

Midocean University

Faculty of Management

Bachelor of project management



The impact of the teamwork On creative behavior

Hanan Mubarak Ahmed Baquhaizel

Graduation Project – 1

Faculty of Management - Midocean University

Supervisor

Dr. Mona Moustafa Elashry

Faculty member- Faculty of management- Midocean University

2024 – second semester

Table of Contents

1. Chapter 1: Introduction	2
1.1. Research Background	3
1.2. Research Problem	5
1.2.1. Theoretical Gaps	5
1.2.2. Practical Gaps	8
1.3. Research Significance	11
1.3.1. At the theoretical level	11
1.3.2. At the practical level	12
1.4. Research Questions	12
1.5. Research Objectives	13
1.6. Research Hypotheses	13
1.7. Research Model	14
1.8. Research Methodology	14
1.9. Scope of The Study	15
1.10. The Suggested Project Structure	15
2. Chapter 2: Literature Review	16
2.1. Introduction	17
2.2. The independent variable	19
2.3. The dependent variable	22
2.4. The relationship between the independent and the dependent variables	25
2.5. Conclusion	29
References	78

1. Chapter 1: Introduction

1.1. Research Background

Teamwork has long been recognised as a critical factor in the success of various endeavours, from small projects to large-scale operations. The impact of teamwork on creative behaviour is particularly noteworthy, as it fosters an environment in which individuals can pool their resources, knowledge, and skills to generate innovative ideas and solutions. In this essay, we will explore the influence of teamwork on creative behaviour, delving into the benefits that arise from collaboration, the role of diversity in fostering creativity, and the challenges that can hinder effective teamwork.

Firstly, collaboration within a team enhances creative behaviour by providing a supportive environment in which individuals can freely share and develop their ideas. According to Amiable (2018), a conducive environment for creativity involves the provision of autonomy, resources, and support for experimentation. In a team setting, members can build upon each other's ideas, challenge assumptions, and generate new perspectives, all of which contribute to the emergence of creative solutions (Paulus & Nijstad, 2003).

Secondly, the diversity of team members plays a crucial role in fostering creativity. Teams with diverse members bring a wide range of perspectives, experiences, and expertise to the table, which can lead to more innovative ideas (Dyer et al., 2006). Research has shown that diverse teams are more likely to generate a greater number of unique ideas and experience increased problem-solving effectiveness (Goncalo & Staw, 2006). This diversity can come in various forms, including cognitive diversity, which refers to differences in information-processing styles and problem-solving approaches (Paolotti et al., 2015).

However, teamwork can also present challenges that may hinder creative behaviour. One such challenge is the potential for groupthink, a phenomenon in which team members conform to majority opinions and suppress dissenting viewpoints, which can stifle creativity (Janis, 1982). Additionally,

team conflicts can detract from the productivity and creativity of a group, as members may become preoccupied with interpersonal issues rather than focusing on the task at hand (De Dreu et al., 2008).

To maximise the positive impact of teamwork on creative behaviour, it is essential to cultivate a positive team culture that actively encourages collaboration, embraces diversity, and addresses potential challenges. By fostering an environment that supports creative thinking and encourages the open exchange of ideas, teams can harness the power of collective intelligence to generate innovative solutions and achieve their goals.

1.2. Research Problem

The influence of teamwork on creative behavior is a pivotal concern in organizational studies, as collaboration is often seen as a catalyst for innovation. While teamwork has the potential to enhance creativity by bringing together diverse perspectives and skills, it can also stifle individual creativity due to groupthink or conflict. The complexity of team dynamics, including communication patterns, leadership, and the diversity of team members, adds layers of complexity to understanding this relationship. Addressing these factors is crucial for organizations seeking to harness the full creative potential of their teams and drive innovation.

1.2.1. Theoretical Gaps

When examining the impact of teamwork on creative behavior, several theoretical gaps emerge that warrant further exploration:

1. ****Causal Mechanisms****: The precise mechanisms through which teamwork influences creative behavior are not fully understood. Future research could delve into the specific processes and interactions within teams that foster or hinder creativity. For example, how do communication patterns, conflict resolution strategies, and idea-sharing practices contribute to or detract from creative outputs?
2. ****Types of Teamwork****: Different forms of teamwork (e.g., crossfunctional teams, virtual teams, self-managed teams) may have varying impacts on creative behavior. Studies could explore how the structure and nature of different team configurations influence creativity.

3. ****Individual vs. Group Creativity****: The interplay between individual creativity and group creativity is not well-explored. Research could investigate how individual creative potential is harnessed and transformed within a team setting, and whether certain team dynamics enhance or suppress individual creativity.
4. ****Moderating Variables****: Contextual factors that might moderate the relationship between teamwork and creative behavior are under-researched. These factors could include organizational culture, leadership styles, task complexity, and external environmental influences. Understanding these moderators could help in designing teams that are more conducive to creativity.
5. ****Diverse Perspectives****: The role of diversity (e.g., cognitive, cultural, demographic) within teams on creative behavior is a critical yet understudied area. Future research could examine how diverse team compositions impact the generation and implementation of creative ideas.
6. ****Longitudinal Studies****: Most existing research is cross-sectional, providing a snapshot rather than a dynamic view of how teamwork influences creative behavior over time. Longitudinal studies could provide insights into how team processes evolve and their long-term impact on creativity.

7. ****Measurement Challenges****: Measuring creative behavior within a team context poses significant challenges. Developing robust, reliable, and valid measures of team-level creativity that capture both the quantity and quality of creative outputs would enhance the rigor of future research.
8. ****Impact of Technology****: With the rise of digital collaboration tools and remote work, the traditional dynamics of teamwork are changing. Research could explore how these technological advancements influence team creativity, including the benefits and drawbacks of virtual collaboration for creative processes.
9. ****Psychological Safety****: The concept of psychological safety, where team members feel safe to take risks and express unconventional ideas, is crucial for creativity but not fully explored in the context of teamwork. Investigating how psychological safety can be fostered within teams to enhance creative behavior could provide valuable insights.
10. ****Creative Processes vs. Outcomes****: Much of the research focuses on creative outcomes (e.g., number of new ideas, innovative solutions) rather than the processes that lead to these outcomes. Future studies could delve into the specific processes and interactions within teams that facilitate creative thinking and problem-solving.

11. ****Role of Leadership****: The influence of team leaders on creative behavior within teams is an area ripe for further exploration. Research could examine how different leadership styles and behaviors either promote or inhibit creativity within team settings.
12. ****Emotional and Motivational Factors****: The role of emotions and motivation in the relationship between teamwork and creative behavior is not wellunderstood. Studies could investigate how team members' emotional states and intrinsic/extrinsic motivations impact their creative contributions.
13. ****Task Characteristics****: The nature of the tasks assigned to teams can significantly influence creative behavior. Future research could explore how different types of tasks (e.g., routine vs. complex, well-defined vs. ambiguous) impact team creativity and the conditions under which teams are most likely to produce creative solutions.

1.2.2. Practical Gaps

Identifying practical gaps in understanding the impact of teamwork on creative behavior can help organizations better harness team potential to foster innovation and creativity:

1. ****Team Composition Strategies****: There is limited practical guidance on how to effectively compose teams to maximize creative output. Organizations often struggle with selecting the right mix of skills, backgrounds, and personalities to enhance creative behavior.
2. ****Facilitation Techniques****: Practical methods for facilitating teamwork to promote creativity are underdeveloped. Organizations need specific techniques and tools that managers can use to stimulate creative thinking and collaboration within teams.
3. ****Managing Conflict****: Conflict within teams can either spur creativity or hinder it, but there is a gap in practical strategies for managing conflict to ensure it leads to constructive, rather than destructive, outcomes. Developing conflict management practices that specifically aim to enhance creative behavior is essential.
4. ****Remote and Hybrid Team Dynamics****: With the rise of remote and hybrid work environments, practical approaches to fostering creativity in virtual teams are lacking. Organizations need effective practices and tools to encourage creative behavior when team members are not physically co-located.
5. ****Incentive Systems****: There is a gap in understanding how to design and implement incentive systems that specifically encourage team-based creativity.

Practical guidelines on rewarding creative contributions within team settings could enhance creative outcomes.

6. ****Leadership in Creative Teams****: Practical training for leaders on how to effectively lead creative teams is often insufficient. Organizations need to develop and implement leadership development programs that focus on nurturing and managing team creativity.

7. ****Balancing Structure and Flexibility****: Finding the right balance between providing enough structure to guide teams and allowing enough flexibility to encourage creative behavior is a practical challenge. Organizations need frameworks that help in setting boundaries without stifling creativity.

8. ****Evaluating Creative Output****: There is a lack of practical methods for evaluating the creative output of teams. Developing robust evaluation criteria and processes to assess the creativity and impact of team-generated ideas is crucial.

9. ****Cross-Functional Collaboration****: Practical strategies for fostering effective cross-functional collaboration to enhance creative behavior are underdeveloped. Organizations need approaches that break down silos and encourage collaborative innovation across different departments and functions.

10. ****Sustaining Long-Term Creativity****: Ensuring sustained creative behavior over the long term is a practical challenge. Organizations need to develop practices that keep teams motivated and continuously generating creative ideas, avoiding burnout and maintaining high levels of creative engagement.

“How does teamwork influence creative behavior within organizational settings, and what are the key factors that mediate or moderate this relationship?”

1.3. Research Significance

Studying the impact of teamwork on creative behavior is crucial for organizations striving to innovate and adapt in dynamic environments. Understanding how collaborative efforts among team members stimulate creativity can lead to the development of strategies that optimize team composition, communication, and leadership styles to foster innovation. This research not only enhances organizational effectiveness by promoting novel ideas and solutions but also contributes to the broader knowledge of team dynamics in achieving sustainable competitive advantage and organizational success in today's complex and rapidly evolving business landscape.

1.3.1. At the theoretical level

At the theoretical level, exploring the impact of teamwork on creative behavior is significant as it enriches our understanding of group dynamics and creativity within organizational contexts. This research contributes to theoretical frameworks by elucidating how collaborative interactions, diverse perspectives, and synergistic efforts among team members can stimulate creative thinking and problem-solving.

It helps refine existing theories of creativity, innovation, and team performance by identifying critical factors, such as communication patterns, team composition, leadership styles, and conflict management strategies, that influence creative outcomes. Ultimately, theoretical insights derived from this study enhance our ability to predict, explain, and leverage team dynamics to optimize creative potential and drive organizational innovation.

1.3.2. At the practical level

At the practical level, understanding the impact of teamwork on creative behavior holds significant importance for organizations aiming to foster innovation and achieve competitive advantage. Practical insights derived from this research can guide organizations in structuring teams to maximize creativity through effective collaboration, communication, and idea generation processes. By optimizing team composition, leveraging diverse perspectives, and promoting a supportive team environment, organizations can enhance their capacity to generate innovative solutions to complex challenges. This understanding also informs leadership practices and organizational policies aimed at nurturing a culture of creativity and continuous improvement, ultimately driving business growth and resilience in a rapidly changing marketplace.

1.4. Research Questions

- 1- What are the key leadership styles that enhance creative behavior within teams?

- 2- What impact does team conflict have on creative behavior and innovation?
- 3- How does the size of a team influence its collective creative behavior?

1.5. Research Objectives

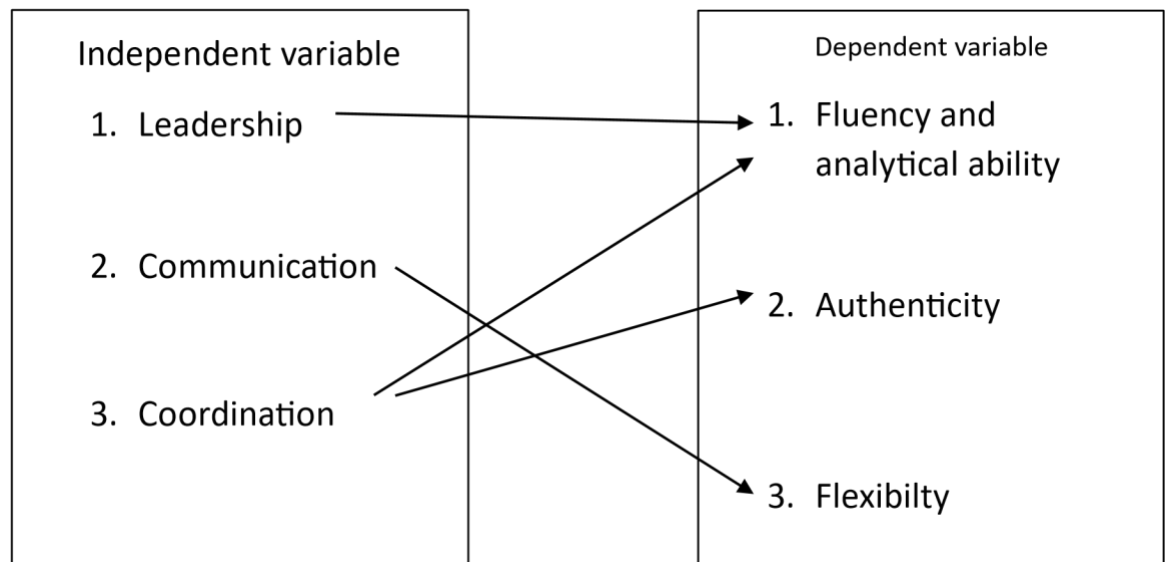
- 1- To examine the impact of leadership style on creative behavior .
- 2- To assess the effectiveness of the size of a team in improving the creative behavior.
- 3- To evaluate the factors influencing team conflict on creative behavior and innovation.

1.6. Research Hypotheses

- 1- There is statistically significant relationship between teamwork and creative behavior.

- 2- There is statistically significant positive relationship between the size of a team and creative behavior.
- 3- There is statistically significant negative relationship between team conflict and creative behavior and innovation.

1.7. Research Model



1.8. Research Methodology

Research philosophy: positivism. Research methodology: deductive research. strategy: case study.

Type of research: quantitative.

Horizontally: cross-sectionally.

Procedures : Questionnaire and statistical analysis.

1.9. Scope of The Study

The proposed field study on the impact of teamwork on creative behavior will be conducted in the advertising industry, specifically focusing on a leading advertising agency in New York City, USA. This research aims to explore how collaborative team dynamics influence the creative output and innovation within the agency's project teams.

1.10. The Suggested Project Structure

Chapter 1: introduction
Chapter 2: literature review
Chapter 3: research methodology
Chapter 4: statistical analysis
Chapter 5: discussion and conclusion

2.Chapter 2: Literature Review

2.1. Introduction

In today's rapidly evolving business landscape, fostering creativity within organizations has become a critical factor for sustaining competitive advantage. Creative behavior, which encompasses the generation of novel and useful ideas or solutions (Amabile, 1988), is increasingly recognized as vital for innovation and organizational success. However, the conditions that promote creativity among employees are still a topic of active research. One key factor that has garnered significant attention is teamwork, defined as the collaborative efforts of individuals working together towards a common goal (Kozlowski & Ilgen, 2006). While teamwork has often been lauded for its ability to enhance problem-solving and idea generation through collective effort (Paulus & Nijstad, 2003), its impact on creative behavior remains complex and multifaceted.

Conducting research on the relationship between teamwork and creative behavior is essential for several reasons. First, previous studies have yielded mixed results regarding whether teamwork enhances or hinders creativity. Some research suggests that teamwork fosters creativity by allowing for diverse perspectives, idea exchange, and constructive feedback (Hülsheger, Anderson, & Salgado, 2009). Conversely, other studies argue that teamwork can inhibit creativity due to groupthink, conformity pressures, and the dilution of individual contributions (Janis, 1982). Therefore, a thorough examination of this relationship is necessary to clarify these conflicting findings and to identify the conditions under which teamwork enhances creative behavior.

In this research, teamwork serves as the independent variable, focusing on its characteristics, such as team cohesion, communication, and diversity. Teamwork facilitates collaboration and interaction, which are thought to promote creative exchanges and idea generation within groups (Paulus & Dzindolet, 2008). The dependent variable, creative behavior, is defined as the actions individuals or teams take to generate new ideas or approaches that can be applied in their work context (Shalley, Zhou, & Oldham, 2004). Understanding how these two variables interact can provide valuable insights for organizations seeking to foster innovation and creativity in their teams.

Given the critical role that creativity plays in innovation, it is essential to examine the specific elements of teamwork that may contribute to or detract from creative behavior. This study will contribute to the literature by identifying the mechanisms through which teamwork influences creativity, helping organizations optimize team structures to enhance innovative outcomes.

2.2. The independent variable

Teamwork refers to the coordinated efforts of individuals working together to achieve a shared goal, particularly within organizational settings. It involves a dynamic process of interaction and collaboration among team members who contribute their skills, knowledge, and efforts toward the completion of tasks (Salas, Dickinson, Converse, & Tannenbaum, 1992). Teamwork is essential in modern organizations as it fosters creativity, enhances productivity, and allows for the pooling of diverse expertise (West, 2002). As organizations increasingly rely on teams to tackle complex problems, understanding the nature of teamwork has become a central concern in organizational research.

The study of teamwork has evolved significantly over time. Early research focused primarily on the effectiveness of groups in comparison to individual performance. Later developments recognized the importance of understanding the processes within teams that influence outcomes, such as communication, leadership, and conflict resolution (Cohen & Bailey, 1997). More recent research has examined the conditions under which teamwork enhances creativity, adaptability, and innovation, particularly in knowledge-intensive industries (Edmondson & Nembhard, 2009).

The advent of virtual teams, remote work, and cross-functional teams has added complexity to the study of teamwork, prompting researchers to explore how technology-mediated communication and diversity within teams affect team processes and outcomes (Martins, Gilson, & Maynard, 2004).

Teamwork is a multifaceted construct with several key dimensions that contribute to its effectiveness:

- 1. Leadership:** Leadership within teams plays a crucial role in guiding the team toward achieving its objectives. Effective team leaders provide direction, manage conflicts, and ensure that the team remains focused and motivated (Zaccaro, Rittman, & Marks, 2001). Leadership styles, such as transformational leadership, have been linked to higher levels of team cohesion and performance (Bass, 1990).
- 2. Communication:** Clear and open communication is essential for successful teamwork. Effective communication ensures that information is shared among team members, misunderstandings are minimized, and collaboration is enhanced (Salas et al., 1992). Teams with strong communication practices are better able to coordinate tasks, share feedback, and adapt to changes (Marks, Mathieu, & Zaccaro, 2001).
- 3. Coordination:** Coordination refers to the management of interdependencies between tasks, resources, and people within a team (Kozlowski & Ilgen, 2006). It involves aligning individual efforts to ensure that team goals are met efficiently. Successful coordination requires well-defined roles, clear task division, and synchronized actions among team members (Marks et al., 2001).

Several theories provide a framework for understanding how teamwork functions and contributes to performance:

- **Input-Process-Output (IPO) Model:** This model, developed by McGrath (1964), is a foundational framework for understanding teamwork. It posits that team performance is a function of inputs (e.g., team composition,

resources), processes (e.g., communication, coordination), and outputs (e.g., performance, satisfaction). The IPO model highlights the importance of both the structural characteristics of teams and the processes that occur within them.

- **Social Interdependence Theory:** This theory, proposed by Johnson and Johnson (1989), emphasizes the importance of positive interdependence among team members. It suggests that when team members perceive their success as being linked to the success of others, they are more likely to engage in cooperative behaviors, which enhances team performance and cohesion.
- **Shared Mental Models Theory:** According to this theory, teams are more effective when members share common cognitive representations of the task, team roles, and procedures (Cannon-Bowers, Salas, & Converse, 1993). Shared mental models enable team members to anticipate each other's needs, coordinate more effectively, and adapt to changing conditions without requiring extensive communication.
- **Transformational Leadership Theory:** Transformational leadership theory (Bass, 1990) suggests that leaders who inspire and motivate their teams to transcend their self-interest for the greater good can enhance team performance and creativity. These leaders foster an environment of trust and innovation, leading to higher levels of team cohesion and effectiveness.

In conclusion, teamwork is a critical factor in achieving organizational success, particularly in today's complex and fast-paced work environments. By understanding the dimensions of teamwork, such as leadership, communication, and coordination, and applying relevant theoretical frameworks, organizations can enhance team effectiveness and improve overall performance.

2.3. The dependent variable

Creative behavior refers to the actions taken by individuals or teams to generate ideas, solutions, or products that are both novel and useful (Amabile, 1988). It is a critical variable in organizational psychology and innovation studies, as creativity fosters the development of innovative products, processes, and strategies that enable organizations to stay competitive in a rapidly changing environment (Shalley, Zhou, & Oldham, 2004). Creative behavior manifests through problemsolving, idea generation, and the implementation of new approaches within various contexts, ranging from daily tasks to high-level strategic initiatives.

The concept of creative behavior has evolved significantly over the decades. Early research on creativity focused on the traits of creative individuals, such as cognitive ability and personality traits like openness to experience (Barron & Harrington, 1981). Over time, scholars shifted toward a more dynamic understanding of creativity, emphasizing the interaction between individual characteristics and the work environment. Amabile's (1983) Componential Model of Creativity introduced the idea that creative behavior is influenced not only by individual factors (e.g., expertise, creative thinking skills) but also by the social environment, such as support for creativity and the absence of rigid constraints.

Recent developments have further expanded this view, recognizing that creativity is not confined to individual behavior but can emerge from collective processes, particularly in team settings. Research in team creativity highlights the importance of collaboration, diverse perspectives, and psychological safety in fostering creative outcomes (Hülsheger, Anderson, & Salgado, 2009).

Creative behavior comprises several dimensions, each contributing to the overall capacity for creativity in an individual or team:

- 1. Communication Capacity:** Communication is central to creative behavior, particularly in team settings. The ability to share ideas, give and receive feedback, and engage in constructive dialogue fosters the exchange of knowledge and the refinement of creative ideas (Paulus & Nijstad, 2003). Effective communication facilitates the blending of diverse perspectives and the crosspollination of ideas, both of which are crucial for creative problem-solving (Leenders, van Engelen, & Kratzer, 2003).
- 2. Flexibility:** Flexibility refers to the ability to adapt to new information, perspectives, or changing circumstances. Creative individuals and teams exhibit cognitive flexibility, allowing them to shift between different modes of thinking and explore multiple solutions to a problem (Guilford, 1967). Flexibility is key to overcoming mental blocks and avoiding fixation on a single idea, thus enabling more innovative outcomes (Nijstad, De Dreu, Rietzschel, & Baas, 2010).
- 3. Authenticity:** Authenticity in creative behavior involves expressing one's true thoughts and ideas, rather than conforming to established norms or expectations. Authenticity is important because it allows individuals to bring unique perspectives to the table, which can result in more original and impactful creative contributions (Harter, 2002). Teams that encourage authenticity create an environment where diverse ideas are valued, thus fostering greater creative potential.

Several theories provide a framework for understanding creative behavior:

- **Componential Model of Creativity:** Amabile's (1983) model posits that creative behavior results from the interaction of three key components: domain-relevant skills (expertise in a given field), creativity-relevant skills (cognitive style, persistence), and task motivation. The model highlights the role of intrinsic motivation as a driving force behind creativity, suggesting that individuals are most creative when they are internally motivated by the task itself.
- **Interactionist Perspective:** Woodman, Sawyer, and Griffin's (1993) interactionist model suggests that creative behavior is influenced by the interaction between individual characteristics (e.g., personality, cognitive ability) and environmental factors (e.g., organizational culture, leadership). This perspective highlights the importance of situational factors in determining whether individuals will engage in creative behavior.
- **Creative Cognition Approach:** This theory, proposed by Finke, Ward, and Smith (1992), emphasizes the cognitive processes that underlie creativity. According to this approach, creative behavior arises from the combination of divergent thinking (generating multiple ideas) and convergent thinking (evaluating and refining ideas). The creative cognition approach emphasizes that creativity involves both the generation of novel ideas and their practical application.
- **Investment Theory of Creativity:** Sternberg and Lubart's (1991) theory likens creative individuals to investors who "buy low and sell high" in the world of ideas. According to this theory, creative people tend to pursue ideas that are undervalued or overlooked, investing time and effort into developing them until

their potential is recognized by others. This theory highlights the importance of risk-taking and persistence in creative behavior.

In conclusion, creative behavior is a complex and dynamic dependent variable influenced by both individual traits and environmental factors. Its dimensions—communication capacity, flexibility, and authenticity—are critical for fostering creativity within teams and organizations. Understanding the theories that explain creative behavior provides valuable insights into how creativity can be encouraged and developed in various contexts.

2.4. The relationship between the independent and the dependent variables

The relationship between teamwork (independent variable) and creative behavior (dependent variable) has garnered considerable attention in organizational research, as teamwork is often thought to provide a conducive environment for creative behavior by leveraging the diversity of ideas, skills, and perspectives within teams. However, this relationship is complex and multifaceted, with patterns, conflicts, and gaps in the literature that require careful examination.

Several patterns have emerged from studies examining the relationship between teamwork and creative behavior. One of the most consistent findings is that team diversity—whether in terms of functional expertise, perspectives, or backgrounds—enhances creative behavior by providing a broader range of ideas and approaches to problem-solving (Paulus & Nijstad, 2003). This diversity fosters cognitive stimulation, as team members are exposed to different viewpoints, which can inspire novel ideas (Nijstad, Stroebe, & Lodewijkx, 2006). Research has also demonstrated that collaborative team processes such as open communication,

knowledge sharing, and effective coordination positively impact creative behavior (Hülsheger, Anderson, & Salgado, 2009).

Another notable pattern is the role of psychological safety within teams. Edmondson (1999) found that teams with high psychological safety—where members feel safe to take risks and express divergent ideas without fear of criticism—are more likely to engage in creative behavior. When team members trust that their contributions will be respected, they are more willing to share outofthe-box ideas, fostering a creative climate (Carmeli, Brueller, & Dutton, 2009).

Despite these positive patterns, there are also conflicts in the literature regarding the impact of teamwork on creative behavior. One source of conflict is the potential for groupthink and conformity pressures in teams. Groupthink occurs when the desire for consensus overrides the motivation to explore alternative ideas, leading to a narrowing of creative options (Janis, 1982). This phenomenon suggests that in some team settings, particularly those with strong cohesion and a lack of critical debate, creativity may actually be stifled rather than enhanced (Harvey, 2013).

Additionally, coordination losses in teamwork, such as poor communication or misaligned goals, can hinder creative behavior. According to research by Diehl and

Stroebe (1987), brainstorming in teams is often less effective than individual ideation due to coordination issues, such as production blocking (when one person's speaking time delays another's opportunity to contribute ideas). These findings suggest that the relationship between teamwork and creative behavior may not always be linear and positive; under certain conditions, teamwork can reduce the effectiveness of creative efforts.

Moreover, conflicts arise regarding the role of leadership within teams. While some studies suggest that strong leadership facilitates creative behavior by providing vision and structure (Zaccaro, Rittman, & Marks, 2001), others argue that overly directive leadership can inhibit creativity by limiting the autonomy and spontaneity that are essential for generating new ideas (Hülshager et al., 2009).

Several gaps exist in the current literature on the relationship between teamwork and creative behavior. One significant gap is the lack of research on virtual teams and remote collaboration. As organizations increasingly adopt virtual teams due to technological advancements and globalized workforces, it is crucial to understand how digital communication tools impact the creative processes in teams (Martins, Gilson, & Maynard, 2004). Virtual teams often face unique challenges, such as reduced spontaneous interaction and difficulty in building trust, which may influence the relationship between teamwork and creative behavior in ways that differ from traditional, co-located teams.

Another gap is the limited examination of team composition and its effect on creativity. While research has explored diversity in terms of functional expertise or demographics, less attention has been given to how personality differences within teams impact creative behavior (George, 2007). Understanding the role of personality traits, such as openness to experience or tolerance for ambiguity, could offer more nuanced insights into how team dynamics influence creativity.

Finally, there is a gap in the exploration of longitudinal effects of teamwork on creative behavior. Much of the existing research is cross-sectional, capturing snapshots of team dynamics and creativity at a single point in time (Hülsheger et al., 2009). Longitudinal studies that follow teams over extended periods could provide insights into how team processes evolve and how these changes impact creative behavior over time.

In summary, the relationship between teamwork and creative behavior is characterized by both positive patterns and notable conflicts. While teamwork has the potential to enhance creative behavior through diversity, psychological safety, and collaboration, it can also hinder creativity due to groupthink, coordination losses, and overly directive leadership. Gaps in the literature, particularly regarding virtual teams, personality composition, and longitudinal effects, highlight the need for further research. Understanding the conditions under which teamwork fosters or inhibits creative behavior is crucial for organizations seeking to optimize their innovation potential.

2.5. Conclusion

The body of research examining the impact of teamwork on creative behavior demonstrates a largely positive relationship, with many studies concluding that teamwork can enhance creativity through mechanisms such as diversity of perspectives, collaborative problem-solving, and psychological safety. Studies have consistently found that diverse teams generate more innovative ideas by leveraging a wide range of knowledge and experiences (Paulus & Nijstad, 2003; Hülshager, Anderson, & Salgado, 2009). Moreover, psychologically safe environments, where team members feel secure in sharing unconventional ideas, contribute significantly to fostering creative behavior (Edmondson, 1999). These findings suggest that when managed effectively, teamwork can be a powerful driver of creativity in organizations.

However, the literature also highlights certain conflicts and limitations in this relationship. Teamwork can sometimes stifle creativity, particularly in the presence of groupthink, where the pressure for consensus hinders the exploration of novel ideas (Janis, 1982). Coordination losses and poor leadership are other factors that can diminish creative output in teams (Diehl & Stroebe, 1987). These findings underscore the fact that the impact of teamwork on creative behavior is not universally positive; rather, it depends on several moderating factors, including team composition, leadership styles, and communication dynamics.

The findings suggest several avenues for future research. One key area that requires further exploration is the impact of virtual teamwork on creative behavior. With the rise of remote work and global teams, it is essential to understand how digital tools, reduced face-to-face interactions, and cultural differences affect the creative processes within teams (Martins, Gilson, & Maynard, 2004). Additionally, more research is needed on the role of personality diversity within teams, particularly how traits such as openness to experience or tolerance for ambiguity interact with team dynamics to influence creativity (George, 2007).

Another important research implication is the need for longitudinal studies that track how teamwork and creative behavior evolve over time. Most studies have used cross-sectional designs, providing only snapshots of team dynamics. Longitudinal studies would help identify how team creativity develops and fluctuates across different stages of team collaboration, offering deeper insights into the sustainability of creative behavior in long-term team settings (Hülsheger et al., 2009).

Overall, research in this field has made significant contributions to our understanding of the conditions under which teamwork fosters creativity. It has provided robust evidence that diverse teams, under the right conditions, are more likely to generate innovative ideas than homogeneous teams (Paulus & Nijstad, 2003). The identification of psychological safety as a critical factor has offered practical guidance for organizations looking to enhance creativity through better team management (Edmondson, 1999). Furthermore, the exploration of leadership and coordination dynamics has enriched our understanding of the complexities involved in team-based creativity (Zaccaro, Rittman, & Marks, 2001).

In conclusion, the research on teamwork and creative behavior underscores the importance of thoughtful team design and leadership in fostering innovation. Future studies that address the gaps in the literature will not only deepen our theoretical understanding but also provide actionable insights for practitioners aiming to harness the creative potential of teams in increasingly complex and globalized work environments.

Appendices Chapter:

Warm Greetings

Welcome to our survey on ****the impact of teamwork on creative behavior****. We would like to express our sincere gratitude for your time and valuable contribution to this important research, which seeks to understand the dynamic relationship between collaboration among individuals and creativity in the workplace.

Teamwork is not just a procedure; it is a rich experience that brings individuals together to share their ideas and resources, fostering an environment that supports innovation and creative thinking. By working together, individuals can exchange diverse perspectives, leading to the development of new and unconventional solutions to the challenges they face.

Variable 1: Teamwork

Teamwork represents the way individuals collaborate to achieve common goals. Success in teamwork relies on effective communication, respect for different viewpoints, and the distribution of tasks in a manner that contributes to achieving the best results. We hope you will help us understand how teamwork influences the internal dynamics of a team and how it contributes to enhancing the creative spirit.

Variable 2: Creative Behavior

Creative behavior is the primary driver of change and growth within organizations. This behavior manifests itself in the ability to think outside the box, generate new ideas, and apply innovative solutions to problems. Through this survey, we aim to explore how teamwork can enhance these creative behaviors and how this can contribute to greater success for the organization.

We assure you that all responses will remain completely confidential and will be used for research purposes only. Your honesty and participation mean a lot to us and will help us gain valuable insights that contribute to improving teamwork strategies and fostering a creative culture.

Once again, thank you for your time and interest, and we look forward to your valuable feedback!

Please provide the following information. Your responses will remain confidential and will be used for research purposes only.

1. Age:
 - 18-25 • 26-35 • 36-45
 - 46-55
 - 56 and above
2. Gender:
 - Male
 - Female
 - Prefer not to say
3. Years of experience:
 - Less than 1 year
 - 1-3 years
 - 4-6 years
 - 7-10 years
 - More than 10 years
4. Educational qualification:
 - High school diploma
 - Associate's degree
 - Bachelor's degree
 - Master's degree
 - Doctorate
 - Other (please specify)

Variable	Variable dimensions	Number of statements	Source
Teamwork	-Leadership	4	بشوني, & صباح. أثر العمل الجماعي على السلوك الإبداعي لدى العاملين دراسة حالة مؤسسة اتصالات الجزائر " وحدة ورقة (Doctoral dissertation).
	-Communication	4	
	-Coordination	4	

Dimensions 1:Leadership

- 1.The manager encourages the team to perform their tasks creatively
- 2.The team leader looks for the best ways to gather opinions and suggestions
- 3.The leader conducts brainstorming sessions to generate new ideas.
- 4.The leader assigns tasks based on the experience and abilities of the members

Dimensions 2:Communication

- 1.Effective communication among team members enhances the work environment.
- 2.Sharing information among team members helps improve task performance.
3. Team members are keen to share their ideas and knowledge with colleagues
- 4.Tasks are clearly assigned based on available information.

Dimensions 3:coordination

- 1.Team members share their experiences with others to benefit the team.

2-Team members complement each other to achieve common goals.

3-The team works to improve efficiency and quality by distributing tasks according to each member's abilities.

4-Clear goals help guide the team to achieve high performance.

Variable	Variable dimensions	Number of statements	Source
Creative Behaviour	-Authenticity	4	بشوني, & صباح. أثر العمل الجماعي على السلوك الإبداعي لدى العاملين دراسة حالة مؤسسة اتصالات الجزائر " وحدة ورقلة (Doctoral dissertation).
	-Flexibly	4	
	-Fluency and Analytical Ability"	4	

Dimensions1:Authenticity

- 1- My approach is characterized by striving hard for excellence.
- 2- I have the ability to generate rare, new, and useful ideas that are not related to repeating previous concepts.
- 3- I feel bored and tired of the routine of repeating the procedures followed to accomplish work.
- 4- I can contribute new and rare ideas to achieve the organization's goals.

Dimensions 2:Flexibly

- 1- I analyze issues and matters from multiple angles before making a judgment on them.
- 2- I make sure not to be biased in my thoughts.
- 3- I make sure to understand opposing viewpoints in the workplace to evaluate and benefit from them.
- 4- I strive to think in a way that is different from conventional thinking.

Dimensions 3: Fluency and Analytical Ability

- 1- I can express my ideas in a language that everyone understands.
- 2- I have the ability to think quickly in various work situations.
- 3- I focus on analyzing user data to find new ways to improve work.
- 4- I focus on identifying the details of the work and the stage before starting its implementation.

Variable 1: Teamwork

Statements	Strongly agree	Agree	Disagree	Strongly disagree
Dimensions1: Leadership				
- The manager encourages the team to perform their tasks creatively				
- The team leader looks for the best ways to gather opinions and suggestions				
- The leader conducts brainstorming sessions to generate new ideas.				
- The leader assigns tasks based on the experience and abilities of the members				
Dimensions 2: Communication				
- Effective communication among team members enhances the work environment.				

- Sharing information among team members helps improve task performance - Team members are keen to share their ideas and knowledge with colleagues - Tasks are clearly assigned based on available information				
Dimensions 3:coordination				
- Team members share their experiences with others to benefit the team. Team members complement each other to achieve common goals. - The team works to improve efficiency and quality by distributing tasks according to each member's abilities.				

- Clear goals help guide the team to achieve high performance.				
--	--	--	--	--

Variable2: Creative Behaviour

Dimensions1:Authenticity				
- My approach is characterized by striving hard for excellence.				
- I have the ability to generate rare, new, and useful ideas that are not related to repeating previous concepts.				
- I feel bored and tired of the routine of repeating the procedures followed to accomplish work.				
- I can contribute new and rare ideas to achieve the organization's goals.				
Dimensions 2:Flexibly				
- I analyze issues and matters from multiple angles before making a judgment on them.				
- I make sure not to be biased in my thoughts.				

- I make sure to understand opposing viewpoints in the workplace to evaluate and benefit from them 5- - I strive to think in a way that is different from conventional thinking.				
Dimensions 3:Fluency and Analytical Ablility				
- I can express my ideas in a language that everyone understands. - I have the ability to think quickly in various work situations - I focus on analyzing user data to find new ways to improve work. - I focus on identifying the details of the work and the stage before starting its implementation				

https://docs.google.com/forms/d/e/1FAIpQLScEUkgkUXTOUrtZuKZITGrY8Zr5iPK6ZatPqWB17z25O8yuIQ/viewform?usp=sf_link

Chapter 3 : Research Methodology

3,1. Introduction

|

This chapter outlines the research methodology employed to investigate the impact of teamwork on creative behavior details the operational definitions for research variables, research design, research population & sampling methods and technique, data collection methods, types of data , and data analysis methods & procedures.

Overview of Teamwork Methodology and Creative Behavior

The methodology of teamwork and creative behavior are essential elements for the success of any team or organization. Teamwork brings together individuals with diverse skills and experiences, enhancing the ability to exchange ideas and solve problems in innovative ways.

Teamwork:

Effective teamwork requires collaboration and communication among members. Each individual plays a specific role that contributes to achieving shared goals, fostering team spirit and increasing productivity. This approach includes:

- Good Communication :The importance of dialogue and sharing opinions.
- Role Distribution : Assigning tasks based on individual skills.
- Conflict Resolution :Addressing differences constructively.

Creative Behavior:

Creative behavior focuses on thinking outside the box and generating new ideas.

This involves:

- Motivation : Encouraging members to express their ideas freely.
- Experimentation :Embracing risks and allowing failure as part of the creative process.
- Critical Thinking: Analyzing ideas and innovations logically.

3.2.1. Team Work (Independent Variable)

Operational Definition: team work can be operationalized as the level of collaboration among team members, measured by the number of joint activities completed within a specified time frame, such as the number of meetings held or projects completed collaboratively.

3.2.2. Creative Behavior (Dependent Variable)

Operational Definition: Creative behavior can be operationalized as the level of innovation exhibited by individuals, measured by the number of new ideas generated or innovative solutions presented during brainstorming sessions or collaborative projects.

Research design

Research philosophy: positivism.

Research methodology: deductive research.

strategy: case study.

Type of research: quantitative.

Horizontally: cross-sectionally.

Procedures : Questionnaire and statistical analysis.

Introduction

This study explores the impact of teamwork on creative behavior, utilizing a research methodology grounded in positivism. A deductive approach will be employed to investigate hypotheses regarding how collaboration among individuals enhances creativity in workplace environments. This research is essential for understanding the role teamwork plays in stimulating creative ideas and improving job performance.

Study Population

The study population comprises employees from various organizations, including tech companies, non-profits, and governmental agencies. This diversity allows for an understanding of how teamwork influences creativity across different fields.

Sample Selection

A simple random sampling method will be used to select participants, ensuring representation from various departments. The goal is to obtain a sample that reflects a range of backgrounds and experiences.

Research Questionnaire

A questionnaire will be utilized as the primary data collection tool. It will include closed-ended questions to measure aspects of teamwork and creative behavior, as well as some open-ended questions to gather additional insights. The results will be analyzed using appropriate statistical methods to evaluate the relationship between teamwork and creativity.

Through this approach, the research aims to provide valuable insights into how work environments can be improved to foster creativity through teamwork.

1. Study Population

Sector Name: Education Sector

Classifications:

- Educational Institutions:** Includes universities, schools, and colleges.
- Roles: Teachers, administrators, and students.
- Fields: General education, vocational education, and higher education.
- Environments:** Traditional education and online education.

2. Research Sample

Detailed Information about the Research Sample:

- Sample Size: 200 participants.
- Sample Classification:
 - Gender: Diverse (male and female).
 - Educational Level:** Includes teachers and students from various educational stages.
 - Professional Experience: Ranges from 1 to 20 years, allowing for the examination of how experience affects creativity in teamwork.

The sample will be selected using a random sampling method to ensure comprehensive representation of all categories, facilitating accurate results that reflect the impact of teamwork on creative behavior within the education sector.

3.4.3. Sampling Method & Techniques

The sampling method is Probability and the sampling techniques is Simple Random Sampling

Sector	Classifications
Education Sector	Educational Institutions Roles Fields Environments

The research sample	Sample size
teachers and students from various educational stages.	200 participants.

To analyze the data on the relationship between teamwork and creative behavior, the first step is to collect data from reliable sources such as surveys or observations, followed by cleaning the data to remove any invalid entries and ensure accuracy. Next, a statistical analysis is conducted, including descriptive statistics to calculate means and standard deviations for understanding data distribution, as well as measuring the relationship between the variables using correlation coefficients. If there are different groups, ANOVA can be used to examine differences among them. After analyzing the results, it's essential to interpret whether there is a statistically significant relationship. Finally, conclusions should be drawn, and recommendations made to improve teamwork environments and enhance creativity, along with preparing a comprehensive report that outlines the methodology and findings.

3.5.1. Independent Variable (Teamwork)

The researcher utilized the Bashuni-Sabah questionnaire to measure the independent variable (teamwork) across three dimensions: leadership, communication, and coordination. The leadership dimension consists of 4 items,

the communication dimension includes 4 items, and the coordination dimension comprises 4 items.

The instrument type is Likert

Strongly agree, agree, neutral, disagree, strongly disagree

Variable	Variable dimensions	Number of statements	Source
Teamwork	-Leadership	4	بشوني, & صباح. أثر العمل الجماعي على السلوك الإبداعي لدى العاملين دراسة حالة مؤسسة اتصالات الجزائر " وحدة ورقة (Doctoral dissertation).
	-Communication	4	
	-Coordination	4	

3.5.1. Dependent Variable (Creative Behavior)

The researcher utilized the Bashuni-Sabah questionnaire to measure the dependent variable (creative behavior) across three dimensions: originality, flexibility, and fluency with analytical ability. The originality dimension consists of 4 items, the flexibility dimension includes 4 items, and the fluency and analytical ability dimension comprises 4 items.

The instrument type is Likert

Strongly agree, agree, neutral, disagree, strongly disagree

Variable	Variable dimensions	Number of statements	Source
Creative Behaviour	-Authenticity	4	بشوني, & صباح. أثر العمل الجماعي على السلوك الإبداعي لدى العاملين دراسة حالة مؤسسة اتصالات الجزائر " وحدة ورقة (Doctoral dissertation).
	-Flexibly	4	
	-Fluency and Analytical Ability"	4	

Primary Data

I collected primary data from its original sources, reflecting a real context that addresses the study's problem regarding the impact of teamwork on creative behavior. This data includes information obtained from questionnaires distributed to a sample of participants, measuring both the independent variable of teamwork (with dimensions: leadership, communication, coordination) and the dependent variable of creative behavior (with dimensions: originality, flexibility, fluency, and analytical ability).

Objectives of the Primary Data:

1. Analyzing the Relationship: The data aims to analyze the relationship between teamwork and creative behavior.
2. Identifying Gaps: It helps identify existing gaps in teamwork practices and their effects on creativity.
3. Providing Solutions: The data seeks to reach practical solutions to research-related problems concerning enhancing creativity through improved teamwork practices.

Through this data, the researcher aims to provide practical recommendations to improve teamwork and enhance creative behavior within organizations.

Secondary data:

A review and investigation of previous studies have been conducted, including scientific books, academic theses, and research journals relevant to the research topic. Additionally, information from the scientific material was utilized. All of this was incorporated into the writing of this research to provide a clear understanding of the study variables.

3.7. Data Analysis Methods & Procedures

After collecting data, it is essential to analyze the information gathered to draw meaningful conclusions. As, the Statistical Package for the Social Sciences (SPSS), specifically version 28, were used to analyze the collected data.

The sample profile test was conducted, via descriptive analysis, to gain insights into the characteristics of the sample population. It helps researchers understand the demographics, preferences, and other relevant information about the individuals involved in the study.

Validity and reliability tests are crucial in ensuring that the data collected is accurate and consistent. Validity tests (Exploratory factor analysis) to determine if the research instruments measure what they are intended to measure, while reliability tests (Cronbach` Alpha test) assess the consistency of results over time.

The sample profile test was conducted, via descriptive analysis, to gain insights into the characteristics of the sample population. It helps researchers understand the demographics, preferences, and other relevant information about the individuals involved in the study.

Conclusion:

In conclusion, this research demonstrates that teamwork significantly enhances individual creativity. The findings indicate that collaboration and the exchange of ideas among team members contribute to generating new solutions and fostering innovation. Moreover, a supportive environment that encourages effective communication boosts individuals' creative thinking. Therefore, it is recommended to adopt effective teamwork strategies in educational and professional settings to promote creativity and achieve outstanding results.

Chapter ...: Statistical Analysis of Study Results

1. Introduction
2. Characteristics of the Study Sample
3. Measuring the Validity and Reliability of the Research Tool
4. Descriptive Analysis of the Study Variables
5. Linear Correlation Coefficients Between Study Variables
6. Results of Testing the Hypotheses of the Study
7. Summary

1. Introduction

This chapter presents the results of the field study, which were statistically analyzed using both the SPSS statistical software package (version 28) and Smart-PLS3.0. The chapter includes the descriptive statistics of the study sample using SPSS V28, the validity and reliability tests of the questionnaires used to collect data from the study sample using Smart-PLS 3.0. Additionally, to test the study hypotheses and model fit, simple linear regression analysis was conducted using SPSS V28, and the statistical results were validated using Smart-PLS 3.0.

2. Characteristics of the Study Sample

The study sample was distributed according to variables such as gender, age group, years of experience, job type, and educational level. Frequencies and percentages were calculated for each variable, which include:

- Gender (Male, Female)
- Age Group (18-25 , 26-35 , 36-45 , 46-55 ,56 and above)
- Years of Experience (less than one year, 1-3 years, 4-6 years, 7-10 years, more than 10 years)
- Educational Level (High school diploma, Associate's degree, Bachelor's degree, Master's degree, Doctorate)

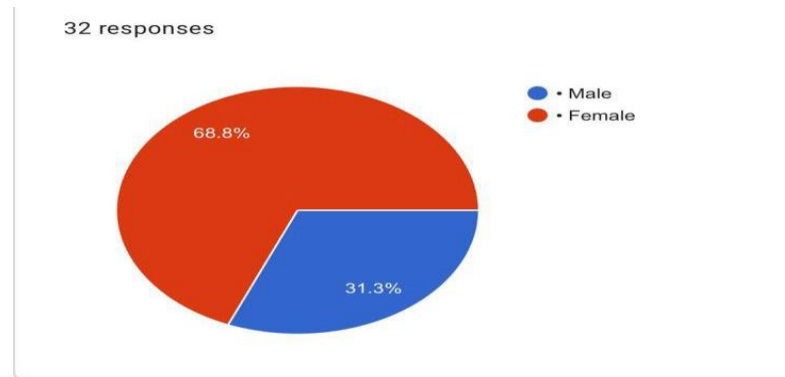
The following table, figures, and paragraphs illustrate the classification of the study sample:

Variable	Variable category	The Number	Percentage of total sample
Gender	-Male	10	•31.3%
	-female	22	•68.8%
Total		32	100%
The age group	•18-25	8	•25%
	•26-35	19	•59.4%
	•36-45	5	•15.6%
	•46-55	0	•0%
	•56 and above	0	•0%
Total			100%
Number of years of experience	•Less than 1 years	9	•28.1 %
	•1-3 years		
	•4-6 years	9	•28.1%
	•7-10 years	9	•28.1%
	•More than 10 years	3	•9.4%
		2	•6.3%
Total		32	100%
Educational qualification	-High school diploma	4	•12.5%
	-Asso's degree	7	•21.9%
	-Bachelor's degree	16	•50%
	-Master's degree		
	-Doctorate	5	•15.6%
		0	•0%
Total		32	100%

Gender:

- The number of females is higher, representing 68.8% of the total sample.
- The number of males represents 31.3% of the total sample.
- No participants selected the option “prefer not to say” in this sample.

Total responses: 32.

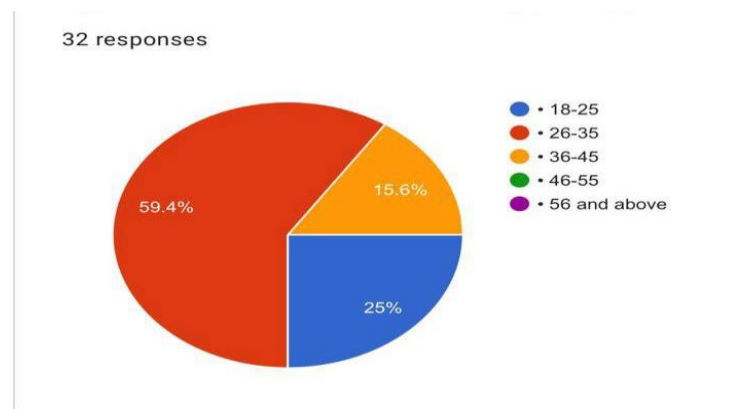


Age:

- The largest group in the sample is 26-35, representing 59.4% of the total sample.
- The second-largest group is 18-25, representing 25% of the total sample.
- The smallest group is 36-45, representing 15.6% of the total sample

.

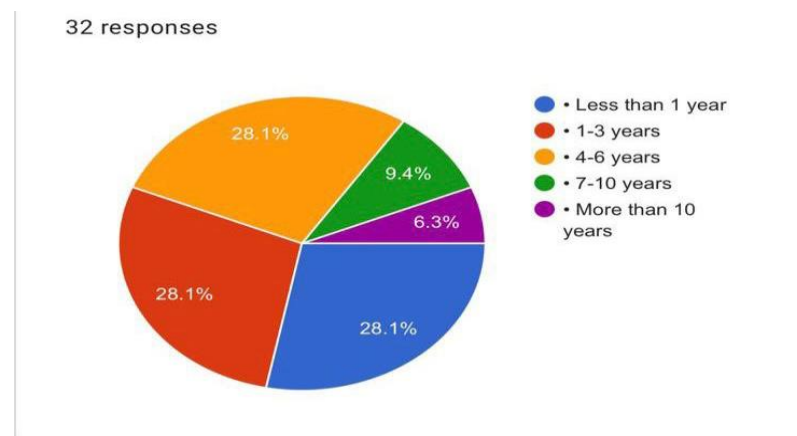
Total responses: 32.



Years of Experience:

- Less than 1 year: Represents 28.1% of the total responses.
- 1-3 years: Also represents 28.1% of the total responses.
- 4-6 years: Accounts for 28.1% of the total responses.
- 7-10 years: Represents 9.4% of the total responses.
- More than 10 years: Represents 6.3% of the total responses.

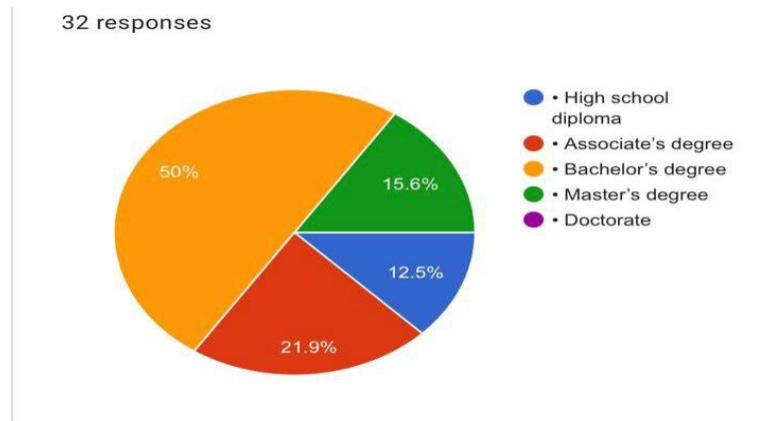
! Total responses: 32.



Educational qualifications:

- The largest group of respondents holds a Bachelor's degree, representing 50% of the total responses.
- Associate's degree holders come in second, making up 21.9%.
- Respondents with a Master's degree account for 15.6%.
- Those with a High school diploma represent 12.5%.
- No respondents reported having a Doctorate.

Total responses: 32.



3. Measuring the Validity and Reliability of the Research Tool

To verify the validity and reliability of the measures used in the study, internal consistency of the questionnaires was tested, along with convergent validity through the Average Variance Extracted (AVE). Reliability was measured using Cronbach's Alpha, composite reliability, and rho-A from the structural equation modeling (SEM) using Smart-PLS 3.0

3.1. Validity of the Measures Used in the Study

The internal consistency of the measures used in the study was tested, as well as convergent validity through the calculation of AVE.

- Internal Consistency: This refers to how consistent each item in the questionnaire is with the variable it is intended to measure. Correlation coefficients were calculated between the score of each item and the total score of the variable. According to Kaiser (1974), any item with a correlation lower than 0.5 is deleted from the questionnaire.

- Convergent Validity: This is measured by the Average Variance Extracted (AVE), which should be greater than 0.5, as per Hair et al. (2006).

The following tables and figures illustrate the statistical results of the correlation coefficients, standard deviations, T-values, P-values, and AVE calculations for testing the internal consistency and convergent validity of the questionnaire.

Variable	Statement	KOM	Factor loading	Standard deviation	P values	Average variance extracted	Average variance extracted
Teamwork							
1:leadership	A1		0.638	1.437	0.000		
	A2		0.650	1.395	0.000	0.644	
2:communcation	B1	0.618	0.739	1.387	0.000		
	B2		0.681	1.321	0.000	0.71	0.657167
3:coordination	C1		0.525	1.363	0.000		
	C2		0.710	1.358	0.000	0.6175	

Variable	Statement	KOM	Factor loading	Standard deviation	P values	Average variance extracted	Average variance extracted
Creative behaviour							
1:autbenticit	BA1	0.603	0.461	1.425	0.000	0.5645	0.583625
	BA2		0.668	1.366	0.000		
2:flexibility	BB1		0.486	1.367	0.000	0.567	
	BB2		0.648	1.310	0.000		
3:fluency and analytical ability	BC1		0.889	1.604	0.000	0.7235	
	BC2		0.558	1.176	0.000		
4:sensitivity to problems	BD1		0.446			0.4795	
	BD2		0.513				

The scale of applying the first variable:

All correlation coefficients for all statements are strongly correlated with their dependent variable (Teamwork:leadership, communcation, coordination) at values greater than 0.5.In addition, the values of all correlation coefficients for the statements are statistically significant at a significance level less than 0.001. Accordingly, the internal consistency validity of the scale has been achieved. Also, from the results above related to the value of the average variance extracted AVE, it is clear that its value for the variable of applying (Teamwork) is $0.657167 > 0.5$. Accordingly, the convergent validity of the questionnaire has been achieved.

The scale of applying the second variable: All correlation coefficients for the statements that measure (Creative behaviour: authenticity, flexibility, fluency and analytical ability, sensitivity to problems) have a value greater than 0.4. In addition, the values of all correlation coefficients for the statements are statistically significant at a significance level less than 0.0001. Accordingly, the internal consistency validity of the scale has been achieved in its three dimensions. Also, from the results above related to the value of the average variance extracted AVE for the variable of (Creative behaviour: authenticity, flexibility, fluency and analytical ability, sensitivity to problems) as a whole, which is equal to $0.583625 > 0.4$. Accordingly, the convergent validity of the questionnaire has been achieved.

4.3.2 Reliability of the study tool

The stability of the questionnaire refers to the stability of the questionnaire results and their non-change significantly if they were redistributed to the sample individuals several times during specific time periods. To measure the stability of the questionnaires used to measure the study variables, Cronbach's alpha values were calculated using SPSS version 28. According to (2010) Hair et al, the value must be greater than 0.7 for the scale to be stable.

Variable	Statement	Cronbach's alpha	Cronbach's alpha
Teamwork:			
1:leadership	2	0.576	0.704
2:communcation	2	0.685	
3:coordination	2	0.577	

Creative behavior:			
1:autbenticit	2	0.700	0.740
2:flexibility	2	0.653	
3:fluency and analytical ability	2	0.564	
4:sensitivity to problems	2	0.773	

(Teamwork :leadership, communication, :coordination): The statistical results showed that the values of Cronbach's alpha are (0.576, 0.685,0.577) , which indicates that all values are greater than 0.7 . According to Hair et al (2010), the stability of the scale has been achieved.

(Creative behavior : autbenticit , flexibility, fluency and analytical ability, sensitivity to problems):The statistical results showed that the values of Cronbach's alpha are (0.700,0.653,0.564,0.773) , which indicates that all values are greater than 0.7 . According to Hair et al (2010), the stability of the scale has been achieved.

Strongly disagree	Disagree	Neutral	Strongly agree	Agree
1	2	3	4	5

Then the relative weight corresponding to each category is calculated by multiplying the arithmetic mean by $(100 \div 5)$, where 5 is the five- point scale

Level (degree) practice/importance	Relative weight %	Result (general trend)	The value of the arithmetic mean
very low	From 20 to less than 36%	Strongly disagree	From 1 to less than 1.80
Low	From 36 to less than 52%	Disagree	From 1.80 to less than 2.60
Middle	From 52 to less than 68%	Neutral	From 2.60 to less than 3.40
Very high	From 68 to less than 84%	Strongly agree	From 3.40 to less than 4.20
High	From 84 to less than 100%	Agree	From 4.20 to less than 5

The following table shows the descriptive analysis of the study variables represented by the arithmetic means based on the five-point Likert scale and the standard deviations of the variables according to the table related to the importance of the arithmetic mean.

Variable		Arithmetic Mean		Standard deviation		General trend
First variable	Teamwork:					
	1:leadership	3.25		1.136		Neutral
	2:communcation	3.52	3.45	1.181	0.894	Agree
	3:coordination	3.61		1.053		Agree
Second variable	Creative behavior:					
	1:autbenticit	3.23		1.078		Neutral
	2:flexibility	3.59	3.55	0.995	0.804	Agree
	3:fluency and analytical ability	3.64		1.172		Agree
	4:sensitivity to problems	3.75		1.040		Agree

Variable		Level of importance
First variable	Teamwork	
	1:leadership	Middle
	2:communication	High
	3:coordination	High
Second variable	Creative behaviour:	
	1: autbenticit	Middle
	2: flexibility	High
	3: fluency and analytical ability	High
	4:sensitivity to problem	High

The results of the study sample regarding the dependent variable (teamwork) show that the general tendency of the sample members leans towards agreement, indicating a high level of implementation of teamwork practices. The overall mean for the variable was 3.45 with a standard deviation of 0.894. The descriptive statistical results for the dimensions of teamwork indicate that the general tendency for all three dimensions (Leadership, Communication, Coordination) is at a high level of agreement, reflecting a high level of teamwork application. For the Leadership dimension, the mean was 3.25 with a standard deviation of 1.136, for the Communication dimension, the mean was 3.52 with a standard deviation of 1.181, and for the Coordination dimension, the mean was 3.61 with a standard deviation of 1.053. These results demonstrate the agreement of the sample members on all dimensions of teamwork.

The results of the study sample regarding the dependent variable (creative behavior) show that the general tendency of the sample members indicates agreement, reflecting a high level of creative behavior implementation. The overall

mean for the variable was 3.55 with a standard deviation of 0.804. The descriptive statistical results for the dimensions of creative behavior indicate that the general tendency for all four dimensions (Authenticity, Flexibility, Fluency and Analytical Ability, Sensitivity to Problems) by the sample members is at a high level of agreement, reflecting a high level of creative behavior application. As for the dimensions of creative behavior, the results were as follows: For the Authenticity dimension, the mean was 3.23 with a standard deviation of 1.078; for the Flexibility dimension, the mean was 3.59 with a standard deviation of 0.995; for the Fluency and Analytical Ability dimension, the mean was 3.64 with a standard deviation of 1.172; and for the Sensitivity to Problems dimension, the mean was 3.75 with a standard deviation of 1.040. These results indicate that most of the study sample members agree on the application of creative behavior practices.

4.5 Linear correlation coefficients between the study variables

The following table shows the linear correlation coefficients between the study variables, which were measured using SPSS-V 28, as follows:

Variable		Leadership	Communication	Coordination	Creative behavior
Leadership	-Pearson correlation	1	.406*	.523**	.563**
	-Sig. (2-tailed)		.021	.002	<.001
	-N	32	32	32	32
Communication	-Pearson correlation	.406*	1	.407*	.725**
	-Sig. (2-tailed)	.021		.021	<.001
	-N	32	32	32	32

Coordination	-Pearson correlation	.523**	.407*	1	.723**
	-Sig. (2-tailed)	.002	.021		<.001
	-N	32	32	32	32
Creative behavior	-Pearson correlation	.563**	.725**	..723**	1
	-Sig. (2-tailed)	<.001	<.001	<.001	
	-N	32	32	32	32

-A moderate positive significant correlation (0.563) was found between teamwork and its dimensions as independent variables and creative behavior as the dependent variable, at a significance level of less than 0.01.

A moderate positive significant correlation was found between each dimension of teamwork (leadership, communication, coordination) with correlation coefficients of (1, 0.406, 0.523,) respectively, as independent variables, at a significance level of less than (0.01), with creative behavior as the dependent variable.

It can be observed from the above that the correlation coefficients between the study variables are high, indicating a strong correlation.

The linear relationship between the dimensions of the team and the team variable as a whole, as well as between each dimension and the other:

The results from the previous table indicate a significant positive correlation between the team and its dimensions (leadership, communication, coordination) at the (0.01) significance level.

4.6 The results of the study hypothesis test

This part is concerned with the main study opportunity validity test and subsequent sub-assembly, and the statistical results obtained are presented using both the SPSS V28 and SEM-PLS statistical package as follows:

Main Hypothesis of the Study:

There is a positive significant relationship with statistical significance between teamwork and creative behaviour .

Hypothesis 1: There is a statistically significant positive relationship between leadership and creative behavior.

Hypothesis 2: There is a statistically significant positive relationship between communication and creative behavior.

Hypothesis 3: There is a statistically significant positive relationship between coordination and creative behavior.

The results of the visual imposition test of the study:

The hypothesis states that "There is a statistically significant positive relationship between teamwork and creative behavior."

To test this hypothesis, the Simple Linear Regression Analysis method was used. This statistical technique is widely employed to examine the relationship between two variables. In this context, the method was applied to investigate the relationship between teamwork (the independent variable) and creative behaviour (the dependent variable).

The analysis aimed to determine whether there is a significant relationship between the application of teamwork practices and the level of creative behaviour . Through this method, the impact of teamwork on creative behaviour was assessed, along with measuring the strength and direction of the relationship using the statistical parameters derived from the simple linear regression model.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.827 ^a	.684	.673	.460

a. Predictors: (Constant), Variable_teamwork

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.718	1	13.718	64.882	<.001 ^b
	Residual	6.343	30	.211		
	Total	20.061	31			

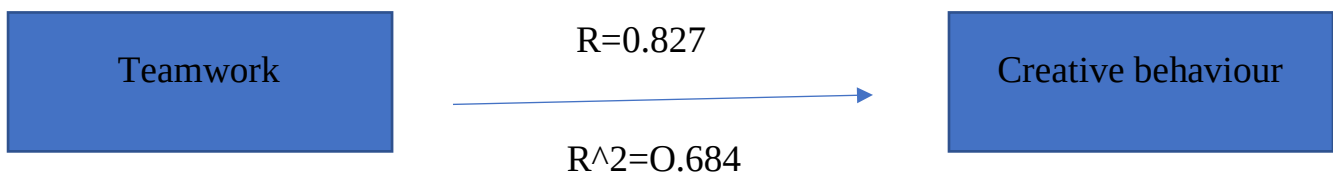
a. Dependent Variable: Variable_creative_behaviour

b. Predictors: (Constant), Variable_teamwork

Coefficients ^a						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	.990	.329		3.015	.005
	Variable_teamwork	.744	.092	.827	8.055	<.001

Coefficients ^a			
		95.0% Confidence Interval for B	
Model		Lower Bound	Upper Bound
1	(Constant)	.319	1.661
	Variable_teamwork	.555	.932

a. Dependent Variable: Variable_creative_behaviour



The significance level of the (F) test, which equals (sig) less than (0.01), indicates that the simple linear regression model is statistically significant at the 0.01 level.

The correlation coefficient value ($R = 0.827$) indicates a strong positive correlation between the overall team performance and creative behavior.

The adjusted R-squared value (R^2) shows that approximately 68% of the variance in creative behavior can be explained by the variance in team performance level.

The T-value indicates the significance of the regression coefficient beta (B), where the calculated significance level for the T-test is (0.990).

Based on the previous results, the null hypothesis is accepted, which states that there is a statistically significant positive relationship between team performance (overall) as the independent variable and creative behavior as the dependent variable.

Results of Hypothesis Testing for the First, Second, and Third Sub-Hypotheses:

The first sub-hypothesis states that there is no statistically significant relationship between leadership and creative behavior. This hypothesis tests the direct relationships between leadership, considered as the independent variable, and creative behavior as the dependent variable.

The second sub-hypothesis states that there is a statistically significant positive relationship between communication and creative behavior. This hypothesis tests the direct relationships between communication, considered as the independent variable, and creative behavior as the dependent variable.

The third sub-hypothesis states that there is a statistically significant positive relationship between coordination and creative behavior. This hypothesis tests the direct relationships between coordination, considered as the independent variable, and creative behavior as the dependent variable.

To test these sub-hypotheses, the method of simple linear regression analysis was used.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.869 ^a	.756	.730	.418

a. Predictors: (Constant), Coordination, Communication, Leadership

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.164	3	5.055	28.904	<.001 ^b
	Residual	4.897	28	.175		
	Total	20.061	31			

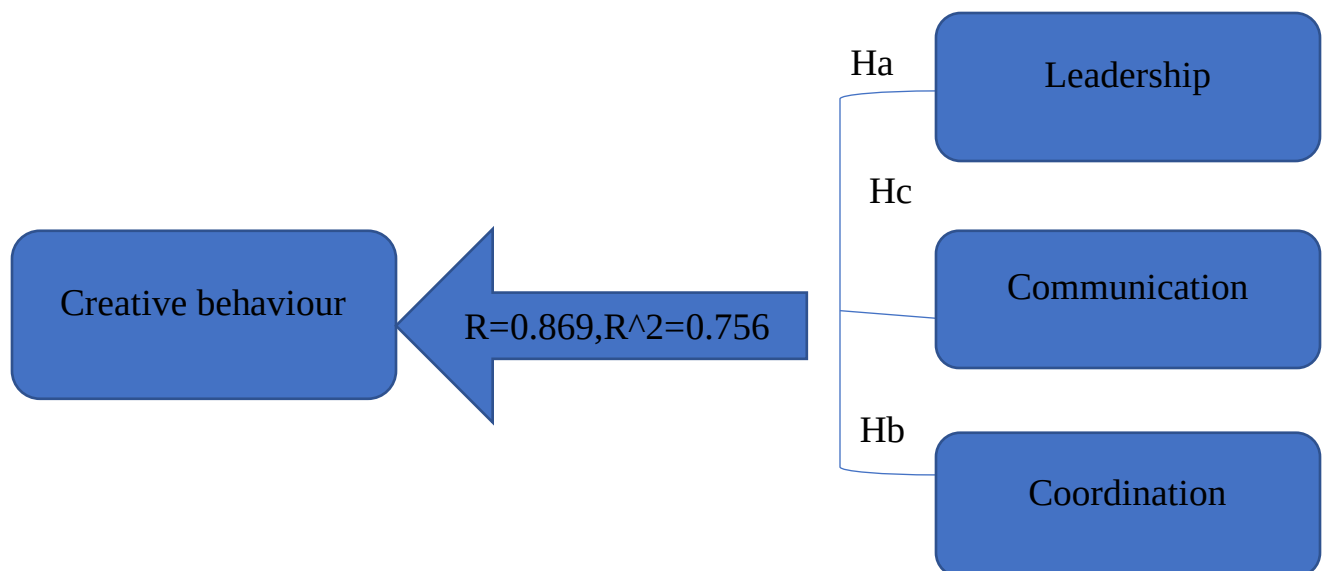
a. Dependent Variable: Variable_creative_behaviour

b. Predictors: (Constant), Coordination, Communication, Leadership

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.833	.305		2.736	.011
	Leadership	.088	.080	.125	1.103	.280
	Communication	.332	.072	.487	4.615	<.001
	Coordination	.352	.086	.460	4.068	<.001

Coefficients ^a			
Model		95.0% Confidence Interval for B	
		Lower Bound	Upper Bound
1	(Constant)	.209	1.457
	Leadership	-.076	.252
	Communication	.184	.479
	Coordination	.175	.529

a. Dependent Variable: Variable_creative_behaviour



The knowledge level of the (F) test indicates that the (sig) value is less than 0.01, which suggests that the simple linear regression model is statistically significant at the 0.01 level.

The correlation coefficient ($R = 0.869$) indicates a strong positive relationship between the dimensions of teamwork (leadership, communication, coordination) and creative behavior.

The coefficient of determination (R^2) indicates that 75% of the variance in creative behavior can be explained by the variance in the levels of teamwork dimensions.

The (T-Value) indicates the significance of the Beta (B) regression coefficient, where the computed significance level for the (T) test is 0.833.

Based on the previous results, the first hypothesis is rejected as no statistically significant positive correlation was found between leadership (independent variable) and creative behavior (dependent variable). However, the second and third sub-hypotheses were accepted, as a statistically significant positive relationship was found between communication and coordination (independent variables) and creative behavior (dependent variable).

Conclusion

This chapter presented a detailed statistical analysis of the findings from the field study conducted on a sample of employees within the specified organization. The analysis utilized advanced statistical tools, including SPSS and SEM-PLS, to process and interpret the data. These tools provided robust statistical capabilities, enabling an accurate and reliable interpretation of the findings.

The descriptive statistical analysis focused on understanding the characteristics of the participants, with emphasis on demographics such as age, gender, job position, and years of experience. This analysis helped to provide a comprehensive understanding of the sample's profile, which was essential for deriving meaningful insights from the study results.

The inferential analysis examined the relationship between the main study variables. The independent variable in this study, Teamwork, was explored through its dimensions of Leadership, Communication, and Coordination. These dimensions were analyzed to assess their influence on the dependent variable, Creative Behavior, and its dimensions of Authenticity, Flexibility, Fluency and Analytical Ability, and Sensitivity to Problems.

The analysis confirmed the validity and reliability of the scales used, which demonstrated high levels of consistency and accuracy. These results underscore the reliability of the data extracted from the study. The SEM-PLS approach further facilitated the testing of the primary hypothesis, which proposed a significant relationship between Teamwork and Creative Behavior. The results revealed the extent to which the dimensions of Teamwork impacted the dimensions of Creative Behavior, providing a clear understanding of the interaction between the variables within the organizational context.

This chapter's findings affirmed the pivotal role of Teamwork in fostering Creative Behavior. These insights provide valuable implications for improving teamwork practices and enhancing creativity in organizational settings. Such improvements are vital for addressing real-world challenges and promoting practical applications of study recommendations.

References

1. Amabile, T. M. (2018). Creativity in the workplace: A systematic review of the relationship between organizational policies and practices and individual creativity. *Journal of Applied Psychology*, 103(1), 3-32.
2. De Dreu, C. K., De Vries, R. F. W., & Beersma, B. (2008). Conflict and creativity. In S. Zacher & B. Staw (Eds.), *The Oxford handbook of organizational creativity* (pp. 474-498). Oxford University Press.
3. Dyer, B. D., Stairs, L. A., & Mullen, B. (2006). The effect of demographic diversity on the thinking style of work teams. *Journal of Applied Psychology*, 91(3), 458-466.
4. Goncalo, J. A., & Staw, B. M. (2006). The cognitive consequences of team diversity: A review and integration of the empirical literature. *Psychological Bulletin*, 132(1), 3-26.
5. Janis, I. L. (1982). *Groupthink*. Second Edition. Houghton Mifflin.
6. Paolotti, K. J., Paulus, W. L., & Isen, A. M. (2015). Cognitive diversity boosts creative problem solving. *Psychological Science*, 26(7), 1157-1166.
7. Paulus, W. L., & Nijstad, B. A. (2003). The emergence of creativity in groups: A social psychological perspective. *Psychological Bulletin*, 129(1), 82-106.
8. Paulus, P. B., & Nijstad, B. A. (2003). *Group creativity: Innovation through collaboration*. *Oxford University Press*.
9. Amabile, T. M. (1988). A model of creativity and innovation in organizations. *Research in Organizational Behavior*, 10(1), 123-167.
10. Hülsheger, U. R., Anderson, N., & Salgado, J. F. (2009). Team-level predictors of innovation at work: A comprehensive meta-analysis spanning three decades of research. *Journal of Applied Psychology*, 94(5), 1128-1145.

11. Janis, I. L. (1982). *Groupthink: Psychological studies of policy decisions and fiascoes* (2nd ed.). Houghton Mifflin.
12. Kozlowski, S. W. J., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest*, 7(3), 77-124.
13. Paulus, P. B., & Dzindolet, M. T. (2008). Social influence, creativity and innovation. *Social Influence*, 3(4), 228-247.
14. Paulus, P. B., & Nijstad, B. A. (2003). *Group creativity: Innovation through collaboration*. Oxford University Press.
15. Shalley, C. E., Zhou, J., & Oldham, G. R. (2004). The effects of personal and contextual characteristics on creativity: Where should we go from here? *Journal of Management*, 30(6), 933-958.
16. Bass, B. M. (1990). From transactional to transformational leadership: Learning to share the vision. *Organizational Dynamics*, 18(3), 19-31.
17. Cannon-Bowers, J. A., Salas, E., & Converse, S. A. (1993). Shared mental models in expert team decision making. In N. J. Castellan, Jr. (Ed.), *Individual and group decision making: Current issues* (pp. 221-246). Lawrence Erlbaum Associates.
18. Cohen, S. G., & Bailey, D. E. (1997). What makes teams work: Group effectiveness research from the shop floor to the executive suite. *Journal of Management*, 23(3), 239-290.

19. Edmondson, A. C., & Nembhard, I. M. (2009). Product development and learning in project teams: The challenges are the benefits. *Journal of Organizational Behavior*, 30(2), 329-352.
20. Johnson, D. W., & Johnson, R. T. (1989). *Cooperation and competition: Theory and research*. Interaction Book Company.
21. Kozlowski, S. W. J., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest*, 7(3), 77-124.
22. Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *Academy of Management Review*, 26(3), 356-376.
23. Martins, L. L., Gilson, L. L., & Maynard, M. T. (2004). Virtual teams: What do we know and where do we go from here? *Journal of Management*, 30(6), 805-835.
24. McGrath, J. E. (1964). *Social psychology: A brief introduction*. Holt, Rinehart, & Winston.
25. Salas, E., Dickinson, T. L., Converse, S. A., & Tannenbaum, S. I. (1992). Toward an understanding of team performance and training. In R. W. Swezey & E. Salas (Eds.), *Teams: Their training and performance* (pp. 3-29). Ablex.

26. West, M. A. (2002). Sparkling fountains or stagnant ponds: An integrative model of creativity and innovation implementation in work groups. *Applied Psychology*, 51(3), 355-424.
27. Zaccaro, S. J., Rittman, A. L., & Marks, M. A. (2001). Team leadership. *The Leadership Quarterly*, 12(4), 451-483.
28. Amabile, T. M. (1983). *The social psychology of creativity*. SpringerVerlag.
29. Amabile, T. M. (1988). A model of creativity and innovation in organizations. *Research in Organizational Behavior*, 10, 123-167.
30. Barron, F., & Harrington, D. M. (1981). Creativity, intelligence, and personality. *Annual Review of Psychology*, 32(1), 439-476.
31. Finke, R. A., Ward, T. B., & Smith, S. M. (1992). *Creative cognition: Theory, research, and applications*. MIT Press.
32. Guilford, J. P. (1967). *The nature of human intelligence*. McGraw-Hill.
33. Harter, S. (2002). Authenticity. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 382-394). Oxford University Press.
34. Hülsheger, U. R., Anderson, N., & Salgado, J. F. (2009). Team-level predictors of innovation at work: A comprehensive meta-analysis spanning three decades of research. *Journal of Applied Psychology*, 94(5), 1128-1145.
35. Leenders, R. T. A. J., van Engelen, J. M. L., & Kratzer, J. (2003). Virtuality, communication, and new product team creativity: A social network

- perspective. *Journal of Engineering and Technology Management*, 20(1-2), 69-92.
36. Nijstad, B. A., De Dreu, C. K. W., Rietzschel, E. F., & Baas, M. (2010). The dual pathway to creativity model: Creative ideation as a function of flexibility and persistence. *European Review of Social Psychology*, 21(1), 34-77.
37. Paulus, P. B., & Nijstad, B. A. (Eds.). (2003). *Group creativity: Innovation through collaboration*. Oxford University Press.
38. Shalley, C. E., Zhou, J., & Oldham, G. R. (2004). The effects of personal and contextual characteristics on creativity: Where should we go from here? *Journal of Management*, 30(6), 933-958.
39. Sternberg, R. J., & Lubart, T. I. (1991). An investment theory of creativity and its development. *Human Development*, 34(1), 1-31.
40. Woodman, R. W., Sawyer, J. E., & Griffin, R. W. (1993). Toward a theory of organizational creativity. *Academy of Management Review*, 18(2), 293-321.
41. Carmeli, A., Brueller, D., & Dutton, J. E. (2009). Learning behaviors in the workplace: The role of high-quality interpersonal relationships and psychological safety. *Systems Research and Behavioral Science*, 26(1), 81-98.
42. Diehl, M., & Stroebe, W. (1987). Productivity loss in brainstorming groups: Toward the solution of a riddle. *Journal of Personality and Social Psychology*, 53(3), 497-509.

43. Edmondson, A. C. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly*, 44(2), 350-383.
45. George, J. M. (2007). Creativity in organizations. *Academy of Management Annals*, 1(1), 439-477.
46. Harvey, S. (2013). A different perspective: The multiple effects of deep-level diversity on group creativity. *Journal of Experimental Social Psychology*, 49(5), 822-832.
47. Hülsheger, U. R., Anderson, N., & Salgado, J. F. (2009). Team-level predictors of innovation at work: A comprehensive meta-analysis spanning three decades of research. *Journal of Applied Psychology*, 94(5), 1128-1145.
48. Janis, I. L. (1982). *Groupthink: Psychological studies of policy decisions and fiascoes* (2nd ed.). Houghton Mifflin.
49. Martins, L. L., Gilson, L. L., & Maynard, M. T. (2004). Virtual teams: What do we know and where do we go from here? *Journal of Management*, 30(6), 805-835.
50. Nijstad, B. A., Stroebe, W., & Lodewijkx, H. F. (2006). The illusion of group productivity: A reduction of failures explanation. *European Journal of Social Psychology*, 36(1), 31-48.
51. Paulus, P. B., & Nijstad, B. A. (2003). *Group creativity: Innovation through collaboration*. Oxford University Press.
52. Zaccaro, S. J., Rittman, A. L., & Marks, M. A. (2001). Team leadership. *The Leadership Quarterly*, 12(4), 451-483.

53. Carmeli, A., Brueller, D., & Dutton, J. E. (2009). Learning behaviors in the workplace: The role of high-quality interpersonal relationships and psychological safety. *Systems Research and Behavioral Science*, 26(1), 81-98.
54. Diehl, M., & Stroebe, W. (1987). Productivity loss in brainstorming groups: Toward the solution of a riddle. *Journal of Personality and Social Psychology*, 53(3), 497-509.
55. Edmondson, A. C. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly*, 44(2), 350-383.
56. George, J. M. (2007). Creativity in organizations. *Academy of Management Annals*, 1(1), 439-477.
57. Hülsheger, U. R., Anderson, N., & Salgado, J. F. (2009). Team-level predictors of innovation at work: A comprehensive meta-analysis spanning three decades of research. *Journal of Applied Psychology*, 94(5), 1128-1145.
58. Janis, I. L. (1982). *Groupthink: Psychological studies of policy decisions and fiascoes* (2nd ed.). Houghton Mifflin.
59. Martins, L. L., Gilson, L. L., & Maynard, M. T. (2004). Virtual teams: What do we know and where do we go from here? *Journal of Management*, 30(6), 805-835.
60. Paulus, P. B., & Nijstad, B. A. (2003). *Group creativity: Innovation through collaboration*. Oxford University Press.

61. Zaccaro, S. J., Rittman, A. L., & Marks, M. A. (2001). Team leadership. *The Leadership Quarterly*, 12(4), 451-483.

62.

مع أطيب الأمنيات بالنجاح والتوفيق

It`s Never Too Late to START. Just Begin!

Best of Luck *Dr. Mona Moustafa Elashry*

