, 2021a, 2021b).

No research has determined the composites of player mindset in games. Therefore, the objectives of research are to understand the concept, functions and constituents of player mindset from the beliefs, experiences and behaviours in terms of the following:

1. To develop a scale for assessing the player mindset
2. To identify the constituent factors of the mindset
3. To study the effect of gender, type of programme and level of degree on the mindset

Method

The instrument
The instrument of statements representing mindsets was constructed from two sources. The initial statements were developed based on Housel (2022). They were then refined and restated to reflect player mindset and pruned to 35 statements after eliminating errors. The list was augmented by 23 statements in a similar process in terms of eight factors of players’ self-efficacy (Dumblekar & Dhar, 2021b).

The instrument of 58 statements was emailed to 72 University faculty of work experience of ten years or more with a request to either agree or disagree with each statement. Of the 54 (75 per cent) responses, nine were deemed invalid, and the remaining 45 (83 per cent of the responses) respondents comprised a valid sample. They were aged between 33 and 63 years with a mean age of 41.60 years and a standard deviation of 5.99 years. Figure 1 shows other profile details of the sample.

Show Figure 1 here

Figure 1. Profile of 45 teachers who participated in the selection of statements

Forty-three statements with an acceptance by at least 75 per cent of the respondents were retained. These statements were again reviewed by the authors in the light of study objectives till no further error or ambiguity was found. Each statement was scored from 1 to 5 with 1 for ‘least agreement’ and 5 for ‘highest agreement’. These statements comprised the study instrument which was emailed to 1,260 students in May 2022. The survey was closed after a fortnight.

The respondents

The respondents were graduation and post-graduation students from a university in Indore, India. Responses were received from 711 students. A scrutiny of the data showed no incomplete or otherwise invalid records. Profile data is shown in Figure 2.

Show Figure 2 here

Figure 2. Profile of 711 respondents of the study

Results

The item-total correlation ranged from .39 to .67, showing that every statement could be included in the study. The high values of Cronbach alpha of .96 and the KMO measure of .97 showed that the data had adequate internal reliability for factor analysis. Results of Bartlett’s test of sphericity ($\chi^2$ (903) = 13,721.38 at p<0.0001) showed that the factor analysis would be statistically meaningful.

The exploratory factor analysis under varimax rotation of the 43 statements extracted seven factors each of eigenvalue more than one and a cumulative variance of 54 per cent (List 1). The factors were named conviction, experience sharing, uncertainty, unpredictability, insights, preparedness and planning with due consideration for the contents of the statements with the highest loadings in every factor.

List 1: Statements and factors of Mindset

**Conviction** Watching events strengthens the conviction to play better. A determined player learns from failures to ensure

Factor names are shown in bold.

The factors were significantly and positively correlated to each other (Table 1). The results suggest that the mindset is a multi-dimensional construct composed of factors closely associated with each other.

Table 1. Mindset factors: Descriptives and correlations

Show Table 1 here

Z tests were conducted to ascertain the differences between gender (234 female versus 477 male students), type of programme (69 management and humanities students versus 642 science and technology students) and level of degree (646 undergraduate versus 65 graduate students). No significant differences were found.
Discussion

The study created, reviewed and administered an instrument of mindset to 1,260 students. The 43 statements in the instrument were chosen from the responses of 45 experienced teachers, proving its face validity. After statistical reliability was found to be adequate, the statements were processed to obtain a scale of player mindset from 711 valid responses.

Factors of player mindset

Seven factors were extracted from the scale and named conviction, experience sharing, uncertainty, unpredictability, insights, preparedness and planning. Mindset is a conviction that emerges from shared experiences and develops from the insights of the player’s preparedness and planning for the uncertainty and unpredictability in the environment. The factors and their relevance to the study objectives are discussed below.

Conviction. Statements 1, 2, 4, 6, 7, 8 and 9 confirm that the player observes others’ actions and outcomes, and adopts and refines their behaviours based on feedback from later experiences. Learning from observations is both a cognitive process and the source of the conviction to act and complete the action, successfully (Bandura, 1977, 2001). This factor is the result of the player’s learning from failures, solving problems and watching competitors and others. Another source of conviction is the mastery acquired from rehearsal and testing. Statements 3 and 5 show how deliberate practice builds skills and mastery (Macnamara et al., 2016). Self-efficacy is the conviction that drives motivation and therefore, the choice of interests, problems and solutions. It shapes thoughts and influences behaviour in response to environmental and social situations. It is a product of vicarious learning, repeated practices and personal and others’ experiences. A goal orientation sharpens focus on performance, learning or development as outcomes of the player’s efforts (Guan et al., 2007). Conviction is a worldview of beliefs built from stories, narratives and conversations that explain situations, problems and experiences, build consensus and focus and drive purposeful action (Büttner et al., 2014). As seen in statements 4, 7, 8 and 11, it arises from overcoming the competition and achieving victory as the player’s key concerns in the game. It is an emotional and cognitive process that reduces the uncertainties due to information gaps and risks in the future and corrects the ambivalence of opinions and positions (Fenton-O’Creevy & Tuckett, 2021).

Experience Sharing. The factorial statements show that sharing ideas about repeated actions, competitors and errors is an exciting and challenging experience. Team members improve their game performance because they observe and listen to each other. High levels of sharing information predict team performance in low-trust environments suggesting that open communication offsets the negative effects of differences of opinion (Imam & Zaheer, 2021). Open discussion helps to understand failures that emerge from the absence of team cooperation, a lack of concern for others’ interests and expectations, an inability to integrate the old and the new, ignorance of user needs, opposition from entrenched stakeholders and erroneous practices. By sharing the experiences of their common challenges and disappointments, members accept the reality of failure and empathise with and learn from each other (Heiskanen et al., 2022).

Students experience emotions such as enjoyment, frustration, relief, boredom, happiness and relaxation from interactions with their teachers and fellow students. Their emotions affect their focus, interest, studies and learning actions (Zhang et al., 2022). Their conversations clarify their motives, actions and results, help to make new decisions and reshape their purpose and direction. In sharing such emotional experiences, the narrators expect patient listening, sympathetic responses and appropriate assistance in case of need. Players’ observation, participation or other actions in the games enhance their knowledge (Kolb, 1984). Recalling and digging deeper into the experience, they reduce the accumulated data into conclusions as theories or models that explain what happened. Thus, players’ shared experiences contain their knowledge, emotions and understanding that become the basis for further action.

Uncertainty. Uncertainty is a situation caused by the paucity of information such as the reasons for lost games (statements 2, 3 and 4), indifferent behaviour of colleagues or imperfect game conditions (Page, 2008).
It could be reduced or eliminated by collecting and processing information. It may be compounded by known problems such as skill shortages, competitors’ moves (statements 6 and 8) and other complex interactions. Games lost or disagreement with colleagues (statement 1) may cause uncertainty but may drive individuals to acquire more information (Melamed et al., 2019). Using and sharing information such as game rules, playing conditions and competitor information can reduce uncertainty.

Uncertainty in health care is described in dimensions of ambiguity, complexity, deficient information and unpredictability in one model and dimensions such as complexity and probability in a second model (Han et al., 2011). Probability, ambiguity and complexity are uncertainty sources in one model, and scientific, practical and personal dimensions are uncertainty issues in the other. Uncertainty is a psychological state where individuals are unable to understand the world around them (statements 5 and 7) and are afraid and unwilling to make judgments from available information (Huang & Yang, 2020). It is a composite of beliefs and risk perceptions due to either insufficient or excess information. As it dilutes their confidence to tackle problems, they seek new information to reduce their uncertainty. It is a phenomenon where an individual, even though intelligent, is ignorant of the situation (Beauregard, 2021). It arises from the individual’s need to confront problems and take action. It is a perception that affects everyone differently, depending on their capacity, resources and ability.

**Unpredictability.** Unexpected rain in an outdoor game like cricket or tennis hinders or stops the game. Unpredictability refers to extreme events that damage or destroy the equilibrium of existing systems without visible signs (Davis, 2018). It is the anticipation of painful events and a possible threat to the status quo in terms of timing, impact and involuntary reaction (Dieterich et al., 2019). It is also a sign of inadequate preparedness and tends to induce fear and helplessness in response. It is often seen in cricket which is a system of moving parts such as full-length run-up speed, delivery distance from the batter’s stumps, front foot contact, shoulder angle, ball release speed and eccentric body contractions as bowling technique indicators (Callaghan et al., 2019). Playing complexity and performance pressure would increase unpredictability substantially for games played over longer periods or under tougher competitive conditions.

Unpredictability is a perspective rooted in the ancestral cue approach of evolutionary psychology (Young et al., 2020). It is seen in the symptoms of stress, confusion or paralysis when the game conditions are new, complex, random and volatile. It poses a challenge to optimistic players goading them to confront and solve the problem (Dumblekar et al., 2022). Such players seek novelty, are open to ideas and like to ask questions. Successful players discover hidden capabilities, grow in conviction, and find engagement and satisfaction in the learning experience.

**Insights.** Insights may be produced from qualitative and quantitative methods to collect and process perceptions (Carras et al., 2018). The first step is to seek answers to a problem question from a cohort. The responses are then purified by eliminating duplicates and simplifying the answers. Finally, the cohort ranks the answers, puts them in thematic groups and rates them in terms of importance. For example, the signs of game addiction and gaming disorder are insights in the form of avoidance of normal responsibilities, excessive engagement in internet games and withdrawal symptoms.

Insight is the result of information which when mentally re-processed, often in the context of recent information or event, leads to the discovery of meaning that was hitherto unknown (Craig et al., 2018). A gap between the receipt and process of the information leads to deeper results. Sleep and other restful experiences offer an opportunity to recast the information and thus, facilitate the insight process. An insight is an aha! experience that finds a solution to difficult problems, suddenly and intuitively (Weisberg, 2016). It would ignore and cut across the logic, contradiction and boundaries of existing forms of thinking. It would therefore reduce uncertainty, explain mistakes and other unpredictable situations and offer new ways to conquer competitors or win games.

**Preparedness.** To anticipate is the imaginative capability to consider the future in the thinking of the present and to understand and forecast how people may think and act (Miller, 2018). When people become aware of their perceptions of the future, they visualize many scenarios that shape their thoughts and behaviour.
in the present. Anticipation is therefore an experiential, analytical, reflective, constructive and creative activity that produces different perceptions in different persons. The anticipation of threats, opportunities and conditions in the future shapes the preparedness in the present.

Information about a likely future in the environment, experience of an event and the willingness to act prepare a person with the preparedness attitude (Krug et al., 2020). However, the inability to plan or have adequate resources may prevent and discourage the development of such preparedness. A proactive mindset is an attitude, a sign of preparedness, and the inclination and willingness to intervene and act to change present conditions. It is more active in growth situations and predicts self-efficacy in future career roles when mediated by career-related goals (Benson-Greenwald & Dickman, 2021). Preparedness is the attitude that involves the recognition of and orientation towards the goal, the resources to reach there and the efficacy of players to use the resources to get there.

Planning. The quality of plans and thereafter, actions, improve due to the repeated games and the experience of losses (Gneezy et al., 2010). The backward analysis enables the players to begin with the final position and draw effective plans for the future suggesting that experiential inputs produce better plans. Rational players behave according to their plans which are outputs of a rational process (Battigalli & De Vito, 2021). The plan reflects their beliefs about their and others’ behaviour in response to their actions. Planning considers and helps players to understand real problems and their causes (Robinson et al., 2021). It compels them to review conflicting information in the present situation and foresee the outcomes of their decisions. Players’ role plays and interactions enable them to understand problems and build practical plans for future development.

Collaborative planning helps players to build trust and empathy, a joint understanding of problems and to design and implement their actions (Sousa et al., 2022). Planning enhances the quality of their debates, negotiations and voting. A simplified game design and mechanism encourage high levels of adaptation, interactivity and engagement of the players. Planning in serious games resolves complexities and conflicts through collaborations and communication (Koens et al., 2020). It facilitates cooperation and mutual acceptance to forge new viewpoints and produce insights of equitability and experience quality. Participatory planning and deliberation bring stakeholders together to enhance their awareness of issues and their effects on others.

Mindset is found to be a conviction made from observations, failures and other player experiences. Repeated actions in games build players’ skills that develop conviction that is derived from mastery actions and vicarious experiences. Conviction gains strength in an atmosphere of open discussions where sharing information and experiences produce novel perspectives and solutions. It may reduce the need to rely on or be afraid of unclear environments.

The study has shown that mindset is not a belief. Convictions are perspectives backed by ready resources, skills and action plans to simplify, understand and respond to the world and its likely problems. They are created from reflective thinking and cognitive inputs such as data and personal experience (Crum & Langer, 2007). In contrast, belief is a product of deliberate and subconscious assumptions based on feelings and it serves to interpret the reality of situations or problems so as to generate a convenient behavioural response (Forstmann & Burgmer, 2017). Beliefs are rooted in personality traits, biases and attitudes such as prejudices, risk perception, fear of consequences, helplessness, impulsivity, distrust, delusions and narcissism (van Mulukom et al., 2022). Believers are not open to ideas and perspectives, do not make deep enquiries before analysis, have poor numeracy and science literacy skills, may be less educated than others and may rely on others for decisions.

Due to their extensive experience, older adults may rely more on insights and spend less time and effort in preparedness and planning. They may be more open to errors and ambiguity and less affected by uncertainty of the environment or unpredictability of the future. They are less susceptible to irresponsible and selfish behaviour, are more suspicious, afraid and obstinate and want their privacy (Debast et al., 2014). They are genial, easy to deal with and conscientious. Although their extraversion and openness traits generally dimin-
ish with age, there is no change in the personality traits except in agreeableness of the oldest persons. Such age-based behaviours are due to physical, experiential and environmental conditions. The aging experience shapes the personalities of young adults, making them more agreeable, more open to novelty and more conscientious (Van Dijk et al., 2020). Their extraversion and increased openness affect their social actions and life transition decisions such as their first job, romantic relationships, marriage and leaving home. Therefore, the mindset factors and the composition of such factors may be vastly different for older players.

As the three sample categories of gender, programme and degree have no significant effect on mindset, it can be derived that the actions and experiences of individuals are too many and complex to lead to the conclusions and behaviour identifiable by the categories.

Conclusion

The study was conducted to understand the concept, functions and constituents of player mindset from players’ beliefs, experiences and behaviours. An instrument of statements that described mindsets from different perspectives and contexts was first developed from extant research and refined by the responses of teachers. From the valid responses of university students, the exploratory factor analysis yielded the scale of player mindset at a high level of internal reliability. Seven factors were extracted and named as conviction, experience sharing, uncertainty, unpredictability, insights, preparedness and planning. The differences between gender, type of programme and level of degree in mindset were not significant. Mindset was found to be a conviction made from observations, failures and other player experiences, not a belief based on assumptions and feelings.

Limitations and suggestions

This study may have been affected by responder bias as it was based on the self-reports of players. The subjectivity inherent in self-reports could be avoided or reduced by observing and measuring the actions to recognise their mindsets. For example, how long and how often the players played the game and their high scores in competitions could be deemed as evidence of mastery experiences. Intelligence tests and role-play games could reveal their ability to derive insights from inadequate data and to explain and forecast the future.

The sample of 711 respondents had only 69 management and humanities students as against 642 science and technology students. Similarly, it had 646 undergraduate students against only 65 post-graduate students. A homogenous cohort of either only one type of students (e.g. only science and technology students or only undergraduates) or a more-or-less equal number of science and technology and management and humanities students in the sample may have produced better results.

Implications of the study

The conclusions of this study may be extended to youth aged 19-23 years. The large size (n=711) of the sample with a mean age of 21.09 years confirms that the findings can be used for research and application in similar cohorts.

Researchers may study the effect of mindset and its factors on motivation and of motivation as a mediator between mindset and its factors and performance. The findings would clarify how motivation transforms human perspective into action. The study could be conducted under different conditions of human performance such as games, projects, roles and teams.

Researchers may study the most effective combination of mindset factors for specific roles for the selection of personnel for superior performance. Visionary leadership roles may need the mindset factors of uncertainty, unpredictability and insights while project executives may need the factors of experience sharing, preparedness and planning as the best traits. Sales managers may need to score high on insights, preparedness and conviction. Research in the identification of mindsets in non-game areas as interactions within teams, perceptions about organizational values, decision making and responsiveness to problems may open up new avenues of work practices.
Researchers may extract the constituent factors of the mindset of older adults whose dependence on insights instead of preparedness and planning, obstinacy, suspicious and agreeable attitude set them far apart from the younger cohort in the present study. The findings may explain their behaviour and guide others in their interactions with the adults. The research may also study the physical and other conditions that may affect their behaviour.

Game coaches need to search for players with the conviction earned from mastery, others’ experiences and insights, the ability to understand present conditions and forecast scenarios and the attitude to face the unexpected. The unique nature of every game needs a different set of mindset factors for victory. Mind games like chess need players with insights, while team games like football and cricket need players with collaborative factors to prepare, plan, work and share experiences with others. Players with appropriate mindsets have reflective knowledge, evidence-based confidence and the urge to compete, learn and play with a better certainty of victory.

Leaders must test and shape the team members in each mindset factor separately. They could immerse the members in group analysis, presentations, debates and discussions to enrich their mindsets before actions. The shared experiences would then produce consensual decisions from adequate exposure to problems, understanding of the risks and readiness for the future.

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The authors declare that informed consent was obtained verbally from the human participants who were respondents in the online survey.

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**References**


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Total (n=711): 21.09 years, SD 1.35 years.

Gender
- Female: 234 (Mean: 20.97 years, SD: 1.08 years)
- Male: 477 (Mean: 21.15 years, SD: 1.46 years)

Course
- Management and humanities: 69
- Science and technology: 642

Degree
- Graduates: 65
- Undergraduates: 646