Transformational Leadership and Technological Competence in Non-formal Education: Implications for Equitable Access and Digital Inclusion

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This mixed-methods study examines the relationship between managerial leadership styles, technological competence (TC), and attitudes towards remote work among non-formal education coordinators in Israel's Arab society during the COVID-19 pandemic. The research, which focuses on social-community education coordinators in schools (SCECs) and non-formal education coordinators in local authority youth departments (NFECs), investigates how cultural norms, values, and challenges shape non-formal experiences during crises. Validated questionnaires collected data from 97 coordinators, while semi-structured interviews with 18 coordinators yielded qualitative insights. Findings revealed positive correlations between transformational leadership (TLS), TC, job satisfaction, and openness to remote work, with TC mediating the link between TLS and remote work attitudes. SCECs reported higher satisfaction, TC, and positive attitudes towards remote work than NFECs, who perceived more laissez-faire leadership from directors. The findings underscore the pivotal roles of adaptive leadership and digital competence in sustaining inclusive, resilient non-formal education (NFE) for minority communities in times of disruption. Theoretical and practical implications emphasize the need for culturally responsive leadership development and technology training to foster equitable learning ecosystems.

Keywords: leadership styles, technological competence, non-formal education, Arab society, COVID-19

INTRODUCTION

The COVID-19 pandemic significantly disrupted global educational systems, necessitating a rapid transition to remote learning and digital platforms (Harris, 2020; Vito et al., 2021). In minority communities, such as Israel's Arab society, this shift exacerbated existing inequalities and exposed underlying cultural tensions, particularly within non-formal education (NFE) settings (Masry-Herzallah, 2022; Weisblai, 2020).

NFE, which often complements or serves as an alternative to formal education, is crucial for fostering social cohesion and youth development, especially in contexts where formal education systems may inadequately address the needs of all community members (Ahmed, 2023; Almeida & Morais, 2024).

This study investigates the relationship between managerial leadership styles, technological competence (TC), and attitudes towards remote work among NFE coordinators in Israel's Arab society during the COVID-19 pandemic. The research focuses on two key groups: social-community education coordinators in schools (SCECs) and non-formal education coordinators in local authority youth departments (NFECs). While SCECs oversee NFE programs within the formal school system, NFECs manage activities in community-based settings (Mendel-Levi & Artzi, 2016; Tannous, 2022).

According to Bandura's (2006) self-efficacy theory and Bass's (1985) Full Range Leadership model, this study examines how transformational leadership (TLS) behaviors, such as idealized influence, inspirational motivation, and individualized consideration, are connected to coordinators' TC and their attitudes toward online engagement. Research indicates that TLS correlates with positive subordinate attitudes and performance in NFE contexts (Lindsey et al., 2018; Soles et al., 2020). Mell and Somech (2023) highlight how TLS can enhance positive behaviors while also creating pressure among educators in Israeli youth movements. Similarly, Sheffer (2023) found that TLS fosters affective commitment in the Hebrew Scout Movement through strong mentorship and communication. Additionally, this study examines potential differences between SCECs and NFECs, hypothesizing that disparities in institutional resources, support, and managerial backgrounds may shape their experiences and perceptions.

The holistic systems perspective is particularly relevant for examining NFE in Israel's Arab society, which is characterized by unique cultural values, social structures, and power dynamics (Masry-Herzallah, 2023a). Arab culture in Israel tends to be more collectivistic and hierarchical than Jewish culture, with a greater emphasis on family, religion, and respect for authority (Masry-Herzallah & Stavissky, 2023). These sociocultural factors shape expectations of educational leadership and engagement patterns in NFE settings. Within schools and other institutions in Arab society, the prevailing leadership style leans toward a more authoritarian and collective approach, making principals more authoritative and less participatory (Masry-Herzallah, 2023).

By comparing and contrasting global studies on leadership and digital inclusion, this study contributes to the broader discourse on equitable education. Research on NFE in developing countries, for example, highlights the transformative potential of leadership and technological training in bridging educational gaps (Almeida & Morais, 2024). In Indonesia, leaders adapted digital tools to foster cultural and religious education during the pandemic, thereby enhancing students' engagement and sense of responsibility (Gusman et al., 2022). Similarly, studies from Egypt emphasize how unequal access to technology exacerbates educational inequalities, suggesting that leadership strategies must address both technological and social barriers (Bali et al., 2019).

In light of these global comparisons, the current research questions are: (1) How do managerial leadership styles relate to SCECs' and NFECs' job satisfaction and attitudes

toward remote work during the COVID-19 pandemic? (2) Does TC mediate the relationship between TLS and coordinators' attitudes toward remote work? (3) Are there differences in the perceptions and experiences of SCECs compared to NFECs? By addressing these questions, this study aims to fill a critical gap in the literature and offer practical implications for leadership development, technological training, and inclusive policy-making in NFE settings.

Literature Review

The Role of Non-formal Education in a Holistic Learning System

NFE is typically defined as any organized and intentional educational activity that functions outside the formal, hierarchical education system while still being structured and systematic in its approach (Coombs & Ahmed, 1974). Formal education is characterized by rigid institutional frameworks and a predefined curriculum, while NFE stands out for its flexibility and responsiveness to the diverse needs of specific groups, often within varying socio-cultural contexts (Masry-Herzallah, 2023a; Romi & Schmida, 2009). Depending on the situation, NFE can complement, supplement, or even substitute formal education (Brennan, 1997).

NFE's complexity lies in its ability to adapt to different educational and social demands, making it difficult to encapsulate in a single, universal definition (Hamadache, 1991). Formal and informal education, along with NFE, form an interrelated mode of learning along a spectrum (La Belle, 1982). La Belle (1982) conceptualized the education system as a "triangular system" encompassing formal, informal, and NFE, positing that all educational experiences throughout an individual's life are interrelated and collectively influence their development (Ahmed, 2023).

Romi and Schmida (2009) support this view, noting that the inherent flexibility and adaptability of NFE complicate efforts to define it precisely. This interconnectedness allows NFE to provide tailored educational experiences that are culturally relevant and context-specific, addressing the unique challenges and needs of the communities it serves (Hussein Sayed Abdelhamid, 2024; Masry-Herzallah, 2023a).

Almeida and Morais (2024) introduce NFE as a complementary or alternative approach to formal education, particularly crucial in developing countries where formal education systems often fail to reach all segments of society. NFE is considered one of the primary means to educate for values (Gross, 2013), develop social and emotional skills (Goldratt et al., 2023), and train students to become global citizens (Lindsey et al., 2018). Given this context, studies indicate that promoting NFE goals significantly depends on the effectiveness of managerial leadership styles, particularly TLS (Ahmed, 2023; Masry-Herzallah, 2023a; Widodo et al., 2017).

Non-formal education and leadership styles

The Full Range Theory of Leadership, prevalent in educational administration, identifies three distinct leadership styles: laissez-faire (avoidant), transactional, and transformational (Berkovich, 2016). Laissez-faire leaders, known for their passive nature, frequently neglect their responsibilities, leading others to perceive them as "lacking leadership" (Yukl, 2012). Transactional leaders take a task-oriented approach, setting goals in collaboration with their subordinates (Avolio et al., 2009).

Conversely, research predominantly highlights the efficacy of TLS in enhancing subordinate performance since it influences employees' core beliefs, attitudes, and values, thereby boosting their adaptability to change (Bass & Avolio, 1994). Transformational leaders employ five emotional communication channels to motivate subordinates: idealized attributes, idealized behaviors, inspirational motivation, intellectual stimulation, and individualized consideration (Bass, 1985). In the NFE context, past literature reveals a link between TLS and improved subordinate attitudes and organizational outcomes (Ariyani et al., 2023; Auckland & Kilpatrick, 2018; Masry-Herzallah, 2023a; Soles et al., 2020). Positive leader-subordinate relations based on collegial behavior and trust enhance stakeholders' goal achievement motivations (Rahmata & Malik, 2017; Yu et al., 2002).

Within schools and other institutions in Arab society in Israel, the prevailing leadership style leans towards an authoritarian and collective approach, making principals more authoritative and less inclusive (Masry-Herzallah & Stavissky, 2021; Masry-Herzallah, 2023b).

Leadership styles employed during the COVID-19 crisis

Research underscores the crucial roles of both transformational and transactional leadership during crises (Bass & Bass, 2009; Boehm et al., 2010). Notably, Pillai and Williams (2004) deem TLS more effective than transactional leadership in crisis scenarios. Contemporary studies validate the proficiency of TLS during the COVID-19 pandemic (Harris, 2020; Masry-Herzallah & Stavissky, 2021; Stone-Johnson & Weiner, 2020). Such leadership encourages significant organizational innovation and creativity (Sawan & Anugrahsari, 2021). Transformational leaders, acting as role models, prioritize empowerment and collaboration, even remotely, ensuring beneficial outcomes (Harris, 2020; Setyaningsih & Sunaryo, 2021). The positive effects of TLS during the COVID-19 crisis were also evident in educational systems, where research highlighted the contribution of these leaders in maintaining the mental and social well-being of both students and educational staff during periods of social distancing (Sánchez-Rosas et al., 2023). This approach is especially relevant in NFE settings within minority communities, where leaders must navigate not only educational disruptions but also the socio-cultural complexities that influence technology adoption and engagement (Masry-Herzallah & Watted, 2024). They also enhance their employees' TC, resulting in online teaching success (Masry-Herzallah & Stavissky, 2023).

Research from Ahmed (2020) shows that during the COVID-19 pandemic, the necessity for TLS in the education sector became more pronounced. Leaders needed to be adaptable and innovative, especially in the context of managing schools and ensuring student well-being in the face of massive disruptions to traditional educational models (Ahmed, 2020).

In Indonesia, for instance, leaders leveraged digital tools to continue promoting cultural and religious values among students during the pandemic, further enhancing students' sense of responsibility and commitment (Gusman et al., 2022).

Taking these ideas into account and building on previous research (Dumdum et al., 2013), which found a hierarchy of leadership styles based on perceived effectiveness,

this study hypothesizes a link between the perceived effectiveness of leadership styles and the satisfaction and feelings of senior and novice educators (SECs and NECs) during the pandemic.

H1: Transformational and transactional leadership styles will positively correlate with the SECs' and NECs' remote work attitudes during the COVID-19 pandemic.

H2: The laissez-faire leadership style will negatively affect the SECs' and NECs' remote work attitudes during the COVID-19 pandemic.

Technological Competence and Leadership Style During the COVID-19 Crisis

Bandura (2006) defines self-efficacy as confidence in one's ability to manage future scenarios and achieve desired outcomes. In modern education, TC is critical, as it relates to confidence in using internet-based tools, digital learning spaces, and interactive content—all essential for effective online communication and learning (Masry-Herzallah & Dor-Haim, 2023; Jokisch et al., 2020). Numerous studies have emphasized the central role of TC in the success of remote learning during the pandemic, particularly highlighting the importance of educational leaders who can provide appropriate support and guidance for teachers and students (Ariyani et al., 2023; Masry-Herzallah & Watted, 2024; Wang, 2023). The digital revolution necessitates those educators, particularly in NFE, adapt to innovative learning technologies, which often present a formidable challenge requiring robust leadership support (Ahmed, 2020; Goldratt et al., 2023; Omar & Ismail, 2020).

The COVID-19 pandemic highlighted disparities in technological access and competence. These issues were particularly pronounced in minority communities, where digital infrastructure is often lacking (Ahmed, 2020; Weissblau, 2020). Other Middle Eastern contexts also observe this digital divide. For example, Bali et al. (2019) discuss the complexities of implementing global citizenship education in a digital age within Egyptian higher education. Their work emphasizes how unequal access to technology can exacerbate existing educational inequalities, highlighting the need for leadership approaches that address both technological and social barriers to inclusive education.

According to Deci's Motivation Theory (1975), transformational leaders play a pivotal role in inspiring interest, satisfaction, and motivating individuals to engage deeply with their tasks. These leaders promote TC by providing opportunities for professional development, mentoring, and training, thereby enhancing overall performance and self-efficacy (Savitri & Sudarsyah, 2021; Chang et al., 2021). Moreover, principals and educational leaders not only instruct but also serve as role models, leading the adoption of technological initiatives within their institutions (Liu et al., 2021).

Role-modeling by leaders is especially important in NFE settings, where traditional hierarchies are often less rigid. Ahmed (2018), in her study of unschooling in Egypt, demonstrates how alternative educational approaches can foster TC and digital citizenship among learners. Her findings suggest that effective leaders in NFE must be adept at creating learning environments that encourage technological exploration and critical engagement with digital tools, even in contexts where formal technological infrastructure may be lacking.

Almeida and Morais (2024) provide a comprehensive examination of NFE as a significant response to social problems, particularly in developing countries. The study underscores the importance of NFE in addressing educational gaps that formal education systems often fail to fill, especially in regions affected by crises, digital divides, and marginalized populations. The authors explore the intersection of NFE with digital technologies and leadership, highlighting its potential to empower disadvantaged communities and promote social inclusion in challenging contexts.

This study hypothesizes that, given the increased reliance on digital tools during the COVID-19 pandemic:

H3: During the COVID-19 pandemic, TC will mediate the relationship between leadership style and the attitudes of SCEs and NECs.

Non-Formal Education in Arab Society in Israel

This study is critical because there is a lack of research on NFE in Arab society, particularly during the pandemic. The Ministry of Education's Youth and Society Education Administration oversees NFE in Arab schools, distinct from its Jewish counterpart. SECs, as well as educators, promote NFE in secondary schools and report to the principal (Masry-Herzallah, 2023a; Mendel-Levi & Artzi, 2016). The Ministry of Education (2022) provides SECs with professional guidance and digital resources, some specifically tailored for the pandemic.

In Arab society, various organizations primarily facilitate NFE for youth outside the formal school system, with the most prominent being the local government Youth Departments. These departments began operations in 2011 following the enactment of the Youth Act—Manager of Youth Department and Youth Council. This legislation defines NFE as educational activities for children and youth (up to 18 years old) provided by the local government's educational authority outside of school hours. Under this law, NFE encompasses social and community education, as well as education for values. According to the law, Youth Department managers report directly to the local government (Mendel-Levi & Artzi, 2016). To implement the various NFE programs, these youth departments employ youth coordinators who work under the youth department administration.

However, NFE in Arab society faces several challenges. Firstly, its foundation lies in a "Western" post-modern theoretical framework, emphasizing humanist ethics and neoliberal state principles (Goldratt et al., 2023; Tannous, 2022), which frequently clash with the collectivist values and traditional norms prevalent in Arab society (Masry-Herzallah, 2022). Issues such as a lack of trained personnel, limited activities, and inadequate physical infrastructure further compound these challenges (Mendel-Levi & Artzi, 2016). For instance, many organizations in Arab society have adopted an authoritarian and collectivist structure, where school principals tend to be authoritarian and less participatory, leading to a significant hierarchical distance between the principal and the staff (Masry-Herzallah, 2023b; Masry-Herzallah & Stavissky, 2021). This approach contrasts sharply with the liberal, democratic, and egalitarian ethos that underpins the NFE approach (Kahane, 1997).

Existing reports highlight challenges for NFE outside schools in Israel during the pandemic: limited technological infrastructure, digital platforms, online teaching experience (Rozner, 2020), and inadequate Arabic online resources (Weissblau, 2020). Socio-economic disparities and cultural factors further exacerbate these challenges in Arab society, impeding the adoption and effective use of technology in educational settings (Masry-Herzallah, 2023a; Goldratt et al., 2023).

Given this background, the study hypothesizes:

H4: SECs will display more favorable attitudes and higher TC compared to NECs.

METHOD

Rationale for the Mixed-Methods Approach

This study employs a mixed-methods approach, integrating both quantitative and qualitative data collection and analysis. The choice of this approach is not only methodological but also a strategic decision specifically designed to answer the core research questions of this study. The mixed-methods approach allows for a deeper and more nuanced understanding of complex research issues, such as the impact of leadership styles and TC on non-formal education coordinators' (SCECs and NFECs) remote work experiences during the COVID-19 pandemic.

This research utilized the convergent parallel design, where qualitative and quantitative data collection and analysis were conducted concurrently (Creswell, 2014). This design was intentionally chosen to provide holistic insights by comparing and triangulating data collected from various sources. The integration of diverse research strategies— such as semi-structured interviews and validated quantitative questionnaires—not only enabled cross-verification of findings but also enriched the analysis through data triangulation, thereby offering a more comprehensive view of the research findings.

The combination of qualitative and quantitative data is crucial for gaining a broader perspective on the relationship between leadership styles and TC and how these factors influence attitudes towards remote work among non-formal education coordinators. The mixed-methods approach enabled the exploration of organizational differences and resource disparities between the two groups of coordinators (SCECs and NFECs), while also identifying the unique challenges and opportunities posed by the digital shift during the pandemic, as highlighted in the literature review.

Participants

Ninety-seven coordinators participated in the research (75% female and 25% male), including 65 SECs and 32 NECs[1]. Approximately 45% were in their thirties; 29% were in their forties; 19% were in their twenties; and the remainder (7%) were over the age of 50. Approximately 61% held master's degrees; the remainder held bachelor's degrees. Approximately 43% had more than 10 years' experience in their present job; 22% had

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[1] According to the Youth and Society Education Administration 2021, the number of SEC in Arab secondary schools was approximately 300, and 320 NEC in the Youth Units.

6–10 years' experience; and the remainder had less than 5 years' experience. All participants worked in localities with a medium-low socio-economic status. For the qualitative component, 18 coordinators participated: 9 SECs and 9 NECs, comprising 9 women and 9 men aged between 22 and 40 years.

Table 1
Demographic summary of participants

Demographic Variable	Categories
Gender	75% Female, 25% Male
Position	65 SECs and 32 NECs
Age Group	45% are in their thirties, 29% are in their forties, 19% are in their twenties, and 7% are over 50.
Education Level	61% Master's degree, 39% Bachelor's degree
Experience in the current job	43% have more than 10 years, 22% have 6-10 years, and 35% have less than 5 years.

Measures

Several validated instruments were employed, and their choice was substantiated by previous reliability scores and adaptations for cultural relevance:

1.**The Full Range of Leadership Questionnaire (MLQ; Bass & Avolio, 1997):** This tool measures three types of leadership styles in management using 36 statements. Respondents answer on a scale ranging from 1 (completely disagree) to 5 (completely agree). The internal reliabilities were $\alpha = 0.98$ for TLS $\alpha = 0.76$ for transactional leadership, and $\alpha = 0.76$ for laissez-faire leadership.

2. **Technological Self-Efficacy**: Based on Bandura (2006), this was assessed using six items adapted to evaluate TC. Responses were rated on a scale from 1 (not at all) to 5 (to a very large extent), with an internal reliability of $\alpha = 0.92$.

3. **Attitudes Concerning the Transition to Remote Work During the COVID-19 Crisis**: These attitudes were measured through three statements, such as "I believe that online learning is very suitable for NFE and should be introduced into various programs." Respondents rated these statements on a scale ranging from 1 (not at all) to 5 (to a very large extent). The internal reliability was good ($\alpha = 0.78$).

4. **Job Satisfaction**: This variable was measured with a single statement: "To what extent are you satisfied with your job?" Responses were rated from 1 (not at all) to 5 (to a very large extent).

We conducted a pilot study to evaluate the psychometric properties of the survey instruments before the full implementation of the research. This preliminary phase involved a strategically selected sample of 20 non-formal educators, evenly divided between SCECs and NFECs within Arab society. The primary objective of the pilot study was to ensure the reliability and validity of the questionnaire instruments in accurately capturing the intricacies of managerial leadership styles, TC, and attitudes toward remote work. This step was crucial for refining the instruments to better capture the specific dynamics and context of the study population.

Notably, the first and second authors are members of Arab society, while the third author is from Jewish society. All three researchers possess extensive and

comprehensive knowledge of the NFE sector within Arab society. This cultural insight represents a significant strength of the study. It allows for a more nuanced and contextually relevant approach to both participant selection and data interpretation.

Although the use of both probabilistic and nonprobabilistic sampling methods may introduce biases, the researchers' deep familiarity with the cultural and educational contexts under investigation mitigates these concerns, thereby enhancing the validity and credibility of the study's findings.

Procedure

Upon obtaining approval from the college's ethical committee, a link to the online questionnaire was distributed to the SECs and NECs in early June 2021. Responses were collected until the end of September 2021.

The sampling strategy was a combination of random and non-random sampling techniques. Initially, coordinators were identified through three instructors randomly selected from those specializing in NFE and social education in Arab society. Subsequently, the snowball sampling technique was employed (Bryman, 2016), wherein initial participants recommended other potential participants. This method was crucial in reaching coordinators who might have been elusive through conventional sampling approaches.

To further expand the sample, convenience sampling was used by directly sending the questionnaire to coordinators' emails and sharing it in select Facebook and WhatsApp groups commonly used by the target audience.

All participants received information about the research objectives and the researcher's contact details and were requested to provide informed consent. They were assured of the survey's anonymity and informed that there were no "correct" responses (Podsakoff et al., 2000). Participants were also reassured that their data would be used exclusively for research purposes.

For a more nuanced exploration of the quantitative data, individual semi-structured interviews were conducted with selected SECs and NECs. The interview protocol comprised open-ended, focused questions, ensuring thematic consistency across interviews. Questions included: "Can you discuss the factors that propelled your work during the crisis?"; "What role did the principal play during this period?"; and "How did the principal support you?"

Data Analysis

Both quantitative and qualitative analyses were performed. The questionnaire results were analyzed with SPSS software. Theoretical statistics were presented for the different research variables and selected demographic variables, as well as the results of Pearson correlations between them. Regression was performed for the prediction of the coordinators' attitudes. Additionally, a comparison was drawn between the attitudes of the SECs and those of the NECs.

The interview transcripts underwent qualitative content analysis in stages (Creswell, 2014). During the analysis, open coding was performed, and major categories

representing the central conceptions were determined, which were deconstructed in an additional coding stage for secondary categories. These categories are presented in line with the quantitative results while creating connections and mutual relations between them.

FINDINGS

Quantitative Findings

Table 2 presents descriptive statistics for the research variables and selected demographic variables, along with their Pearson correlations.

Table 2 reveals significant correlations among most of the research variables in response to Research Question 1. In particular, attitudes toward the transition to online work showed significant positive correlations with coordinators' satisfaction, TLS, transactional leadership, and TC. Coordinators' satisfaction also showed significant positive correlations with TLS, transactional leadership, and TC, while demonstrating a negative correlation with laissez-faire leadership. Notably, the research variables did not significantly correlate with demographic variables, except for years of experience, which positively correlated with coordinators' satisfaction.

Table 2
Descriptive statistics and Pearson correlations of study variables

Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1. Gender1	-	-	-	-	-	-	-	-	-	-	-
2. Age	-	-	-.09	-	-	-	-	-	-	-	-
3. Years of experience	-	-	-.15	.54**	-	-	-	-	-	-	-
4. Satisfaction	3.86	1.16	-.13	.14	.23*	-	-	-	-	-	-
5. TLS	3.72	0.86	.04	-.01	-.04	.50**	-	-	-	-	-
6. Transactional leadership	3.08	0.60	-.10	.09	.07	.32**	.60**	-	-	-	-
7. Laissez-faire leadership	2.26	0.95	-.02	-.07	.03	-.31**	-.26**	.38**	-	-	-
8. TC	3.76	0.94	-.11	-.04	.03	.51**	.58**	.39**	-.22*	-	-
9. Attitudes	3.37	0.85	-.14	-.14	.07	.43**	.35**	.32**	-.04	.63**	-

Note: N=97; *p<0.05; **p<0.01; 1 = dummy variable (1=male, 2=female); SD = Standard deviation

We used a mediation model to explore the relationship between TLS and coordinators' attitudes towards remote work in order to address Research Question 2. This model specifically evaluated whether TC mediated the relationship between TLS and attitudes, examining whether the principal's TLS directly and positively impacted the coordinators' TC, thereby influencing their attitudes towards remote work.

We used the supplemental process in SPSS (Hayes, 2018) to test the model. This procedure enables the testing of direct and indirect correlations using linear regressions and the bootstrapping technique developed by Preacher and Hayes (2008) with 5000 samples. This approach is particularly robust for small sample sizes and does not assume a normal distribution for the indirect effect, thereby providing more accurate confidence intervals for hypothesis testing.

In line with the hypothesis, the analysis revealed that TLS significantly predicted TC (b = 0.65, p < 0.001), and TC significantly predicted attitudes (b = 0.58, p < 0.001). The indirect effect (mediation) was significant (indirect effect = 0.37, 95% CI [0.26, 0.52]), while the direct effect of TLS on attitudes was not significant (direct effect = -0.02, 95% CI [-0.22, 0.17]). These results confirm Hypothesis 3, showing that TC fully mediates the relationship between TLS and attitudes towards remote work (see Figure 1).
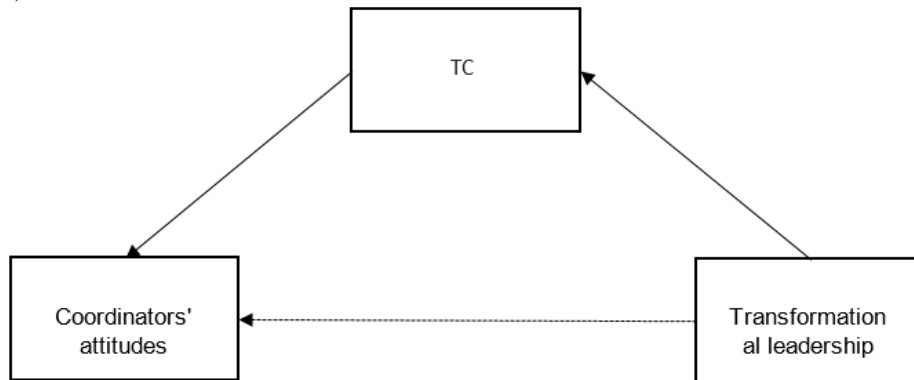

Figure 1
TC mediates the relationship between TLS and coordinators' attitudes
Note: continuous line = significant correlation, dotted line = non-significant correlation

During the COVID-19 crisis, another model tested whether laissez-faire leadership had an indirect effect opposite to that of TLS on coordinators' attitudes toward online work. We used the same model as before, but this time, we included laissez-faire leadership as the independent variable. The analysis found that laissez-faire leadership significantly predicted a negative effect on TC (b = -0.24, p = 0.03), and TC, in turn, significantly predicted attitudes (b = 0.59, p < 0.001).

The analysis also revealed that the indirect (mediating) effect was significant (indirect effect = -0.14, 95% CI [-0.27, -0.02]), while the direct effect of laissez-faire leadership on attitudes was not significant (direct effect = 0.10, 95% CI [-0.06, 0.26]). These findings show that TC entirely mediates the correlation between laissez-faire leadership and attitudes (see Figure 2).
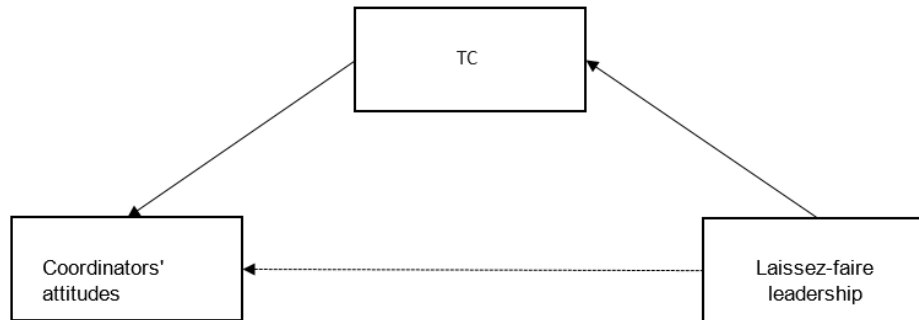
Figure 2
TC mediates the correlation between the principal's laissez-faire leadership and coordinators' attitudes
Note: continuous line = significant correlation, dotted line = non-significant correlation.

These findings suggest that laissez-faire leadership negatively influences coordinators' attitudes toward online work by diminishing their TC. This highlights the importance of active and engaged leadership in facilitating technological adaptation in NFE settings, both during the early phase of the pandemic and in the ongoing process of digital transformation.

In response to Research Question 3, the study also examined whether there were differences between the SECs and NECs in relation to the variables. Table 3 shows the means for these two groups, as well as the results of the t-tests that were used to compare them.

Table 3
Comparison between SECs and NECs in relation to selected variables

Variable	SECs		NECs			
	Mean	SD	Mean	SD	t	p
Satisfaction	4.17	0.88	3.19	1.42	4.13	0.00
TLS	3.81	0.83	3.54	0.91	1.43	0.16
Transactional leadership	3.07	0.54	3.14	0.71	-0.54	0.59
Laissez-faire leadership	2.10	0.88	2.62	0.71	-2.84	0.00
TC	3.95	0.85	3.37	1.04	2.92	0.00
Attitudes	3.50	0.78	3.12	0.93	2.08	0.04

Table 3 reveals several differences between the two groups. In partial accord with Hypothesis 4, the SECs reported greater satisfaction, stronger TC, and more positive attitudes toward online work during the pandemic than the NECs. Additionally, the SECs reported experiencing laissez-faire leadership less frequently than the NECs. We found no significant differences between the groups regarding transformational and transactional leadership styles.

Qualitative Findings

The qualitative analysis offered valuable contextual insights that deepened the understanding of the quantitative results, particularly concerning coordinators'

perceptions of principals' leadership styles, their attitudes toward remote work, and the critical role of TC in facilitating the transition to digital education. Thematic analysis of the interviews revealed three primary themes that shed light on the complexities and challenges faced by SCECs and NFECs during the COVID-19 pandemic.

The Principal's Leadership Style: Collaborative Work and Organizational Communication

Interview findings (N = 18) revealed that the transition to remote operations was novel for the coordinators and required new techno-pedagogic skills, for which most were untrained. This rapid transition impacted all aspects of work, necessitating prompt and effective communication from the principals, offering guidance, and involving staff in professional matters. These challenges continued beyond the initial phase of the pandemic, underscoring the ongoing need for adaptive leadership in NFE. Both SECs and NECs echoed this sentiment.

"During this period, our progress depends on effective communication between the principal and staff. Fortunately, our principal adeptly utilized various communication channels, such as Zoom, WhatsApp, and phone calls. This adaptability has continued to benefit our work even as we navigate the post-pandemic landscape."

"In contrast, during the crisis, our principal did not sustain regular meetings. I felt isolated and uninformed about ongoing developments, new guidelines, or any prohibitions. This detachment left me feeling isolated and frustrated. Unfortunately, this lack of communication has persisted, making it challenging to adapt to the evolving needs of our NFE programs."

Communication effectiveness and the degree of collaboration promoted by principals were particularly influential in how coordinators navigated the transition to remote work. Coordinators who reported positive experiences with their principals emphasized the importance of consistent, clear, and supportive communication. They described principals who proactively engaged with staff, facilitated access to necessary resources, and fostered a sense of collective responsibility:

"During this period, our progress depends on effective communication between the principal and staff. Fortunately, our principal adeptly utilized various communication channels like Zoom, WhatsApp, and phone calls, which made us feel supported and connected despite the physical distance."

"Our principal showed concern for us, promoted teamwork, and had a clear vision. He collaborated with all other entities within the local authority, which helped us feel part of a larger, coordinated effort."

In contrast, coordinators who experienced less supportive leadership described feelings of isolation and frustration. The lack of regular communication and guidance left them struggling to keep up with the demands of remote work.

"During the crisis, our principal did not sustain regular meetings. I felt isolated and uninformed about ongoing developments, new guidelines, or any prohibitions. This detachment left me feeling isolated and frustrated."

These accounts highlight the critical role of leadership in crisis management, particularly in fostering an environment where staff feel informed, supported, and capable of adapting to new challenges.

Factors Influencing Coordinators' Technological Competence Development

The interviews underscored the central role of TC in shaping coordinators' attitudes toward remote work. Two key factors emerged as particularly influential: the principal's own TC and the availability of professional learning opportunities in ICT.

The principal's technological competence and digital communication skills

During the pandemic, the digital transition placed significant demands on principals, not only to communicate effectively using digital tools, but also to model the use of these technologies for their staff. Coordinators reported that principals with higher levels of TC were better able to guide and support their teams, leading to more successful adaptations to remote work:

NEC participant: "Our principal struggled with new technologies, especially in digital communication with coordinators, making it challenging for me to navigate the crisis independently." This lack of guidance increased my stress and reduced my confidence in handling remote work."

SEC participant: "In contrast, our principal provided technological support during the crisis, modeling effective technology use for communication and developing new methods suited for that period, such as crafting learning units suitable for remote activities. This proactive approach significantly eased the transition for us."

These experiences illustrate the cascading effects of a principal's TC on the broader organizational capacity to adapt to remote work, highlighting the importance of digital leadership in contemporary educational settings.

Professional Learning and Support in ICT for Coordinators

All interviewees (N = 18) acknowledged the mediating role of their own TC between organizational leadership and their attitudes toward remote work. The extent to which coordinators received professional development and support in ICT significantly influenced their ability to adapt to the pandemic's demands.

"Before the pandemic, ICT was primarily used for updating coordinators and students, requiring minimal digital proficiency on my part. However, due to budget constraints, the pandemic expanded its use, making it difficult without the anticipated ICT courses. The lack of training left me feeling unprepared and overwhelmed."

SEC participant: "We were fortunate to have received ICT support both before and during the crisis, which significantly enhanced our capabilities. The training and resources provided by the Ministry of Education enabled us to continue our work effectively, despite the shift to remote platforms."

These accounts suggest that investment in ongoing ICT training and support is crucial for building TC among coordinators, particularly in NFE contexts where digital skills may not have been a priority before the pandemic.

Comparing SCECs and NFECs: Disparities in Resources and Support

The interviews revealed significant disparities between SCECs and NFECs in terms of their access to resources, professional development opportunities, and the effectiveness of leadership support. These differences were particularly pronounced in the context of digital transformation during the pandemic.

Archived Activities and Digital Learning Spaces

The lack of pre-stored digital activities was a common challenge among NFECs (N = 9), who reported struggling to adapt to remote work without adequate resources. In contrast, SCECs (N = 6) emphasized the value of their prior professional development in ICT and the digital resources available from the Ministry of Education:

"We were not prepared for the digital shift. There were no pre-stored activities that we could use, and we had to create everything from scratch, which was incredibly time-consuming and stressful."

"Our prior ICT training and the resources provided by the Ministry of Education were invaluable during the pandemic." We had access to digital learning spaces and archived activities that made the transition to remote work much smoother."

These differences highlight the unequal distribution of resources and training opportunities between SCECs and NFECs, which had a direct impact on their ability to adapt to the challenges of the pandemic.

Mentorship and supervision

Mentorship and supervision emerged as another critical factor influencing coordinators' success during the pandemic. SECs (N = 5) particularly benefited from the support and guidance provided by their superintendents and mentors, which positively influenced their TC, job satisfaction, and attitudes toward remote work.

SEC participant: "The success of SECs during the crisis didn't solely rest on the principal's decisions; it also involved superintendents and mentors who provided guidance, support, and suitable activities for remote learning, ensuring our continuous operation throughout the crisis."

In contrast, NFECs reported less access to such support structures, which further exacerbated the challenges they faced in adapting to remote work. This disparity underscores the importance of robust support networks and ongoing professional development, particularly in times of crisis.

DISCUSSION

This study explored the relationship between managerial leadership styles and the TC of SECs and NFECs within Israel's Arab society, as well as their attitudes toward remote work during the COVID-19 pandemic. The research examined how varied

organizational contexts and policies influence these coordinators' perceptions of their environment and the leadership styles they experience.

Key Insights

TLS as a Catalyst for Success

Consistent with Hypotheses 1 and 2, the COVID-19 crisis introduced significant challenges for SECs and NECs. The findings highlighted the crucial role of TLS in helping SECs and NECs navigate unprecedented shifts in their work environments. TLS, characterized by inspirational motivation, individualized consideration, and intellectual stimulation, proved especially effective in fostering resilience and adaptability among coordinators. This aligns with existing literature that underscores the effectiveness of TLS in both routine and crisis contexts (Harris, 2020; Herzallah & Stavissky, 2021). In NFE, which focuses on moral development, these results (Cohen, 2001; Wang et al., 2011) back up earlier research that linked TLS to better organizational performance and positive attitudes among subordinates (Auckland & Kilpatrick, 2018; Masry-Herzallah, 2023a; Soles et al., 2020).

Interviews with coordinators revealed that clear communication, personal consideration, professional and technological support, and inclusive decision-making were critical leadership traits instrumental during the pandemic. These traits align with the participatory and symmetrical approaches inherent in NFE (Cohen, 2001). Moreover, the quality of relationships between leaders and subordinates—rooted in collegiality and trust—was found to be a significant motivator for achieving organizational goals. Such characteristics are closely aligned with the principles of TLS, which fosters a supportive and empowering work environment (Rahmata & Malikh, 2017).

TC as a Mediating Factor

In line with Hypothesis 3, which posited that TC mediates the relationship between leadership style and attitudes toward remote work, the findings revealed that coordinators' turnover significantly mediated this relationship. This result resonates with previous research suggesting that leadership styles indirectly influence subordinate behaviors and organizational outcomes through mediating variables like TC (Burić et al., 2021). Drawing on Deci's Motivation Theory (1975), TLS was shown to enhance interest and satisfaction by providing emotional support and empowering subordinates. Such leaders employ a motivational approach, encouraging subordinates to share experiences and granting them autonomy in their tasks, which in turn fosters higher levels of TC.

The interview results further elucidated the principal's role in enhancing coordinators' TC. Principals, who served as role models by developing essential tools and content tailored for remote platforms, significantly contributed to their coordinators' ability to adapt to digital education. By providing appropriate ICT training and support, these leaders leveraged the inherent strengths of NFE—such as flexibility, pedagogical diversity, and robust interpersonal connections—to ensure the continuity of educational values in the digital space (Soles et al., 2020).

Disparities between SECs and NECs

In alignment with Hypothesis 4, the study found that SECs perceived themselves to have more robust TC and exhibited more positive attitudes toward remote work than NECs. Additionally, SECs reported encountering laissez-faire leadership less frequently. Contextual factors highlighted in the literature review and interview evidence can account for these disparities.

SECs, who also served as teachers, were actively involved in promoting online teaching during the crisis alongside their social-community education activities. Adhering to the work plans set by the Director of Society and Youth in the Ministry of Education, SECs benefited from access to a repository of organizational activities and an appropriate technological infrastructure (Weissblau, 2020). Furthermore, they participated in various techno-pedagogical training sessions provided by the Ministry of Education, both before and during the onset of the pandemic (Herzallah, 2022). These elements likely contributed to SECs' more favorable attitudes toward remote work during the COVID-19 crisis.

Conversely, NECs, who are solely responsible for promoting NFE in community settings, operate under different conditions. Two main factors influence their attitudes: their individual educational background and experience, as well as the organizational context. As highlighted in both the literature review and interviews, many NECs lack formal education in NFE (Haddad-Haj Yahya et al., 2021). Additionally, reports from the pandemic period indicate a lack of ICT training for NFE workers, coupled with inadequate infrastructure and resources to continue promoting NFE activities, particularly in the Arabic language (Weissblau, 2020; Rozner, 2020). During the crisis, these challenges are likely to have influenced NECs' TC and attitudes toward remote work.

IMPLICATIONS

Theoretically, this study provides significant insights into the role of TLS within minority communities, particularly in the context of NFE. The findings corroborate existing research that emphasizes the positive impact of TLS on followers' technological capabilities and attitudes. Specifically, the study highlights the importance of cultural considerations when implementing leadership strategies in NFE programs. The collectivist norms prevalent in Arab society may shape coordinators' technological proficiency and perspectives on remote work. This aligns with studies that suggest cultural factors play a crucial role in technology adoption across various settings (Masry-Herzallah & Stavissky, 2021). Collectively, this research strengthens the theoretical argument that TLS fosters technological readiness while also emphasizing the need to account for cultural nuances when designing leadership or educational strategies in marginalized communities (Masry-Herzallah, 2022).

Practically speaking, the study offers actionable recommendations for supporting NFE coordinators during transitions to remote work: (1) **Promotion of TLS:** The research emphasizes TLS's effectiveness in fostering positive attitudes toward remote work and improving TC. Organizations should consider training their leaders in transformational

strategies, with an emphasis on supportive and communicative behaviors, to facilitate smoother transitions in times of crisis. (2) **Enhanced Communication and Support:** Successful transitions to remote work require direct communication, opportunities for professional growth, and a focus on addressing specific needs. Organizations should prioritize providing employees with the necessary technological resources, continuous training, and a supportive work environment to ensure their success. (3) **Technical Skills Development:** The findings highlight the need for coordinators to refine their technological skills in order to effectively navigate digital tools and platforms. To achieve this, organizations should organize workshops, training sessions, online resources, and other developmental initiatives to cultivate these crucial capabilities. (4) **Fostering Digital Pedagogical Skills:** Research suggests that TLS can significantly enhance followers' digital pedagogical skills (Sawan & Anugrahsari, 2021; Chang et al., 2021). Organizations should empower their leaders to champion innovative teaching methodologies that effectively leverage technology in educational settings.

LIMITATIONS

This study, like many self-reported research efforts, is subject to certain limitations, including potential response biases and the confined focus on a specific population within Israel's Arab minority. These factors may limit the findings generalizability to other groups or settings. Additionally, the study provides a snapshot of the situation during the onset of the COVID-19 pandemic without evaluating the long-term impact of these changes on Arab society's NFE sector. Despite these limitations, the study offers valuable initial insights into the abrupt transition to remote work within this context. The findings set the stage for more extensive, multi-context research on how marginalized communities navigate digital disruptions, particularly those exacerbated by crises.

The findings of this study suggest several promising avenues for future research. The generalizability of the relationships between leadership style, TC, and attitudes toward remote work across diverse populations of SECs and NECs requires further investigation. Researchers could explore these dynamics in different cultural, national, and geographic contexts using quantitative, qualitative, and mixed methods approaches (Creswell, 2014). It would also be beneficial to examine the effectiveness of various leadership development training programs in cultivating positive attitudes toward virtual work environments, particularly those prompted by crises (Bass & Avolio, 1994). To find out what long-term effects better TC and TLS practices have on coordinator performance, well-being, and learner outcomes, longitudinal and experimental designs could also be used. Finally, future studies could focus on identifying best practices for supporting underserved coordinator groups during unexpected transitions to digitally mediated work. As NFE continues to evolve in the post-pandemic era, research agendas that prioritize inclusive leadership, customized training, and coordinated resilience in the face of disruption will become increasingly valuable.

CONCLUSIONS

This timely study illuminates the critical role of effective leadership in building TC and fostering positive attitudes toward remote work among NFE coordinators during the COVID-19 upheaval. With the persistence of remote work and digital technologies likely to continue post-pandemic, the findings have significant implications for the future of NFE in the emerging digital era. The study suggests that TLS can empower coordinators to embrace new tools and modalities, underscoring the need for customized leadership development and training programs that equip coordinators to thrive in increasingly virtual environments. Additionally, the research highlights the importance of targeted support to enhance coordinators' digital proficiency. Comprehensive studies like this one, conducted both pre- and post-COVID, will be essential in guiding the ongoing evolution of non-formal institutions. Overall, these mixed methods study clearly shows that strategic investments in TLS, digital skills, and supportive organizational cultures can create an NFE sector that is both resilient and innovative. These are important traits for the sector to have as it adapts to new technologies like AI and navigates the challenges of the post-COVID digital age.

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