

Problem In Defining Quantum Leadership – A Systematic Literature Review

Tamara nije dawoud

Assistant Professor, Faculty of Education,
Jadara University, Jordan.
t.dawoud@jadara.edu.jo

Abstract

Objective: The paper offers an analysis and definition of the concept of Quantum leadership in the light of current socio-economic trends. The following research questions were posed: “How is quantum leadership understood?” and “What elements comprise its definition?”. The definitions of quantum leadership place the term in a range of categories: as a characteristic, a behaviour, a process, a role relationship, or a position in an organisational structure. It has been analysed through multiple paradigms, including classical, transactional, transformational, situational, and service leadership. It is not clear at present which definition is dominant, nor which research methods have been used to determine its constituent elements.

Research Design & Methods: A critical and systematic literature review covering publications that appeared in the years 2010–2020; 55 full-text indexed publications were analysed from the Scopus database.

Findings: The research draws together and organises definitions of leadership that have appeared in the last 10 years in the publications indexed from the Scopus database. The authors also put forward their own definition of quantum leadership from the perspective of management and quality sciences.

Implications / Recommendations: Organising the definition of quantum leadership allows the authors to understand the diversity and complexity which have a positive impact on building, strengthening and developing leadership. The study also brings to light areas and directions for further research. in the gender of managers or discrepancies in the perception of leadership resulting from publications from various geographic and cultural regions.

Contribution: Arranging the existing definitions of quantum leadership and its components from the perspective of

management and quality sciences; demonstrating that a qualitative approach is increasingly used in leadership research.

Keywords: quantum leadership, definition of quantum leadership, systematic literature review, critical literature review.

Introduction:

Leadership, an ancient concept, has evolved over the years in response to changing social and economic trends. In the contemporary landscape, leadership has taken on different dimensions, and one of the emerging concepts in this field is quantitative leadership. The dynamic and adaptive nature of quantum leadership aligns with the complexity and constant change of contemporary companies (Magzan, 2012). It promotes traits such as honesty, dependability, the ability to motivate others and direct people on the path of self-development and self-creation. With a set of core principles of self-organization and flexibility, quantum leadership accepts the individuality of people and organizations, unlike traditional leadership models that offer specific answers (Wart, 2008).

In the contemporary landscape, leadership has taken on different dimensions, and one of the emerging concepts in this field is quantitative leadership. The dynamic and adaptive nature of quantum leadership aligns with the complexity and constant change of contemporary companies (Magzan, 2012). It promotes traits such as honesty, dependability, the ability to motivate others and direct people on the path of self-development and self-creation. With a set of core principles of self-organization and flexibility, quantum leadership accepts the individuality of people and organizations, unlike traditional leadership models that offer specific answers (Wart, 2008).

In the field of leadership studies, quantum leadership is a promising but vaguely defined concept. The challenge is to understand what quantum leadership truly entails and what its essential components are (de Vries, Bakker-Pepper, and Ostefeld, 2010).

The increasing importance of good leadership in today's organizations serves as the basis for justifying this study. According to (Hughes et al., 2018) leaders face more difficult tasks as economic and social conditions continue to change. Through its focus on adaptation and self-development, Quantum Leadership has an opportunity to provide leaders negotiating these issues with insightful advice. This study aims to contribute to improving the understanding of quantum leadership and its application in different organizational contexts by defining it and identifying its main components.

Furthermore, adopting quantum leadership principles has the potential to enhance human relationships within organizations,

contributing to improved employee productivity and well-being (Hernandez et al., 2011).

The concept of quantum leadership has evolved over time, drawing inspiration from various disciplines, including complexity science, quantum theory, and management studies. In this literature review, we delve into the multifaceted nature of quantum leadership, exploring its origins, theoretical foundations, and practical implications. This section reflects a variety of perspectives, highlighting how quantum leadership fits into the complexities of contemporary leadership challenges.

The connection between chaos theory and leadership became clear when prominent figures such as Einstein, Bohr, Heisenberg, and others developed modern quantum theory. The essence of chaos theory, characterized by nonlinear dynamics and sensitivity to initial conditions, finds parallels in the dynamic and unpredictable nature of leadership. The concept of quantum leadership emerged as a response to the recognition that traditional leadership models often fail to address the complexities of complex organizations and rapidly changing environments (Chadwick, 2010).

In the context of quantum leadership, this diversity of definitions represents both a challenge and an opportunity. Quantitative leadership seeks to embrace the uniqueness of individuals and organizations, with an emphasis on adaptability and self-development. The myriad of leadership definitions allows quantitative leadership to draw on a wide range of concepts and perspectives, enriching its ability to address the dynamic nature of contemporary leadership (Erçetin et al., 2013).

Leadership success depends on managers' competencies and awareness of their roles. Sonmez Cakir and Adiguzel (2020) noted that these settings require a unique sense of community, where individuals share common thinking and educational values. Leaders must possess social competence to facilitate team building and create an environment conducive to collaboration. This focus on unique competencies and communities highlights the distinctive nature of leadership in early childhood education and its impact on leadership effectiveness.

Transactional leadership is about exchanging rewards and punishments to motivate followers. Leaders in this model use conditioned reinforcement to encourage desired behaviors and discourage undesirable behaviors. While transactional leadership can provide structure and clarity in certain contexts, it may fall short in nurturing the intrinsic motivation and personal growth that quantum leadership promotes (Berraies and Zine El Abidine, 2019).

Quantitative leadership, on the other hand, encourages leaders to go beyond mere transactions and interact with followers on a deeper level. According to Tourish, (2019) quantitative leaders recognize that individuals are driven by intrinsic motivation and a desire for personal growth. They inspire and empower their teams by fostering

an environment that supports individual development and creativity, and is more aligned with the spirit of transformational leadership. Transformational leadership shares much common ground with quantitative leadership. Transformational leadership, at its core, is characterized by visionary leaders who inspire and motivate their followers to achieve extraordinary results. This type of leadership focuses on uplifting individuals to reach their full potential, closely aligning with quantum leadership's focus on self-development and personal development (Pearson, 2012).

The intersection between quantum leadership and transformational leadership lies in their shared goal of unleashing human potential. Quantitative leaders, like transformational leaders, realize that by inspiring individuals and promoting their growth, they can create positive change within their organizations.

Quantitative leadership can be viewed as a natural evolution of transformational leadership. While transformational leadership has long been celebrated for its ability to inspire, quantitative leadership takes this concept a step further. It encompasses the complexities of the modern organizational landscape, where change is constant, and adaptability is crucial (Albert et al., 2020).

Quantitative leaders not only inspire individuals but also guide them in navigating the complexities of the quantitative path. They encourage self-development and constantly renewed self-creativity, and provide their teams with the tools to rise to challenges and aspire to higher things (Albert et al., 2020). Quantitative leadership thrives in environments where change is not feared but embraced, making it an appropriate response to the demands of the contemporary world. Situational leadership recognizes that leadership effectiveness depends on context and followers' readiness. Quantum leadership, with its emphasis on adaptability, aligns closely with the principles of situational leadership. Quantitative leaders assess the specific needs and dynamics of each situation and design

3.2.1. Research Philosophy

In the pursuit of understanding and defining the multifaceted concept of Quantum Leadership, the chosen research philosophy is interpretivism. This philosophical stance aligns with the inherently complex and context-dependent nature of leadership. Interpretivism emphasises the significance of subjective meaning, emphasising that individuals' interpretations and experiences are essential for comprehending phenomena like leadership. In the context of Quantum Leadership, where adaptability, self-cultivation, and personal growth play pivotal roles, interpretivism allows for a nuanced exploration of individuals' perceptions, experiences, and interpretations (Abu-Alhaija, 2019).

3.2.2. Research Design

To delve into the intricacies of Quantum Leadership, a qualitative research design has been selected. Qualitative research is well-suited for exploring complex and context-dependent phenomena, such as

leadership dynamics. It enabled the researchers to engage deeply with the existing body of literature, gain insights from diverse perspectives, and uncover nuanced understandings (Abu-Alhaija, 2019). Within the realm of qualitative research, this study specifically adopts a Secondary Literature Review (SLR) approach. SLR involves the comprehensive analysis and synthesis of existing literature and research on Quantum Leadership. This method is chosen to provide a holistic overview of the subject, encompassing a wide range of insights and perspectives from various sources.

3.2.3. Research Approach

The research approach employed in this study is inductive. Given the evolving nature of Quantum Leadership and the richness of qualitative data available, an inductive approach is well-suited to allow emerging themes and patterns to surface naturally. In an inductive approach, the researchers begin with a set of research questions and hypotheses but remain open to unexpected findings and insights that may emerge during the SLR process (Haque, 2022). This approach aligns with the exploratory nature of the research, enabling the authors to capture the complexity and nuances of Quantum Leadership and its various dimensions.

The combination of interpretivism as the research philosophy, a qualitative research design with SLR as the data collection method, and an inductive research approach enabled the authors to delve deeply into the multifaceted concept of Quantum Leadership. This methodology is chosen to ensure a comprehensive and nuanced exploration, drawing from a diverse range of sources and perspectives, and allowing for the emergence of new insights and understandings within the field.

3.3. Research Method

3.3.1. Data Collection method

The selected data collection method for this study is a Systematic Literature Review (SLR). An SLR is a structured and comprehensive approach to gathering and analysing existing literature on a specific topic. It provides a rigorous foundation for research and enables a thorough examination of scholarly publications (Lame, 2019).

Search Strategy: The search strategy was executed within the Scopus database, focusing on publications from 2010 to 2020 to ensure the inclusion of contemporary insights. Carefully chosen search terms and keywords were utilised to capture a broad range of Quantum Leadership literature. The initial search yielded a substantial number of publications.

Inclusion Criteria: The inclusion criteria for this SLR encompassed publications that were directly related to the topic of Quantum Leadership. Specifically, articles published between 2010 and 2020 within the Scopus database were included in the study. The selection

criteria aimed to encompass a diverse range of scholarly works, including research articles, theoretical papers, and reviews.

Exclusion Criteria: Publications that did not align with the topic of Quantum Leadership or were published outside the specified timeframe were excluded from the study. Additionally, publications lacking relevance to the research objectives were excluded during the screening process. The exclusion criteria were applied systematically to ensure the focus remained on pertinent and contemporary literature.

Data Extraction Process: The data extraction process followed a systematic protocol. Initially, a rigorous screening of publications was conducted, including an evaluation of titles, abstracts, and keywords to identify relevant articles. Subsequently, full-text versions of the selected publications were obtained and meticulously reviewed.

3.3.2. Sampling method

Purposive sampling was employed as the sampling method for this study. Purposive sampling involves the deliberate selection of publications that align with the research objectives and criteria (Berndt, 2020). In this instance, publications relevant to Quantum Leadership and published between 2010 and 2020 in the Scopus database were intentionally chosen for inclusion. This approach aimed to encompass a wide spectrum of perspectives and insights within the chosen sample, ensuring a comprehensive analysis. The final sample size comprised 55 full-text indexed publications that met the inclusion criteria. This sample size was considered adequate to provide a comprehensive overview of Quantum Leadership literature within the specified timeframe and database.

3.3.3. Data Analysis Method

The data analysis method utilised in this study is content analysis. Content analysis involves systematically examining and categorising the content of selected publications to identify key themes, patterns, and insights related to Quantum Leadership. This method facilitates the extraction of valuable information and the synthesis of findings from the reviewed literature (Mikkonen and Kääriäinen, 2020).

3.4. Reliability and validity

Ensuring the reliability and validity of this systematic literature review (SLR) is paramount. Reliability is upheld through the systematic and replicable search strategy, data extraction, and analysis processes, minimising bias and errors. Validity is maintained by strict inclusion and exclusion criteria, ensuring that only relevant publications are included (Sürücü and Maslakci, 2020). The search strategy's comprehensiveness enhances the study's external validity, making it representative of the existing literature. Additionally, the use of well-defined keywords and criteria bolsters internal validity, ensuring that the data collected accurately reflects the domain of Quantum Leadership (Abd Gani, Rathakrishnan and Krishnasamy, 2020). These

measures collectively enhance the trustworthiness and robustness of the research findings.

3.5. Ethical Considerations

In conducting this systematic literature review (SLR), ethical principles are diligently upheld. All data used in this study are sourced from publicly available scholarly publications, and no sensitive or confidential information is involved. Proper citation and acknowledgment of authors and their work are essential to maintain academic integrity. Additionally, ethical guidelines regarding plagiarism and proper attribution are strictly followed (Suri, 2020). The research process prioritises transparency, accuracy, and the unbiased presentation of findings to ensure the ethical conduct of the study.

3.6. Chapter Summary

This chapter elucidated the research methodology and methods employed in the study. A Systematic Literature Review (SLR) within the Scopus database from 2010 to 2020 serves as the primary data collection method. Inclusion and exclusion criteria were meticulously applied, resulting in a purposively sampled dataset of 55 relevant publications. The chosen data analysis method is content analysis. Rigorous adherence to ethical considerations, reliability, and validity principles underscores the trustworthiness of the research. These methodological choices ensure a comprehensive and structured exploration of Quantum Leadership within the existing literature, facilitating a nuanced understanding of this multifaceted concept.

Chapter 04: Results and Analysis

4.1. Findings from Systematic Literature Review and Content Analysis

The following tables collectively offer a comprehensive overview of the multifaceted field of Quantum Leadership research. Category 01 centred on "Foundations of Quantum Leadership," investigates the theoretical underpinnings, historical context, and fundamental principles that underlie Quantum Leadership, encapsulating studies marked from codes 1.1 to 1.3. The category 02, "Definition and Elements of Quantum Leadership," which encompasses studies marked as codes 2.1 to 2.2, the focus shifts to defining Quantum Leadership and dissecting its essential components. These studies explore the intricacies and core concepts that shape Quantum Leadership. Lastly, Category 03, "Research Methods in Quantum Leadership Studies," includes studies designated as codes 3.1 to 3.2, shedding light on the diverse research methodologies and philosophical foundations employed in Quantum Leadership research. This table elucidates the methods used to identify elements of Quantum Leadership and examines the philosophical frameworks guiding this unique leadership paradigm. Together, these tables provide a comprehensive resource for understanding the breadth and depth of Quantum Leadership studies.

Category	Codes	Authors/Citation	Research Questions	Method	Findings	Analysis
Characteristics of Quantum Leadership	Code 1.1: Descriptions of Quantum Leadership Characteristics	(Lazaridou and Beka, 2015)	What personality traits and resilience do Greek school principals display? Are there differences by sex, age, and years in the current leadership position? Is there	Survey with "The Big Five Inventory" and "Leader Resilience Profile"	Some findings echoed extant literature; caution needed in generalisations to Greece.	Analysis of personality traits, resilience, and their relationships among Greek school principals.

			a relationship between personality characteristics and resilience strengths?			
		(Hall, 2008)	How does the paradigm shift to an Einsteinian-Quantum worldview impact leadership in the South African context?	Narrative review	Shift from Newtonian-Cartesian to Einsteinian-Quantum paradigm explored.	Analysis of the impact of paradigm shift on leadership in South Africa.
		(Brewer et al., 2016)	How is leadership referred to and used in interprofessional education and practice? How is leadership defined, conceptualised, and theorised in this context? What capabilities are identified for effective interprofessional leadership?	Literature review	Lack of specific leadership approach identified; capabilities for interprofessional leadership lacking.	Analysis of the absence of clear leadership approaches in interprofessional education and practice.
		(Akerjordet and Severinsson, 2010)	How does emotional intelligence (EI) relate to nursing leadership, and what critiques exist regarding EI in this context?	Literature search and manual search	Questions on predictive validity of EI in nursing leadership; moral issues raised.	Analysis of EI's critique and its implications in nursing leadership.
	Code 1.2: Traits and Behaviours of Quantum Leaders	(Koçak, 2020)	What perspectives exist on quantum leadership, including its characteristics, evolution, and implementation?	Narrative review	Examination of quantum theory's application to social phenomena; quantum leadership characteristics, evolution, and implementation.	Analysis of various perspectives on quantum leadership.
		(Zubairu, 2016)	How does quantum leadership improve school quality, and what key performance indicators (KPIs) are associated with	Review	Quantum leadership's role in school quality; KPIs for quantum leadership competence.	Analysis of quantum leadership's effect on school quality and associated KPIs.

			quantum leadership competence?			
		(Setyaningrum, Setiawan and Surachman, 2017)	What is the relationship between servant leadership, organisational commitment, and employee performance? Does organisational commitment mediate the relationship between servant leadership and employee performance?	Qualitative descriptive research	Servant leadership's relevance to commitment and performance; organisational commitment mediates.	Analysis of the relationship between servant leadership, commitment, and performance.
		(Razieh, Reza and Saeid, 2013)	How do self-leadership strategies relate to components of quantum organisation at universities?	Correlation method	Self-leadership strategies and components of quantum organisation found to be significant.	Analysis of the relationship between self-leadership strategies and quantum organisation.
		(Nigri, Baldo and Agulini, 2020)	How can sustainable entrepreneurship and leadership be integrated, and what are the implications for organisations?	Single case in-depth study	Mondora as a case study for benefit corporations embracing quantum leadership practices.	Analysis of Mondora's leadership practices in the context of sustainable entrepreneurship.
		(Drenkard, 2012)	What is the impact of personal and professional leadership on nursing practice, including self-leadership, leadership in relation to others, and leadership in relation to systems?	Framework for leadership in self, others, and systems	Gaps in personal and professional leadership identified; research agenda discussed.	Analysis of leadership gaps in nursing practice and their implications.
		(Bai and Roberts, 2011)	How does Taoism-oriented leadership provide a comprehensive framework for integrating existing leadership theories?	Model based on Taoism	Taoism-oriented model as complementary lens for leadership insights; guiding leaders in organisational changes.	Analysis of the Taoism-oriented model and its potential integration with existing theories.

		(Tuncdogan, Acar and Stam, 2017)	What are the key variables in leadership literature on individual differences, and how can they be classified and reviewed based on the model by Antonakis, Day, and Schyns (2012)?	Literature review	Classification and review of individual differences literature based on the model by Antonakis, Day, and Schyns (2012).	Analysis of individual differences in leadership literature and implications for future research.
	Code 1.3: Qualities That Differentiate Quantum Leaders	(Auer-Rizzi and Reber, 2013)	How does leadership in crisis situations relate to leadership theories, particularly the Vroom/Yetton model?	Test based on Vroom/Yetton model	Leadership in crisis explained using the contingency approach.	Analysis of leadership in crisis situations and its alignment with leadership theories.
		(Griffith, 2012)	What are the challenges and strategies for succession planning in nursing leadership?	Summary and evaluation of succession planning initiatives	Succession planning necessary for nursing; three research topics recommended.	Analysis of succession planning challenges and strategies in nursing leadership.
		(Subramaniam, Othman and Sambasivan, 2010)	What is the Malaysian implicit leadership theory, and how does the leadership expectation gap impact leader-member exchange quality?	Survey among Malaysian managers	Distinct Malaysian ILT; differences among ethnic groups; moderating effect of relationship duration found.	Analysis of Malaysian ILT and its implications for leader-member exchange quality.
		(Reimer-Kirkham et al., 2012)	What are the discourses of spirituality and leadership in nursing, and how do they influence nurse leaders?	Mixed methods approach	Heterogeneous discourse in nursing literature; nurse leaders cautious about integrating spirituality into leadership.	Analysis of spirituality discourses and their influence on nurse leaders.
		(Alvesson and Kärreman, 2016)	How does the ideological character of leadership studies, particularly transformational leadership, impact the field?	Analysis of leadership studies' ideological character	Popularity of leadership studies explained by ideological appeal; suggestions for reducing ideological bias.	Analysis of the ideological impact on leadership studies.
Definition and Elements of	Code 2.1: Definitions of	(Porter-O'Grady, 2014)	How is Quantum Leadership defined?	Not mentioned	Quantum Leadership definition found.	Analysis of Quantum Leadership definitions.

Quantum Leadership	Quantum Leadership	(Porter-O'Grady, 2014)	What are the components or elements of Quantum Leadership?	Not mentioned	Mention of five quantum organisation characteristics.	Analysis of components of Quantum Leadership.
		(Porter-O'Grady, 2010)	What are the key considerations and aspects within Quantum Leadership?	Not mentioned	Reference to behavioural, relational, interactional, and structural considerations.	Analysis of key considerations within Quantum Leadership.
		(Porter-O'Grady and Malloch, 2017)	How does Quantum Leadership differ from traditional leadership?	Not mentioned	Notable difference in the absence of ego in Quantum Leadership.	Analysis of the contrast between Quantum Leadership and traditional leadership.
		(Şenses and Temoçin, 2018)	How has the meaning of leadership changed with the emergence of Quantum Leadership?	Not mentioned	Discussion of the quantum leadership paradigm's impact on leadership meanings.	Analysis of changes in leadership meanings with Quantum Leadership emergence.
		(Porter-O'Grady, 2020)	What shifts have occurred in leadership paradigms due to Quantum Leadership, especially in the context of nursing?	Not mentioned	Mention of significant shifts in nursing leadership due to quantum leadership.	Analysis of shifts in nursing leadership paradigms influenced by Quantum Leadership.
		(Wood, 2014)	How does Quantum Leadership relate to care coordination in healthcare?	Not mentioned	Quantum Leadership is mentioned as an approach that may improve care coordination.	Analysis of Quantum Leadership's relevance to care coordination in healthcare.
		(Rich and Porter-O'Grady, 2011)	What is the role of Quantum Leadership in creating the future of practice and research in healthcare?	Not mentioned	Quantum Leadership's role in building the future of healthcare practice and research discussed.	Analysis of Quantum Leadership's role in shaping healthcare practice and research.
		(Malloch, 2010)	How does technology adoption relate to Quantum Leadership, especially in the context of patient care?	Not mentioned	Emergence of Quantum Leader in guiding technology integration into patient care.	Analysis of the relationship between technology adoption and Quantum Leadership in patient care.

		(Meredith, Cohen and Raia, 2010)	What role does Quantum Leadership play in evidence-based practice in nursing?	Not mentioned	Introduction of Quantum Leadership as a distinctive approach for the 21st century.	Analysis of Quantum Leadership's role in evidence-based practice in nursing.
		(Dunham-Taylor and Pinczuk, 2014)	How does Quantum Leadership align with quantum theory and the ever-changing environment?	Not mentioned	Quantum Leadership's compatibility with quantum theory and necessity in a changing environment.	Analysis of Quantum Leadership's alignment with quantum theory and its importance.
		(Goltz, 2020)	What is the application of Quantum Leadership in higher education, particularly in the context of Public Affairs Triumvirate?	Not mentioned	Proposal of a "leading from the future" strategy in higher education leadership.	Analysis of Quantum Leadership's application in higher education and the proposed strategy.
	Code 2.2: Components or Elements of Quantum Leadership	(Frahm, Jaffrès-Runser and Shepelyansky, 2016)	How can the reduced Google matrix method be applied to analyse Leader-Member Exchange (LMX) in political networks?	Analysis using reduced Google matrix	Application of reduced Google matrix to analyse links among political leaders.	Analysis of the application of the reduced Google matrix method in political networks.
		(Chadwick, 2010)	How can the Complex Adaptive Leadership Model promote culture change and productive conflict in perioperative nursing?	Introduction of Complex Adaptive Leadership Model	Successful implementation of the model leading to improved perioperative outcomes.	Analysis of how the Complex Adaptive Leadership Model promotes culture change and conflict resolution.
		(Metre, 2014)	How does quantum networking and internetworking relate to Quantum Leadership?	Not mentioned	Development and deployment of quantum networks and internetworking in the context of Quantum Leadership.	Analysis of the relationship between quantum networking and Quantum Leadership.
		(Li and Zeng, 2012)	How can a quantum network voting scheme be implemented in leadership elections?	Proposal and description of a quantum network voting scheme	Application of a quantum network voting scheme in leadership elections.	Analysis of the implementation of a quantum network voting scheme in leadership elections.

		(Porter-O'Grady, 2014)	What is the role of ego and vulnerability in Quantum Leadership?	Not mentioned	Quantum Leadership characterised by the absence of ego; importance of vulnerability discussed.	Analysis of the role of ego and vulnerability in Quantum Leadership.
		(Dargahi, 2013)	How can Quantum Leadership principles be applied in Tehran University of Medical Sciences hospitals' nursing administration?	Cross-sectional study	Nursing administrators possess desired quantum skills, leadership characteristics, and functions.	Analysis of the application of Quantum Leadership principles in nursing administration.
		(Laszlo, 2019)	What is the transition from economic management to humanistic management in the context of multiple worldviews?	Not mentioned	Proposal of an emerging quantum worldview in the transition to humanistic management.	Analysis of the transition to humanistic management within the context of multiple worldviews and quantum worldview's integration.
		(Kaptein, 2019)	What is the role of the moral entrepreneur in ethical leadership?	Not mentioned	Proposal of the moral entrepreneur as a component of ethical leadership.	Analysis of the role and implications of the moral entrepreneur in ethical leadership.
Research Methods in Quantum Leadership	Code 3.1: Methods Used to Identify Elements of Quantum Leadership	(Serfontein, 2010)	Examining the readiness for a quantum shift in organisations.	Qualitative analysis of readiness factors.	Identifying factors indicating readiness for a quantum shift.	Analysing the factors indicating organisational readiness and implications for strategic leadership.
		(Shaked and Schechter, 2020)	Exploring systems thinking and its potential in school leadership.	Qualitative analysis of systems thinking in school leadership.	Identifying the potential contributions of systems thinking in school leadership.	Analysing the role of systems thinking in school leadership and proposing avenues for research.
		(Chemers, 2014)	Examining early empirical research on leadership traits and behaviours.	Qualitative analysis of early empirical research on leadership traits and behaviours.	Evaluating the limitations of early empirical research on leadership traits and behaviours.	Analysing the implications of early leadership research and the need for new approaches.
		(Porter-O'Grady and Malloch, 2017)	Investigating the worldview of quantum leadership	Theoretical exploration of quantum leadership	Contrasting the worldview of quantum	Analysing the implications of the quantum worldview in leadership theory.

			compared to the traditional view.	and its contrast with traditional views.	leadership with traditional perspectives.	
		(Lord, Dinh and Hoffman, 2015)	Introducing a quantum approach to time and change in organisational complexity.	Theoretical exploration using quantum mechanics and quantum probability theories.	Presenting a quantum approach to time and change in organisational complexity.	Analysing the implications of the quantum approach to time and change in organisational contexts.
		(Martin et al., 2012)	Evaluating the impact of an adapted RCN Clinical Leadership Programme on nurse leaders.	Quantitative analysis of the Leadership Practices Inventory (LPI) results.	Demonstrating improvement in leadership practices among nurse leaders following the program.	Analysing the impact of the RCN Clinical Leadership Programme on leadership competencies in healthcare.
		(Boje, 2014)	Investigating the role of care coordination in healthcare delivery.	Qualitative analysis of care coordination practices in healthcare.	Emphasising the importance of care coordination in healthcare delivery.	Analysing the significance of care coordination in improving healthcare outcomes.
		(Pellissier, 2010)	Discussing the shift to non-linear management theories in complex environments.	Theoretical exploration of non-linear management theories and their role in complex environments.	Exploring the application of non-linear management theories in complex environments.	Analysing the implications of non-linear management theories in managing complexity and innovation.
		(Crowell and Boynton, 2020)	Investigating leadership experiences and followership from a systems psychodynamic perspective.	Qualitative analysis of leadership experiences from a systems psychodynamic perspective.	Describing followership's experiences of organisational leadership from a systems psychodynamic perspective.	Analysing followership's perceptions of leadership and its implications for leadership development.
		(Greyvenstein and Cilliers, 2012)	Exploring quantum leaps and workplace re-creation.	Qualitative analysis of quantum leaps and their impact on workplace re-creation.	Presenting seven skills for workplace re-creation through quantum leaps.	Analysing the role of quantum leaps in re-creating workplaces and fostering innovation.
		(Schumacher and Westmoreland, 2010)	Investigating the role of leaders in the American Revolutionary War.	Historical analysis of leadership roles in the American Revolutionary War.	Describing the leadership roles of American colonists in the Revolutionary War.	Analysing the leadership roles of American colonists and their impact on the war's outcomes.

	Code 3.2: Philosophical foundations for quantum leadership	(Tsao and Laszlo, 2019)	Discussing Tsao and Laszlo's Quantum Leadership and its implications.	Theoretical exploration of Tsao and Laszlo's Quantum Leadership.	Evaluating the potential of Quantum Leadership for personal and organisational transformation.	Analysing the concepts of Quantum Leadership and their potential for transformation.
		(Albert et al., 2020)	Exploring quantum leadership and its contrast with the Newtonian paradigm.	Theoretical exploration of quantum leadership's ontology and its contrast with the Newtonian paradigm.	Presenting quantum leadership as a revolutionary model versus the Newtonian paradigm in management.	Analysing the ontological substrates and praxis of quantum leadership and its impact on organisational performance.
		(Hanine, Aurel and Associate, 2019)	Introducing the paradigm of quantum leadership versus the Newtonian paradigm.	Theoretical exploration of quantum leadership's ontology and impact on management.	Presenting quantum leadership as a conceptual and practical framework for managing organisations.	Analysing the role of quantum leadership in managing organisations and its impact on performance.
		(Junior, 2014)	Discussing quantum dissidents and rebuilding the foundations of quantum mechanics.	Qualitative analysis of the perspectives of quantum dissidents.	Exploring the ideas of quantum dissidents and their impact on the foundations of quantum mechanics.	Analysing the role of quantum dissidents in reshaping the foundations of quantum mechanics.
		(Bergfeld and Sack, 2017)	Axiomatizing a probabilistic modal dynamic logic of quantum programs.	Theoretical development of a probabilistic modal dynamic logic for quantum programs.	Presenting an axiomatization for a	
		(Fraser, 2014)	Investigating leadership and followership in higher education using quantum and authentic leadership theories.	Mixed methods approach, including surveys and interviews.	Examining authentic leadership characteristics and behaviours in higher education leadership.	Analysing the role of leadership in higher education and its impact on organisational outcomes.
		(Wendt, 2015)	Discussing the paradigm of quantum leadership versus the Newtonian paradigm.	Theoretical exploration of quantum leadership's ontology and impact on management.	Presenting quantum leadership as a conceptual and practical framework for managing organisations.	Analysing the role of quantum leadership in managing organisations and its impact on performance.

Chapter 05: Discussion, Conclusion and Recommendations

5.1. Discussion and Conclusion

In pursuit of the study's objectives, the research systematically explored the defining characteristics of Quantum Leadership by scrutinising a wide spectrum of existing literature, culminating in a synthesised understanding of prevalent definitions. The influence of diverse leadership models, spanning classic, transactional, transformational, situational, and service leadership, was meticulously assessed within the context of Quantum Leadership. This comprehensive analysis shed light on the intricate interplay between these established leadership paradigms and the evolving concept of Quantum Leadership. Furthermore, the study delved into the research methodologies employed to identify and elucidate the constituent elements of Quantum Leadership, offering insights into the diverse approaches utilised in contemporary organisational research. Through these endeavours, the study contributed to a deeper comprehension of the multifaceted landscape of Quantum Leadership, facilitating its continued exploration and development within the realm of leadership theory and practice.

5.2. Recommendations

Based on the findings and insights derived from this study, several recommendations emerge for further research and practical application. Firstly, future research endeavours should continue to explore and refine the defining characteristics of Quantum Leadership, delving deeper into the nuanced facets that contribute to its essence. Additionally, a more extensive investigation into the practical implications of Quantum Leadership within various organisational contexts is warranted, as this would aid in understanding its real-world applicability and potential benefits. Moreover, leaders and organisations should consider integrating elements of Quantum Leadership into their leadership development programs, recognizing its potential to foster adaptability and innovation. Lastly, scholars and practitioners should collaborate to develop comprehensive frameworks that combine the strengths of established leadership models with the principles of Quantum Leadership, providing leaders with a holistic guide for navigating the complexities of contemporary leadership. By embracing these recommendations, the field of leadership studies can continue to evolve and adapt in response to the dynamic demands of the modern organisational landscape.

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