A Proposed Model For Monitoring The Reality Of Virtual Team Practice In Self-Managed Schools In East Jerusalem

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Abstract

The researcher designed a proposed model for leading virtual teams in self-managed schools in East Jerusalem (v-IPOE).

The researcher followed a systems approach in building the proposed model, which consists of inputs, processes, outputs, and impacts. The inputs of the model comprise three levels: individual level (attitudes, personality traits, virtual team leadership skills), team level (team size, team cohesion, team structure), and virtual level (individual tasks, reward structure, technology). The processes of the model include social processes (trust, communication, collaboration, and training) and cognitive processes (team learning, knowledge transfer). The outputs of the model encompass performance, emotional measures (values), team development, and challenges. Finally, the impact includes job satisfaction and organizational commitment. The model was built using the analytical, developmental, and constructive methodology, relying on interviews, focus groups, and educational theories. The interviews involved 72 participants, including 36 managers and 36 teachers. The focus group included 15 educational experts, whose validity and reliability were examined. The researcher recommended that self-managed schools in East Jerusalem adopt the proposed model and attempt to apply it as an approach to increase their efficiency and enhance their readiness in leading virtual teams.

Keywords: Virtual team; Self-managed schools; Model.

Introduction

During the COVID-19 pandemic, many individuals have been enabled to work in virtual teams, even if they are spread across different locations (Wald, 2021). Nalven et al. (2022) emphasized the importance of communication within virtual teams, advocating for it to be precise, concise, clear, and free of ambiguity. Virtual teams, in general, can benefit from communication and the exchange of personal information, which increases trust within the team and enhances collaboration despite the distance between communication parties, In addition, virtual communication may also reduce feelings of isolation (Thambusamy & Bekirogullari, 2020). Virtual communication may also instill a sense of self-protection among team members, potentially reducing their personal engagement (Krehl & Büttgen, 2022; Lilian, 2014), as well as limiting their sharing of information with leaders (Feitosa & Salas, 2021)

While existing research underscores the significance of leadership in virtual teams, additional studies are required to explore how the COVID-19 pandemic has affected the

approach, skills, and qualities of effective leadership in managing rapid and ongoing changes to align with the requirements of the knowledge era .The swift development and rapid progress of technology and its advancements. One of the main objectives of this study is to examine the capabilities and skills utilized by leaders across all domains of factors influencing the performance and success of virtual teams. Through this study, a proposed model for leading virtual teams has been proposed.

The world is undergoing significant transformations across various domains including the cognitive, scientific, and technological revolutions, along with their rapidly evolving technologies, which are transforming various aspects of countries' and societies' lives. These changes have not been limited to one sector but have encompassed all sectors, especially the education sector. The use of multiple and modern technology and techniques has become a characteristic feature of the current era. Distance education has emerged, implemented through various strategies, including blended, synchronous, and asynchronous learning (Kharisat, 2017).

Based on the aforementioned, and due to the researcher's personal experience working in virtual teams as a result of the impact of the COVID-19 pandemic on all countries and communities since 2020, the researcher has gained theoretical and practical knowledge, skills, and information through this work with these teams. The researcher has noticed some differences in the way virtual team members communicate with each other, as well as variations in team performance quality and member satisfaction .As a result, the primary aim of this study is to propose a developmental model for leading virtual teams in self-managed schools in East Jerusalem. Therefore, the research problem lies in answering the following question: What is the proposed developmental model for developing leadership skills within virtual teams in self-managed schools in East Jerusalem?

The research objective:

The research aims to present the components of the proposed model for leading virtual teams in self-managed schools in East Jerusalem (its inputs, processes, outputs, and impact). As well as an overview of its application levels. Additionally, presenting the concept of virtual team leadership and the concept of self-managed schools.

The research importance:

The significance of the research is highlighted as follows:

There is a critical need for leadership to guide members, mobilize their strengths, emphasize their commitment, and unite their efforts to protect them from potential challenges that may confront them. Therefore, it emphasizes several modern management approaches such as participation, transparency, empowerment of members, total quality, and teamwork spirit, all of which interact in the managerial situation during leading virtual teams. Additionally, the proposed model for leading virtual teams serves as a key tool for the research, through analyzing the reality of virtual team leadership practice, which can benefit self-managed school administrators.

Components of the Proposed Model:

The scientific model must incorporate several, components such as philosophy, dimensions, management, boundaries, integration, assumptions, goals, resources, tools, characteristics, steps, sustainability, and maintenance (Abu Al-Nasr, 2018).

Model Validation:

The researcher designed the model and outlined its components, and practically demonstrated it to 11 educational experts. Feedback from the experts led to some adjustments to the model and its application tables, and the researcher made the necessary adjustments. The revised model was then presented again to the arbitrators until they agreed on the final form.

Research Terminology:

Virtual Team: Mysirlaki and Paraskeva (2020) define a virtual team as a group of people collaborating to accomplish a common task or project without needing to be in the same geographic location. Communication and interaction among its members occur virtually using information technology. The researcher procedurally defines a virtual team as comprising members from various departments like the mathematics team, computer center, educational center, and mathematics counselor. Communication among them is facilitated through modern electronic means, overseen by the central authority and led by the school principal.

Virtual Team Leader: Lee (2014) defines the virtual team leader as an individual who works alongside a group responsible for planning, encouraging teamwork, and coordinating it among group members. With the role focused on facilitating the execution of tasks. The researcher procedurally defines the virtual team leader as an experienced mathematics teacher coordinator appointed by the school administration, typically an experienced mathematics teacher with leadership capabilities and training in guiding the mathematics teaching team.

Self-Managed Schools: Al-Ajmi (2019) mentions that Gaziel (1998) defines self-managed schools as an educational management approach that promotes self-affiliation among school administration members and provides them with the necessary creative environment for participation, development, innovation, and sustainable professional growth. Procedurally, the researcher defines self-managed schools as an administrative pattern within various levels of school management applied to schools in east of Jerusalem under the Ministry of Education. It emphasizes decentralization and empowerment of school principals to involve teachers in the school's administrative process

The model: It is a modern scientific method used to examine hypotheses, organize and test information. Furthermore, it serves the purposes of prediction, enhancement, and definition of dimensions and variables of any studied system or phenomenon (Al-Nowaisa, 2006). The researcher defines it as a simplified representation that explains the behavior of team members and the leader through explanatory practices aimed at a deeper comprehension of relationships and dynamics in human behavior.

Theoretical Framework and Previous Studies:

Leadership in Virtual Team: The leader serves as a role model and a source of support and management, while also encouraging interaction among team members (Zilkiqi & Tsolias, 2020). Virtual leadership pertains to organizations and virtual individuals. Therefore, it is essential to perceive virtual leadership as a structural change, as its presence has become inevitable in all types and sizes of organizations (Hertal & Geyer, 2014). According to Hertal and Geyer (2014), virtual leaders are required to invest in practical communication, independence, flexibility, planning, and delegation skills.

According to Liao (2017), leadership is depicted as a multi-level model starting with behavior and culminating in effectiveness. The leader's team-oriented behavior shares similar traits to individual-oriented behavior, while also being tasked and relationship-oriented. Team processes involve collaboration, sharing, mental modeling, trust, conflict, shared leadership, passion, thinking, and motivation. Virtual leadership is described as transformative, implying that leaders must delegate tasks and focus on performance rather than details. Additionally, situational leadership is considered one of the models of virtual leadership, emphasizing the capabilities and skills of team members and ongoing situations (Holmlund & Lindqvist, 2015).

Based on this, virtual leadership can take different forms depending on the complexity of the team's task. The lower complexity of tasks implies a more stable leadership approach, whereas task complexity indicates the presence of an intensive collective structure with strong ties, necessitating dynamic leadership (Bell & Kozlowski, 2002). Virtual leadership requires a higher level of soft skills compared to traditional face-to-face leadership (Lawto & Pretorius, 2021; Kilcullen et al., 2021). Resilience, empathy, and communication are the three crucial skills that have gained importance for virtual team leaders (Leadership Circle, 2022).

Self-managed Schools:

The Ministry of Education's strategic plan has emphasized the creation of meaningful learning, socio-emotional learning aligned with the requirements of the 21st century. Elementary schools have been empowered to adopt f self-management as a tool to achieve this policy and plan by granting school principals and educational staff wide and flexible priorities in educational, organizational, and economic aspects to meet the desired performance and quality outcomes by providing all the school's needs, with a priority on making decisions regarding the school. The Schools are developing annual action plans linked to their budgets, based on their specific needs. It is the responsibility of the staff to plan and set goals for development ensuring adaptability and progress over time.

Concept of Model:

A model is defined as a conceptual framework that simplifies complex elements in reality, identifying the key elements for understanding a specific subject. The model clarifies the interactive relationships between these elements and aims to guide individuals to use it in processes of understanding, analysis, interpretation, and prediction. Essentially, a model provides a structured way of looking at complex phenomena, making it easier to grasp and work with. (Abu Al-Nasr, 2018).

Importance of the Model:

The significance of the model lies in its primary aim to provide tools and means that facilitate the leader's understanding of phenomena and challenges they face, it helps organize work by offering a framework for interventions and assists teams in tackling or avoiding obstacles. It allows the leader to effectively assess and present projects and programs, and contributes to studying and understanding life situations by identifying and interpreting the associated factors and elements. Additionally, the model sheds light on the role of professional practice and strengthens the foundations of leader development to achieve sustainable success and effectively accomplish professional goals (Giere, 2017).

Studies on Virtual Team Leadership:

Greimel et al. Study (2023) aimed to reconsider the literature with a focus on the integration between virtual teams and transformation leadership. The research examines and analyzes team factors, as well as leadership and motivational factors covered in the existing literature, aiming to identify their key contributions. The study adopted a qualitative-inductive approach, they thoroughly examined the literature, concentrating on refining concepts. The literature was reviewed in a rooted approach, with data collection methods used to enhance understanding of challenges and interactions in the context of transformational leadership. Instead of following a chronological order, they organized their integrative literature review based on topics and relationships derived from the studies. This approach revealed research gaps in team dynamics, leadership, and motivational factors, offering a comprehensive understanding of the subject matter.

Shavga (2023) study aimed at exploring the experiences of students engaging in virtual team work by analyzing leadership patterns and conflicts through scenario writing. To achieve these objectives, researchers adopted an interpretive qualitative approach, data was collected through a questionnaire given to students participating in cross-cultural management research courses track at JAMK University of Applied Sciences in Finland, along with a review of available literature in this field. Data analysis was conducted using thematic analysis in a traditional manner, with recourse to non-traditional scenario writing process, to identify preferred leadership patterns in virtual teams and to anticipate the main reasons behind conflicts among members.

The study conducted by Mayer et al. (2022) aimed to explain the behaviors of collaborative leadership typically practiced in work environments and how these behaviors impact individual-level outcomes. The study was conducted using a survey distributed to a sample of 411 individuals. The results indicate that task-focused leadership behaviors have a significantly positive impact on personal productivity and individual satisfaction with leadership. The hypothesis suggesting a moderate effect of task interdependence was not confirmed.

The study by Ben et al. (2021) aimed to explain the impact of leadership pattern on virtual team efficiency, considering potential factors (such as media richness) that mediate this relationship. They collected data through an online survey from 300 participants in the Middle East and North Africa region, collaborating with participants from the information technology sector. Descriptive analysis methodology was used. The research findings confirmed that trust and operational cohesion play a mediating role between leadership pattern and team performance.

The study by Agarwal et al. (2020) aimed to explore the effectiveness of virtual teams. This study was an intellectual venture based on a thorough analysis of leading literature in the field. Building on this foundation, they relied on a survey tool and used survey analysis methodology. These series of refined questions extended to a carefully selected sample consisting of 42 individuals with functional diversity. Specifically, the study revealed valuable insights shedding light on communication challenges in the era of digital technology.

The study by Osbah, (2019) focused on investigating the main links between the management of working teams in private schools in the Sultanate of Oman and managing organizational conflict as perceived by teachers. He collected data from a sample of 346 teachers and used two tools to assess team management effectiveness and organizational conflict management levels. The findings indicated a clear and statistically significant

positive correlation between effective team management by school leaders and the ability to control organizational conflict.

The study by Robert & You (2018) aimed to explore the impact of collaborative leadership, team members' trust, and independence on satisfaction levels in virtual teams, and to analyze in-depth methods of satisfaction enhancement. Focusing on understanding how these factors influence satisfaction and explored ways to improve it, particularly by emphasizing participative leadership and building trust and independence among team members. The study was conducted on a unique group consisting of 163 individuals, forming 44 virtual teams. It relied on a survey method, where postgraduate students enrolled in a prominent national university's distance learning system were selected. Two questionnaires were used, the first measuring collaborative leadership, and the second measuring individual satisfaction. The findings clearly demonstrated that involving team members in decision-making can significantly enhance satisfaction within virtual teams.

Studies have addressed the building of a developmental model:

The study conducted by Al-Nabulsi (2023) aimed to propose a model for the effectiveness of supportive organizational culture in a culture of scientific research and self-assessment in Palestinian higher education institutions in light of scientific experiments. To achieve this goal, a correlational descriptive methodology used, incorporating both quantitative and qualitative research methods. Surveys and interviews were conducted, with the study sample selected using cluster sampling, totaling 189 individuals. The results revealed a statistically significant regression relationship for organizational culture in establishing a culture of scientific research and self-assessment in Palestinian higher education institutions. Accordingly, a specific model was designed based on scientific models.

The study by Hamdan (2023) aimed to assess how well e-learning is managed in Palestinian universities according to global quality standards and a proposed development strategy. Using a descriptive methodology (quantitative and qualitative) surveys and interviews with faculty and e-learning center staff from three universities distributed to a sample of 333 faculty members. Additionally, interviews were conducted with 6 employees from e-learning centers. The results indicated that the quality of management was high, followed by quality areas such as proficiency and then compatibility. In light of the results, the researcher recommended adopting the proposed development strategy, which relied on higher education quality standards.

The previous studies can be categorized into two main areas. Firstly, they investigated leadership within virtual teams, exploring its connection to various influencing factors. For instance, after reviewing the previous studies, found that some of them examined the level of school managers' administration in team leadership, such as studies conducted by Osbah (2019) and Chorteslis et al. (2021). In others, they investigated electronic, effective, and charismatic leadership in virtual teams, such as Agarwal et al. (2020). Secondly: building and developing a proposed model, such as the studies conducted by Al-Nabulsi (2023), Hamdan (2023). The researcher benefited from the previous studies in enriching the theoretical aspect of the current study, defining the concepts and terms of the study, and determine the most suitable research methodology.

The (v-IPOE) model conceptual overview:

The researcher followed the systems approach in building the proposed model, which consists of four main elements: inputs, processes, outputs, and effects. Then present the components of the model as follows:

The (v-IPOE) model (Virtual Inputs-Processes-Outputs-Impacts) highlights how virtual teams function by examining their inputs, processes, outputs, and outcomes. It analyzes how teams interact in different tasks and with various tools, considering both social interactions (like collaboration and communication) and knowledge-related processes (such as learning and knowledge transfer. The model relies on the results of quantitative and qualitative studies, as well as on system theory, some behavioral and constructivist theories, and on other models such as the (McKnight et al., 1998) model in developing initial trust, (McGrath's, 1984) model in rotating complex tasks, and (Walther, 1992) model in relationship development approach. The model is based on Time-Interaction-Performance (TIP Theory), which provides an analytical tool to examine how groups performing different tasks and with different media can face different processes such as trust and communication and achieve different outcomes over time (Chidambaram & Bostrom, 1997).

System Theory: It presents an approach to dealing with units, divisions, and all subsidiary systems that comprise the whole system. It relies on quantitative and empirical information, logical inference, creative research, and appreciation of individual and social values, and then integrates them within a framework in which the organization operates in a coordinated manner to achieve its predetermined goals. (Von Bertalanffy, 1968).

The model's core principle revolves around how virtual team members perceive processes as crucial for their effective interaction and performance. Furthermore, by enhancing these aspects through a combination of technologies, task variety, and higher levels of processes, the team can achieve better performance, satisfaction, and loyalty. This is facilitated by feedback mechanisms and interaction within the virtual environment Figure (1) illustrates the general principle of the model.
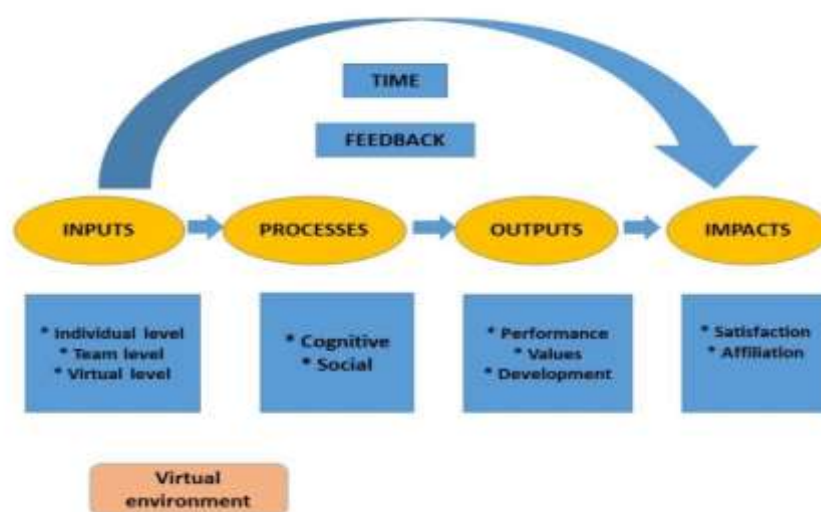
Form 1 : General Principle of the Model (Researcher's Work)

The philosophy of the v-IPOE model:
The model and its underlying philosophy cannot be detached from the philosophy of leadership, societal values, and its political, economic, ethical, and educational values. We

view the team, regardless of its nature, as part of the school, which in turn is part of the community. The principles that form the philosophy of the model include the following:
 - Belief in the vital role of leadership skills in driving successful education and performance within virtual team.
 - Belief in the necessity of having specific common goals for the team and leadership and in making these goals constantly the focus in every leadership action or activity.
 - Belief in the importance of strategic planning in the virtual team leadership, viewing it as the cornerstone for all team functions and operations.
 - Understanding that decision-making is the foundation of virtual team leadership and the means by which plans, policies, and goals get into actionable steps.

- Belief in organization as the essence of virtual team leadership, encompassing its most important processes and functions. It is the means through which members are bound together, enabling them to tackle complex tasks and collaborate to achieve agreed-upon purposes.
 - Comprehensive belief in all aspects of team leadership work to determine the degree of success and failure in achieving the set goals.

The comprehensive and integrated research model is a crucial tool for comprehending the dynamics and interactions within the leadership of complex virtual teams. It is shaped by various factors, each representing distinct dimensions that aid in understanding events and interactions. The model's interaction vary across biological and cultural dimension, which intersect with social and psychological dimensions, as illustrated in Table (1).

Table (1) Model Dimensions (v-IPOE):

Dimension	The characteristics
The social dimension	Involves content of social analysis, with each role representing a social position. Each team member assumes a specific role and these roles complement one another. Each role comes with a set of preferred expectations.
The psychological or individual dimension	Every team member has their own unique and distinct personality, and each personality is associated with a set of visible needs based on a specific hierarchy of needs. These needs impact individual behavior. Both the psychological and social dimensions play a role in shaping each individual within the social system.
The biological dimension	There are biological potentials and capabilities through which personality can adherence.
The cultural dimension	The cultural context in which the team operates influences the expectations associated with each team member's role.

The model encompasses clear dimensions: the biological dimension enhancing our understanding of biological and physical processes shaping our identity and behavior, while the cultural dimension sheds light on cultural influences and societal values guiding our behaviors and interactions with the environment.t.

In the context of developing comprehensive models, managing the model emerges as a crucial element to ensure the effectiveness and efficiency of leading virtual teams. This concept requires a thorough understanding of the interactions among various elements and dimensions, and their integrated adjustment. Managing the model enhances internal organization, task identification, and responsibilities, ensuring the continuous achievement of research objectives effectively, as outlined in Table (2).

Table (2) Organizational Concepts of the V-IPOE Model:

Organizational concepts	The Characteristics
Model management	-Ensuring that each part of the model functions seamlessly with the rest of the parts. - Ensuring that all parts of the model are balanced. -Gathering relevant information regarding the performance of each component of the model. measuring the inputs and outputs for each part and for the model as a whole
The boundaries of the model	The model receives inputs from its virtual environment within its boundaries and generates outputs to influence that environment. The changes resulting from the model's processes can be seen as its goals. The boundaries of the model define its environmental context, maintaining its identity and regulating its inputs and outputs.
Integrated model design	Each model designs a set of subsystems, which are sets of components with mutual relationships within specific boundaries, operating within the framework of the main model's objectives
Sustainability of the model and dynamic equilibrium	When the open model achieves internal balance (environmental equilibrium) through its interaction with a virtual environment, its outputs reflect stability, sustainability, and dynamic equilibrium. It experiences a state of interaction and adaptation.
Feedback as a means of regulation	These processes encompass both the inputs to the model and the interaction processes within it, as well as its outputs

Upon examining the dimensions and interactions table, it's clear that the model's boundaries are crucial in determining its reach and functionality. Precise delineation of these boundaries is necessary to maintain the model's integrity and prevent dilution. Additionally, sustaining the model is strengthened by continuously integrating its various dimensions, ensuring its resilience and effectiveness in the long run. Feedback serves as a vital mechanism for course correction and improvement based on past experiences and outcomes.

Before exploring the analysis of the model's dimensions, it's essential to examine the assumptions upon which it is based. These assumptions significantly influence the model, which play a crucial role in guiding its objectives and shaping its content. Understanding these assumptions helps in understanding the extent of integration and effectiveness of the model in facing complex challenges. As shown in Table (3):

Table (3) aspects of the model (V-IPOE):

Assumptions of the model	-Inputs are essential for outputs. - Feedback contributes to the stability, consistency, and equilibrium of the model. - Time management is crucial for team work and output quality. - The relationship between group processes and team performance is dynamic. - Relational activities are necessary to maintain the social needs of team members in addition to accomplishing their tasks. -The sustainability and development of the model require continuous adaptation to the virtual environment.
Objectives of the model	-- The proposed model serves as a tool for predicting the performance of virtual teams and relies on the leader's expertise in leading the virtual team within a virtual environment, considering the available resources and the nature of prevailing relationships, and then identifying weaknesses and shortcomings in the virtual team's performance and working to mitigate them. - Description of one element of the model (electronic communication and interaction, learning and knowledge transfer in a virtual environment, technological tools, building social relationships, psychological safety) that requires virtual development and training by the team leader.
Components of the model	-- Internal control of the virtual team, organizational culture of the virtual team, performance, shared values, inclusive perspective of members. - Ensuring a balance among the constituent parts of the model. - Interaction and influence between the model and the virtual environment. -Communication with the virtual environment and the presence of reciprocal interaction between them.
Tools of the model	Workshops, training for teachers and managers on technological tools and working within a virtual team, improving the virtual environment.

Characteristics of the model	Members' trust in each other and their trust in the leader, the leader's trust in the members, mutual respect and civility among members, camaraderie and friendship, collective learning, constructive competition, building social relationships.
Steps of the model	Analyzing previous studies and theoretical frameworks, and then using the steps of scientific research and research tools to examine hypotheses (questionnaires, interviews, focus groups), resorting to some possible key theories for leading a virtual team, and seeking the assistance of experts to design and validate the model.
Parts of the model	The team leader, the formal arrangement of team work and organizational structure, particularly the organization of relationships between members and their interaction with each other, work technology and the processes designed to match the physiological composition, members of the virtual team.
Sustainability of the model	The continuity of the virtual team's work activity and it's support by the leader both materially and morally to ensure sustainability and survival. Figure (5) illustrates the sustainability and maintenance plan.

The table provides an overview of different aspects of the model, focusing on its main components. These include its goals, the foundational elements, the tools used for desired interactions, the characteristics of its components, and the necessary steps for long-term sustainability. These components together form a comprehensive framework for analyzing and understanding the model's interactions in greater depth and ensuring its sustainability over time.

First Inputs:

The model relies on interviews results and several theories in building its inputs, most notably:

Expectancy Violations Theory: This theory assumes that there are conditions where violations of social norms and expectations become strategic conformity (Burgoon & Hale, 1988). These expectations can be predictive or obligatory and are derived from one of the following sources: First, personal or communicative characteristics (age, gender, and place of birth, physical and personality traits, communication pattern). Second, relational characteristics (relative position, similarity of communicators' norms, communicators' affinity for each other). Third, contextual characteristics (cultural standards, interactional situation) (Berger et al., 2010; Griffin et al., 2015).

Embodied Social Presence Theory: The Theory of Embodied Social Presence underscores the significance of feeling present and connected in virtual interactions (Mennecke et al., 2010). This theory suggests that when individuals experience a sense of social presence in virtual collaboration, they become more engaged in team activities and interactions. It

provides a comprehensive framework for examining the role of embodiment in social communications (Mennecke et al., 2010). Our connection with others defines our self-awareness, and achieving embodied social presence leads to increased engagement in team conversations and activities. Inputs in this context are classified into three levels:

First level is Individual Level, which is divided into:

(A) Attitudes,

(B) Personal Characteristics (preparedness, qualifications, experience),

(C) Virtual Team Leadership Skills: Leadership seems to also stem from personal and communication factors and can enhance performance, satisfaction, and motivation. It's clear that leadership is crucial for experienced individuals, thus it's divided into Leadership Requirements which include: the leader's ability to manage cultural diversity, set clear goals, build trust, communicate, encourage and motivate, provide feedback, and ensure performance quality. Leadership Responsibilities include: creating a virtual reality, maintaining culture, developing communication and trust, collaborative work, monitoring and evaluation. Necessary Competencies for Virtual Team Leadership are: personal traits, communication, and trust building. Leadership Roles include: Flexible leadership (focus on the team's internal function), individual leadership (internal focus with flexibility stance), and adaptive leadership. Task leadership (intellectual tasks, creative tasks, planning tasks, performance tasks, and conflicting tasks which encompass tasks of cognitive conflict, tasks with mixed motivations, competitive tasks).

The kind of work teams undertakes and the tasks they perform influence team development uniquely. Therefore, the type of task undertaken affects the evolution of the second team.

Team Level: Divided into team size, team cohesion, and team structure.

Virtual Level: Divided into individual tasks, reward structure, and technology. Virtual teams leverage technological tools allowing members to integrate information swiftly and make decisions with high flexibility.

Secondly, Interaction Processes:

The model relies on interview results, focus groups, and several theories in building interaction processes, notably:

Social Information Processing Theory: The key idea of this theory is that relationships between individuals only develop to the extent that information about the other party is acquired through initial impressions. Based on these impressions, the individual then forms ideas and assumptions about the other party. These ideas and assumptions are selected, evaluated, reinforced, or rejected through future interactions (Griffin et al., 2015). In other words, the theory suggests that the online space is a venue for interacting with others, where individuals adapt and adjust their communications with any media they use at that time for communication (Griffin et al., 2015).

Commitment and Trust Theory: This theory suggests that when both commitment and trust are present in relationships, they lead to outcomes that enhance efficiency, productivity, and effectiveness (Morgan & Hunt, 1994). A crucial aspect of building this commitment and trust is continuous knowledge sharing, as it requires willingness from both parties to give and accept knowledge (Hashim et al., 2015).

Communication Theory: This theory emerged by integrating the following elements: educational, social, and technological, aiming to develop a theory of learning in the digital age (Abu Khattab, 2018). Siemens (2005) introduced the Communication Theory to align with technological needs (Siemens, 2005), aiming to elucidate how learning occurs in complex technological environments and its impact through new social dynamics, supported by emerging technologies (Downes, 2008).

The utilization of e-learning by virtual team leaders holds significant importance in the Communication Theory by adapting technology to interpret members' learning. This approach occurs within a virtual environment rich in information and knowledge resources, fostering creativity.

Theory of Constructivism: founded by Jean Piaget, it involves cognitive construction through an individual's interaction with their surroundings, including objects and people. During this process, individuals construct certain concepts about their environment, influencing their behaviors towards everything around them (Piaget, 1964). Through learning in virtual teams, leaders enable members to share specific information, which is then discussed expressing opinions and explore. This diverse discussion widens members' exposure and diversifies their sources of information, consequently enhancing their performance and psychological well-being. Additionally, through branching electronic links, virtual team members gain access to additional information, contributing to the formation of new knowledge.

Learning patterns Theory: Learning is most successful when the instructional method aligns with the learner's style and pattern of learning (Al-Ayed & Al-Shaya, 2020). According to the VARK model (1998), learning patterns are divided into four categories: visual, auditory, reading/writing, and kinesthetic (Mirza & Khurshid, 2020). Virtual team leaders employ visual learning style through presentations, videos, and video conferences. Auditory learning style is utilized through voice conferences for learning and knowledge transfer. Reading/writing style is employed through presentations, search engines, databases, Telegram, etc. Kinesthetic learning style is utilized through virtual reality.

The model examines task processes by verifying emotional, social, and cognitive processes. The realism degree and task coherence are also important for team performance.

Social Processes: Refers to aspects like trust (economic, dynamic, personal, rapid, cognitive, emotional), communication, divided into personality-related factors (accessibility, social distance) and task-related factors (idea exchange, social communication tools), collaboration (social interaction, safety and security), and training.

Cognitive Processes: Involves team learning (work principles, conditions of social learning, learning processes, learning outcomes) and knowledge transfer (knowledge emergence, knowledge variables, knowledge acquisition, individual knowledge, collective knowledge).

Thirdly, outputs:

The outputs were framed based on interviews, focus groups, and the Social Exchange Theory in leading and interacting with virtual team.

The Social Exchange Theory suggests that human relationships arise from interactions among members. It focuses on the social interaction among members and between members and the virtual team leader, emphasizing the gains and losses experienced by members from

their exchange relationships. The theory includes the team's connection to members' work and their interaction with each other, considering the absence of a long gap between task execution and performance to prevent frustration and boredom among members (Homance, 1985). Performance encompasses organizational-level performance, team performance behaviors and outcomes, and role-based performance. Team challenges, development, and emotional value scales are also considered.

Fourthly: Impact

The impact was based on interviews, focus groups, Uncertainty Reduction Theory, Person-Environment Fit Theory, and the Quran (Surah Al-Ma'idah, Verse 2).

Uncertainty Reduction Theory: Cognitive uncertainty reduction involves obtaining information that allows one to disregard many possibilities and increase the ability to predict others' behavior. According to Berger (1986), reducing uncertainty is key to any interaction, as individuals make numerous predictions about their partners' behavior and positions during interactions. Berger (1986) also assumes that due to the fluidity of relationships, uncertainty reduction is never complete but rather exists continuously even within existing relationships. Engaging in purposeful communication with another person requires the ability to reduce mutual uncertainty about others' past, present, and future behaviors in order to respond in a way that allows for interactions.

The initial interactions among virtual team members might feel uncertain and cause anxiety. Moving these interactions to digital platforms, along with the complexities of diverse cultures, time zones, genders, and roles, can make things even more challenging. By applying theory in virtual team settings, we can better understand and address issues, challenges, and uncertainties in a clear and logical manner.

Person-environment fit Theory: The theory assumes that when individuals' personal characteristics align with the characteristics of the work environment, they are more likely to understand their own behaviors and those of others, facilitating interpersonal relationships and ultimately enhancing individual performance (Schneider et al., 1992), leading to job satisfaction. Based on the fit theory, Chen (2004) theoretically proposed that individuals are more inclined to excel when working in virtual environments because their characteristics and skills allow them to understand the specific challenges and requirements of virtual work environments (Chen, 2005).

Levels of Applying the Model (V-IPOE): This model, which has been developed, provides an analytical tool to guide work by offering a set of proposals on how the relationship between inputs and outputs evolves over time in a virtual environment and with leadership skills. The researcher used a positivist approach to track the reality of virtual team leadership practice and trace the impact of experience in team leadership (inputs) through the following scenarios: an inexperienced leader in leading a virtual team and a leader with successful and effective experience in leading a virtual team.

Results and Recommendations:

The implicit meaning of responsible leadership for virtual team work begins with the team's formation, where appropriate roles are planned for members based on their competencies when starting tasks. Social interactions emerge, and organizational leadership must address conflicts that may arise among members. This requires implementing fundamental rules within the team, recognizing individual roles, and integrating leadership support. Leadership

demands the ability to keep team spirit alive and engage actively in internal processes. As team members begin collaborative work with individual perceptions and self-reflection on tasks, interactions, and other cultures, they use available technological tools in a virtual environment. It also includes using technology effectively for communication and coordination, which helps understand the task's significance for the team.

The researcher developed a comprehensive model for effectively leading virtual teams, comprising inputs, processes, outputs, and impacts. At its core, the model encompasses individual, team, and virtual levels, with inputs ranging from individual attitudes and traits to team cohesion and technological factors. The processes within the model entail both social and cognitive aspects, including trust-building, communication, collaboration, and knowledge transfer. These processes are geared towards achieving various outputs, such as task performance, emotional measures like team morale, and overall team development. Ultimately, the model aims to influence factors like functional belonging and job satisfaction within the virtual team environment, thereby ensuring effective leadership and team performance.

All schools aim to effectively lead virtual team leadership by acquiring direct and indirect experiences and training to address crises through the following procedures: adopting clear goals and agreeing upon them, enhancing technological capabilities of the school, supporting practical efforts and training. This includes developing strategies through a dynamic system and establishing integrated information systems and communication networks. Establishing an integrated information system internally and externally, as well as open and equitable vertical and horizontal communication systems. The proposed model serves as a tool to predict virtual team leadership in self-managed schools in East Jerusalem, considering available resources and prevailing relationships, and identifying the challenges faced by virtual teams.

Research Recommendations:

1. Schools should adopt the proposed model by the researcher and attempt to apply it as a framework to increase the efficiency and readiness of leadership in virtual teams.

2. Schools should give more importance to virtual teams, particularly in light of the inevitable changes and developments that have affected educational institutions, such as implementing total quality management, results-based management, seeking competitive advantages, and promoting teamwork to achieve goals.

3. Design a developmental model for each aspect of leadership, such as communication, trust, training, and performance.

4. Build a developmental model for the reality of practicing virtual teams using other theories.

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