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Article

Socio-Technical Dynamics in Educational Management Explored Through Gendered Leadership Styles and Competencies

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Abstract: This mixed-methods research investigates the socio-technical dynamics of educational management by examining the variations in professional experiences, leadership competencies, and administrative styles between male and female school officials in Agoo, La Union. As educational institutions increasingly integrate Artificial Intelligence (AI) and Information and Communication Technology (ICT), understanding the human leadership driving this digital transformation is critical. Employing a descriptive-correlational framework, the study evaluated a cohort of 22 participants, including 15 department heads and seven high school principals, utilizing standardized surveys alongside detailed qualitative interviews. The results indicated that all participants began their professional journeys as classroom teachers and encountered no significant systemic obstacles in attaining their current executive positions. Furthermore, the data highlighted clear gender-based distinctions: male administrators primarily demonstrated human-centered capabilities and a relationship-focused style aimed at fostering subordinate comfort, whereas female administrators exhibited proficiency in both technical and human domains, utilizing a task-oriented approach defined by clear role clarification. The study concludes that while practical implementation varies by gender, these complementary styles form an optimal transformational foundation for technology adoption. Consequently, an evidence-based development program was established to strengthen AI and ICT management expertise within the secondary education sector. **Keywords**: socio-technical management, gender differences, educational leadership, technology integration, management styles

1. Introduction

Although extensive literature exists regarding the integration of Information and Communication Technology (ICT) and Artificial Intelligence (AI) into modern schooling, there remains a notable gap in comprehensive comparative studies examining how the gendered leadership styles, skills, and experiences of administrators govern the adoption of these socio-technical dynamics. The socio-technical systems perspective is explicitly supported by Davidson and Olson (2003), who found that technology was acting upon the social context of the schools while the social context of the schools was powerful in shaping the organization and use of the technology. Their study revealed leadership roles were significantly reshaped and redistributed as a result of the acts of translation required by technology integration. Within this rapidly advancing technological framework, a primary method for educating diverse societal sectors about the importance of acknowledging and respecting the rights of both men and women is gender mainstreaming (CMO 1, s.2015). Principals and school leaders are instrumental in cultivating an environment responsive to these intersecting gender and technical issues; as guiding figures, administrators must advocate for and demonstrate gender equity, ensuring that related training becomes a core component of their ongoing professional growth (GENIA, 2019).

Academic literature extensively documents the subject of gender within these professional hierarchies (Morrison, 2012). While statistics, such as those from the U.S. Bureau of Statistics (2012), suggest an increasing female presence in the workforce, women frequently remain concentrated in roles historically categorized as feminine. Within the education sector, numerous scholars have highlighted the persistent gap in senior leadership and systems management roles occupied by women (Lowe, 2011). The notion that fundamental differences exist between men and women often acts as a hurdle for female professionals striving for senior administrative roles (Hyde, 2005). Traditional

stereotypes suggest that women lack the essential traits required for executive leadership and are consequently less effective than their male counterparts (Holder, 2012). Additionally, domestic responsibilities are frequently noted as a significant impediment (Litmanovitz, 2011). In a replication study conducted by Morrison (2012), 61% of female respondents pointed to the challenge of juggling career and family as a primary hurdle. In contrast, subjects in Naholi's (2008) research observed that women in leadership balanced their personal and professional lives relatively well; however, they identified other barriers to advancement, including wage disparities compared to male peers, prejudiced community attitudes, gender-based discrimination, and an absence of suitable role models. Woosnam and Williams (2008) similarly validated these perceived obstacles, noting that female professionals encountered gender-specific challenges such as sexual harassment, unequal compensation, condescending attitudes from male superiors, and professional suppression.

Women in administrative roles frequently describe professional realities that differ markedly from those of male administrators, often highlighting distinct biases (Eckman, 2004). For instance, Garn and Brown (2008) documented a female superintendent who noted a male principal's clear apprehension about reporting to a woman. Similarly, female superintendents interviewed by Wallin and Crippen (2007) reported discomfort when working with men who struggled to interact socially with them, alongside a pervasive sense of isolation and an obligation to adopt masculine traits to appear competent. This feeling of marginalization aligns with findings by McGovern-Robinett (2002), whose participants frankly discussed being shut out of informal networks utilized by male principals, forcing them to rely heavily on self-sufficiency. Furthermore, female superintendents commonly perceive a necessity to exert more effort and dedicate more time to their roles than male peers (Yates, 2005; Gosmire et al., 2010). Conversely, some senior female administrators reported positive experiences, emphasizing the diverse opportunities they received and the encouragement they garnered from colleagues (Sampson & Davenport, 2010).

When navigating the complexities of institutional technology, gender dynamics in ICT leadership show mixed patterns. Banoglu (2011) found female principals demonstrated higher competency in the leadership and vision dimension of technology leadership ($p<.05$). However, bridging this gap requires structured support; Adewale (2025) identified an apparent digital divide in technology use based on gender and noted the need for leadership strategies to enhance technology acceptance, especially among female teachers.

Mentorship is widely recognized for its beneficial influence on career trajectories and technological readiness, although men and women appear to experience it differently (Dunbar & Kinnersley, 2011). Yates (2005) observed that many mentoring connections emerge organically. According to Antonaros (2010), both genders use comparable criteria when selecting a mentor, largely prioritizing psychosocial reinforcement, validation, and camaraderie, yet women show a higher likelihood of choosing female mentors. Highlighting this preference, a subject in Christman and McClellan's (2008) research emphasized the necessity of analyzing complex professional scenarios alongside other women. Naholi (2008) similarly determined that female executives tend to mentor other women. Contrasting these findings, Garn and Brown (2008) concluded that a mentor's gender was inconsequential, and Kinnersley (2009) found no significant statistical variance in perceived mentorship efficacy based on whether the mentor was male or female.

Robust support networks are essential for career progression (Sherman et al., 2008), with superintendents and principals leveraging backing from supervisors, spouses, parents, and friends (Eckman, 2004; Gosmire et al., 2010). Sustained success heavily relies on active professional networking (Woosnam & Williams, 2008; Sampson & Davenport, 2010). Subjects in Garn and Brown's (2008) study credited professional mentors as instrumental in their career ascent, a sentiment echoed by Kinnersley (2009) and Dunbar and Kinnersley (2010), who affirmed that securing a mentor is vital for leadership readiness and upward mobility. Furthermore, Morrison (2012) stressed that mentorship is indispensable for achieving executive administrative roles. The consequences of absent mentorship include feelings of alienation from male-centric networks (McGovern-Robinett, 2002) and a severe deficit in professional development for emerging female leaders (Sherman et al., 2008). Mertz (2004) identified a lack of shared viewpoints as a primary reason for failed mentoring dynamics. Although Kinnersley (2009) determined there was no meaningful difference in outcomes between informal and formal mentoring structures, Dunbar and Kinnersley (2011) showed that individuals guided by higher-ranking mentors felt they received superior career support. Ultimately, guidance underscores the importance of securing a mentor (Campbell et al., 2010). This structural support directly influences ICT capabilities; Raman and Thannimalai (2019) found that while professional development was a significant predictor of technology integration, gender was not, suggesting that training networks are the true catalyst for modernization.

Leadership skills and styles can vary significantly between genders, dictating how institutions adopt new operational systems (Barbuto et al., 2007). Northouse (2019) observed that women frequently adopt a democratic

leadership approach by soliciting input, whereas men evaluating female supervisors often issued lower ratings if the women utilized a directive style. Lowe (2011) suggested that female leaders may have cultivated this democratic approach specifically to navigate such double standards. Regardless of style, effective leaders must understand their own identity and maintain a clear personal vision (Holder, 2012).

Female executives typically demonstrate behaviors and attitudes that successfully foster community and build organizational capacity (Irby & Brown, 2004). Women are commonly linked to transformational leadership, which aims to maximize others' potential through collaborative efforts, while men more frequently utilize transactional leadership, which relies on systems of reward and penalty (Lowe, 2011; Young et al., 2010). Leadership directly impacts technology adoption through these multiple mechanisms. Laouni (2020) demonstrated that transformational leadership styles (M=39.74) were associated with higher technology integration levels in educational environments. Furthermore, Ruloff and Petko (2021) found transformational leaders achieved more rapid and more profound changes in digital implementation compared to transactional leaders, correlating with faster implementation of digital technologies and a clearer focus on educational goals rather than simply on tools. According to Northouse (2019), women tend to govern with a higher degree of interpersonal focus rather than a strict task orientation, showcasing stronger person-centered skills during self-assessments (Sczesny, 2003). McGovern-Robinett (2002) identified alternate frameworks of female leadership that equate strength with developing personnel. Naholi (2008) proposed that female administration is distinctly centered on relationships, while Nogay and Beebe (2008) found that educators viewed female principals as superior at articulating institutional objectives. Furthermore, Wallin and Crippen (2007) noted that women were perceived as deliberate in realizing their visions, contrasting with men, who were often seen as aggressive and swift. Nevertheless, when questioned about gender-based differences in leadership qualities, the majority of respondents in Yates (2005) attributed variations to individual personality rather than gender, placing high value on people skills, honesty, vision, and communication.

This research is grounded in the Situational Theory of Leadership, introduced by Paul Hersey and Ken Blanchard in 1969. This framework posits that optimal leadership is contingent upon the task, the followers, and the leader, rather than a one-size-fits-all approach. As Northouse (2019) explains, situational leadership introduces an element of empathy to the follower's role and demands the flexibility necessary to foster an individual's growth. The evidence suggests that while gender influences socio-technical dynamics, adaptable leadership styles and professional development are the strongest predictors of successful systemic evolution. Consequently, this research investigates the gender-based differences in leadership styles, skills, and professional experiences among school administrators to formulate an evidence-based training initiative. This program will empower leaders to actively participate in contemporary global advancement, equipping them with the socio-technical competencies required to integrate modern innovations like AI and advanced ICT infrastructure into their operational frameworks.

2. Methods

Research Design

This research employed a descriptive-correlational framework to directly capture the perspectives, lived experiences, and operational management strategies of the subjects. This specific approach was selected because it facilitates a comprehensive exploration of the socio-technical dynamics within educational institutions, yielding profound, individualized insights into the core issues of administrative leadership. To accomplish this, the study utilized a mixed-methods strategy, blending both qualitative and quantitative techniques. Standardized survey instruments were administered for the quantitative portion to systematically assess leadership skills and management styles. Conversely, the qualitative component relied on thorough, open-ended interviews designed to understand how the participants perceive their organizational environment and articulate significant professional and personal occurrences.

Participants

The participant pool consisted of 22 educational leaders, specifically, 15 department heads and seven principals, operating within the seven high schools located in the Agoo District, Division of La Union, Philippines, throughout the 2020-2021 academic year. The sample featured eight female and 14 male school administrators. The selection process reflected purposive sampling characteristics, given that every participant shared a distinct professional trajectory: initiating their educational careers as high school teachers prior to advancing into their present senior administrative positions.

Instruments

Data collection primarily relied on survey methodology, utilizing two specific instruments developed by Northouse (2019): the skills inventory and the style questionnaire.

The initial instrument, a 20-item style questionnaire, evaluated two primary categories of leadership conduct: relationship-centric and task-centric behaviors. A respondent's task-oriented score indicates their proficiency in clarifying expectations and defining specific operational roles for their team members. This metric highlights a leader's inclination toward task direction and structural management. Conversely, the relationship-oriented score evaluates the extent to which an administrator fosters a comfortable, supportive socio-emotional environment for subordinates, both individually and collectively. This score fundamentally quantifies the leader's interpersonal focus, emphasizing their actionable behaviors in a management role rather than their inherent personality traits.

The second instrument, the skills inventory, assessed leadership capabilities across three distinct domains critical for organizational management: conceptual, human, and technical. Technical skills encompass a leader's expertise and competence in specialized tasks, including their analytical capabilities and proficiency with relevant techniques and operational tools. Human skills reflect the capacity to interact successfully with others within the organizational system. This trait enables administrators to collaborate efficiently with superiors, peers, and subordinates to fulfill institutional objectives, fostering cooperative group dynamics. Finally, conceptual skills denote the capacity to navigate abstract ideas, allowing leaders to comfortably discuss the complex frameworks and underlying philosophies that shape an institution. The purpose of this inventory is to provide respondents with a clear picture of their systemic leadership proficiencies across these three critical areas.

Data Collection and Procedure

In addition to the standardized survey data, the researcher conducted extensive interviews to gather deeper qualitative insights into the daily dynamics of institutional management. Rather than employing a rigid structure, these interview sessions were guided and conversational. Open-ended questions were utilized to capture the personal significance participants attached to their experiences, revealing how they interpret their operational surroundings and rationalize critical life milestones (McMillan & Schumacher, 2010). To acquire highly detailed information, the researcher avoided strict scripting, opting instead to utilize spontaneous follow-up inquiries and probing questions as the dialogue naturally unfolded (Yin, 2011). Furthermore, the interviewer deliberately refrained from stacking multiple inquiries at once or embedding several questions into a single prompt, thereby guaranteeing that respondents had the space to share unprompted, authentic narratives concerning their leadership practices.

Data Analysis

Following the interviews, all recorded conversations were transcribed into text format. The researcher then reviewed these transcriptions comprehensively to grasp the overarching organizational and personal themes of the data. A primary objective during this phase was to recognize the potential for diverse interpretations, employing specific measures to ensure the researcher's own biases did not accidentally dictate the analysis of the participants' accounts (Yin, 2011). Regarding the quantitative data, the results from the skills inventory highlighted each respondent's capabilities across the conceptual, human, and technical domains. By analyzing the variations among these three scores, the researcher could pinpoint specific management deficiencies and strengths, which in turn suggested the administrative tier best aligned with that individual's operational skill set. Meanwhile, the style questionnaire outcomes provided metrics on the administrators' interpersonal and task-driven tendencies. A high task score demonstrated a strong ability to clarify responsibilities and establish clear systemic expectations for staff. On the other hand, the relationship score reflected the leader's dedication to cultivating a reassuring and cohesive atmosphere for individual subordinates and the management team as a whole.

3. Results

Qualitative Findings: Operational Experiences of the School Administrators

Background

The initial career plans of the participants varied; Male 10 and Female 3 entered university specifically to pursue educational professions, whereas Female 7 and Male 14 originally had no plans to enter the field. Every participant had experience instructing high school students, though Female 4 and Male 9 spent a brief period teaching at the third-year tier. The most extensive teaching tenure belonged to Female 8 with 23 years of experience, and Male 13 stood out as the sole participant with a coaching background during his instructional years. When discussing their goals for leadership, Male 11 realized his desire to become an administrator very early on, and Female 6 pursued her advanced

degree with a clear administrative goal in mind. Conversely, financial advancement motivated Female 1 and Male 12 to acquire their degrees. Prior to their current roles, every respondent worked as a high school assistant principal for a brief duration. Tenure in this stepping-stone position ranged from just 10 months for Female 5 and two years for Female 2, to slightly longer terms for the men, such as three and a half years for Male 4 and five and a half years for Male 1.

Influences

Every one of the 22 participants acknowledged that external individuals shaped their decision to pursue an administrative pathway. The sources of this inspiration were split: nine participants pointed to positive role models, while eleven were driven by negative observations, with men and women represented in both groups. For instance, Male 8 was motivated by an unfavorable example, much like Female 4, who observed ineffective administrators and felt confident in her ability to outperform them. Alternatively, Male 5 realized that a long-term classroom career without coaching was unsustainable; his curiosity about alternative career paths was nurtured by the support of existing administrators. For Female 6, the drive to lead grew out of her deep bond with education, further bolstered by the mentorship of an impactful female leader.

Typical Day

The subjects shared numerous commonalities when outlining their daily operational routines. For those acting as principals, assessing educators was a frequent task; Male 7 referenced conducting instructional rounds, Female 8 and Male 3 highlighted formal and casual classroom drop-ins, and Female 5 emphasized collaborating directly with high school staff during site visits. Furthermore, attending or leading meetings was a universal daily activity across all 22 participants. Female 2 voiced aggravation regarding her meeting-heavy calendar, which left her feeling powerless over her own time. Managing a massive influx of electronic correspondence was another universal challenge for the principals, highlighting the digital communication demands of modern systems management. Male 2 and Male 6 both described battling a continuous flood of messages, while Female 7 recalled returning to her desk to find 55 unread emails. Beyond desk work, maintaining a visible presence on campus was a shared priority. Female 1, Male 5, and Male 11 stressed the necessity of leaving the office to interact with faculty and students or to supervise bus arrivals. Female 3 explicitly noted that these campus visits were the most enjoyable aspect of her work. Among specific subgroups, other shared realities emerged. Female 4 and Male 7 discussed managing student conflicts and acknowledged the immense pressure of their roles, recognizing the sheer number of individuals relying on their leadership. Male 8 and Male 4 characterized their daily decision-making as relentless and frequently reactive. Offering a distinct perspective, Female 4 described the awkwardness of transitioning from a peer educator to a supervisory role over former colleagues, humorously characterizing the shift as moving to the dark side of administration.

Barriers

Participant accounts regarding professional obstacles showed considerable variation. Interestingly, no subject reported facing hurdles during the hiring process, and none of the women identified systemic prejudice as an issue. The challenges they did mention were independent of gender, rooted instead in shared internal or environmental variables. For instance, Male 9 identified his own mindset as his primary obstacle. Conversely, Male 13 reported encountering zero roadblocks to employment, attributing his smooth transition to the community trust he built as a coach. Male 12 observed that career advancement becomes much simpler once integrated into the educational system, and Female 1 completely rejected the concept of barriers. Where commonalities did exist, they were tied to external workplace demands. Female 8 highlighted institutional inequities, while exactly half of the group pointed to the overwhelming rollout of new initiatives and programs as a significant hindrance to their effectiveness. Finally, Female 3 lamented the structural design of the principal role, wishing for more opportunities for genuine leadership rather than administrative management.

Gender Issues

In exploring the impact of gender on acquiring and holding senior administrative roles, 16 of the 22 subjects stated that being a woman did not hinder the hiring process. Female 6, however, labeled the inquiry a loaded question, hinting at a possible reluctance to vocalize negative experiences. Male 14 observed that modern leaders often have to actively push back against outdated coaching mentalities, warning against reverting to the archaic model of a male disciplinarian who carries a massive keyring but lacks instructional expertise. Highlighting a specific disparity, Male 10 observed the total absence of women in the district's Athletic Coordinator roles. Summarizing the overarching climate, Male 6 acknowledged significant progress but emphasized that substantial work remains, implying lingering imbalances for women seeking executive positions. Once established in their roles, other gender-related dynamics

surfaced. Male 1 observed that female administrators occasionally face difficulties managing assertive female educators. Aligning with this sentiment, Female 5 expressed a preference for managing male staff, suggesting she could communicate more bluntly with men and perceiving women as sometimes overly emotional and prone to holding onto grievances. Lastly, Female 1 addressed the double standards in leadership perception, noting that her assertive actions were often unjustly criticized as overly harsh or malicious, while identical actions from a male colleague would be praised as strong leadership.

Mentors

Every participant cited at least one or two influential role models or mentors. Male 2 valued guides who possessed strong delegation skills, communicated clearly, and offered precise feedback, capabilities he actively developed in his own practice. Male 3 appreciated having a few steadfast supporters advocating for his success. For Male 1, mentors were instrumental in securing his current job; he highlighted a formally designated mentor who continued to offer vital guidance long after the official partnership concluded. While Female 2 benefited from a male mentor, she viewed such relationships primarily as a source of non-evaluative emotional support and a sounding board, rather than a strict requirement for upward mobility. She also noted her own active role in mentoring others. Female 7 drew inspiration from two individuals: a male mentor whose leadership approach she deeply respected, and a female superintendent with whom she maintains an ongoing connection. She successfully integrated tactics from both leaders into her own career. Finally, Female 3 emphasized the profound influence of a specific female role model on her professional trajectory.

Social Networking

In the context of this research, social networking denotes professional human connections rather than digital platforms. Interestingly, not a single participant believed that professional networking was a critical factor in initially securing employment. Female 5 and Male 8 shared the perspective that professional visibility and situational timing were far more crucial than established networks. Discussing his own recruitment philosophy, Male 14 emphasized selecting the most qualified candidate irrespective of demographics, proposing that while networking may have been essential for landing a leadership role a decade and a half ago, it is less relevant today. However, building connections proved more relevant after assuming leadership. Male 10 highlighted the isolation of lacking internal peers who truly understood the unique operational challenges of his specific campus. Female 8 stressed the value of forming alliances with principals managing comparable school environments, though she warned that one must be highly selective about whose advice to internalize.

Personal Traits

The subjects' self-reported personality characteristics were highly diverse, though some shared patterns emerged. A majority, 12 participants, identified themselves as highly organized or deeply focused on task details. Female 1 and Male 2 highlighted their capacity to grasp overarching concepts, a sentiment mirrored by Female 2, who classified herself as a visionary. Beyond these overlaps, individual self-descriptions covered a wide spectrum. Male 3 characterized himself as a confident yet introspective strategic thinker with a strong task focus and a natural aptitude for leadership. Conversely, Male 4 highlighted his authenticity, high energy levels, and self-assurance. Female 7 described herself as an uncompromising, detail-driven professional who avoids procrastination, while Female 1 simply defined herself as strong. Admitting to being highly controlling and enjoying directing and educating others, Female 6 emphasized her stringent expectations, organizational skills, and drive for universal improvement. Like Female 2, she viewed herself as a focused visionary committed to her long-term objectives. Furthermore, Female 2 also identified as highly controlling over processes, whereas Male 2 prioritized maintaining authenticity in his professional demeanor.

Quantitative Findings: Leadership Skills of the School Administrators

The assessment of leadership competencies evaluated three core domains essential for systems management: conceptual, human, and technical proficiencies. The technical domain encompassed a leader's drive to see projects to completion, an intrinsic interest in mechanical or procedural specifics, and a general fascination with operational mechanisms. The conceptual domain assessed a participant's comfort level with abstract theoretical constructs, their capacity for strategic planning, and their ability to perceive broader organizational contexts. Lastly, the human domain measured the capacity to comprehend the complex socio-technical dynamics within an institution, empathize with colleagues, and tailor concepts to meet individual personnel requirements.

As detailed in Table 1, the data reveals specific scoring patterns across these competencies. Male respondents achieved their peak performance in the human skills metric. Conversely, female respondents demonstrated a highly

balanced proficiency across all three evaluated areas, recording identical peak scores in human and technical abilities, with their conceptual scores trailing only marginally. Notably, female administrators achieved higher averages than their male counterparts across every category. The most substantial scoring disparities between the genders occurred in the technical and conceptual domains, while the gap in human skills was slightly narrower.

Table 1. Leadership Skills of Male and Female School Administrators

MALE RESPONDENTS																
	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	$\bar{x}$	DE
Technical Skill	24	30	23	18	29	28	27	22	20	22	30	29	27	26	25	HR
Human Skill	27	30	26	17	28	27	26	23	21	23	30	29	30	26	26	HR
Conceptual Skill	25	27	23	15	25	26	23	23	20	21	30	26	28	23	24	HR
FEMALE RESPONDENTS																
				F1		F2	F3	F4	F5	F6		F7	F8	$\bar{x}$	DE	
Technical Skill				27		28	28	28	29	28		24	30	28	HR	
Human Skill				28		27	29	26	30	29		27	30	28	HR	
Conceptual Skill				27		26	28	24	28	26		25	30	27	HR	

Scoring Interpretation:
23–30 High Range (HR)
14–22 Moderate Range (MR)

6–13 Low Range (LR)

Quantitative Findings: Leadership Styles of the School Administrators

The research revealed intersecting themes among individual character traits, administrative styles, and inherent leadership competencies. An analysis of the stylistic assessments presented in Table 2 indicates that men achieved high ratings in task-oriented behaviors and exceptionally high ratings in relationship-oriented behaviors. Women, however, secured exceptionally high scores in both the relationship and task dimensions. In a direct comparison, male participants demonstrated stronger relationship-centric tendencies but exhibited weaker task-centric behaviors relative to the female participants.

To clarify these dimensions within a management framework, task orientation reflects a leader's proficiency in establishing clear expectations and structuring specific operational roles for their team. Conversely, the relationship dimension captures the administrator's efforts to foster a supportive, unified environment where staff members feel completely at ease with their peers, themselves, and the broader collective.

The qualitative feedback enriched these numerical findings. One male administrator highlighted the value of developing personnel, a sentiment echoed by a female leader who explained that she fosters growth by actively challenging her staff, though she conceded her methods could occasionally be overly forceful. Another male principal acknowledged a need to improve his interpersonal engagement, specifically referencing the delicate delivery of standardized testing data. Highlighting the importance of human connection, a different male subject credited his athletic coaches for shaping his understanding of effective leadership. One female administrator characterized her approach as strictly visionary. However, the most striking observation regarding leadership identity emerged from a female participant who asserted that an administrator's professional demeanor is inseparable from their fundamental character, arguing that a principal's leadership style is simply an extension of who they are as a person.

Synthesizing these results, the overwhelming majority of the cohort, 19 out of 22 administrators, demonstrated characteristics aligned with transformational leadership, a model focused on maximizing the potential of others within the organizational system. In contrast, a single male participant exhibited indicators of transactional leadership, a framework heavily reliant on conditional exchanges driven by penalization and reward mechanisms.

Table 2. Leadership Styles of Male and Female School Administrators

MALE RESPONDENTS																
	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	$\bar{x}$	DE
Task Style	38	48	44	35	49	44	43	34	45	39	49	38	41	41	41	HR
Relationship Style	41	47	46	36	45	46	42	38	47	40	49	42	49	47	48	VHR
FEMALE RESPONDENTS																
				F1	F2	F3	F4	F5	F6		F7	F8	$\bar{x}$	DE		
Task Style				49	49	50	49	45	46		41	50	47	VHR		
Relationship Style				50	48	46	44	40	43		45	50	46	VHR		

Output: Training Program for School Administrators

The proposed administrative training initiative is designed to provide educational leaders with contemporary strategies and essential competencies required for effective management within basic education systems. Furthermore, it will establish a collaborative forum where participants and facilitators can openly exchange professional insights and lived experiences. The curriculum will cover several critical themes:

1. Progressive Management and Leadership in Academic Settings
2. The Influence of Accreditation and Quality Assurance on Institutional Growth
3. Advancements in Professional Development, Research, and Pedagogy
4. Integrating Artificial Intelligence (AI) and Modern Technology into Educational Frameworks
5. Fostering Multidisciplinary Cooperation and International Alliances
6. Career Trajectories for Educational Executives and Professional Educators

This training initiative represents a primary endeavor spearheaded by the College of Education at the Don Mariano Marcos Memorial State University-South La Union Campus. Its central mission is to actively support and bolster the executive and managerial capabilities of administrators leading basic education institutions throughout the La Union region. Guided by highly qualified instructors, this intensive professional development series will span three days. Upon fulfilling all attendance and participation requirements, educational leaders will be awarded a formal Certificate of Completion.

Table 3. Proposed Training Program for School Administrators

Area of Concern	Objectives	Methods/ Strategies	Content	Materials Needed	Time Frame	Human Resource	Logistics	Outcomes
A. Leadership Experiences	Through the conduct of lecture, panel discussion, sharing-discussion strategies, the school administrators should be able to enhance their leadership experiences.	Lecture, panel discussion, sharing-discussion,	(1) Innovative Leadership and Management in Education, (2) Quality Assurance and Accreditation Practices and Its Impacts on Basic Education Institutional Development, (3) Innovation in Teaching, Research and Professional Development, (4) Technology and Artificial Intelligence (AI) Applications in Teaching and Learning, (5) Global Partnership and Multidisciplinary Collaboration, and (6) Pathways for Professional Teachers and Educational Leaders	Supple-mental Materials, Overhead/LCD Projectors, Laptops,	1 day	Participants: School Administrators Speakers: Dr. Donato Balderas, Jr. Dr. Domingo Laud	Snacks/Meals: P300.00 per pax Honorarium: P10,000	90% of the school administrators can enhance their leadership experiences.
B. Leadership Skills	Through the conduct of lecture,	Lecture, panel discussion,	(1) Technical Skill (2) Human Skill	Supple-mental	1 day	Participants:	Snacks/Meals: P300.00 per pax	90% of the school administrators

Area of Concern	Objectives	Methods/ Strategies	Content	Materials Needed	Time Frame	Human Resource	Logistics	Outcomes
	panel discussion, sharing-discussion strategies, the school administrators should be able to enhance their leadership skills.	sharing-discussion	(3) Conceptual Skill	Materials, Overhead/LCD Projectors, Laptops,		School Administrators Speakers: Dr. Emmanuel J. Songcuan Dr. Fe M. Tangalin		can enhance their leadership skills.
C. Leadership Styles	Through the conduct of lecture, panel discussion, sharing-discussion strategies, the school administrators should be able to enhance their leadership styles.	Lecture, panel discussion, sharing-discussion,	(1) Task Style (2) Relationship Style	Supple-mental Materials, Overhead/LCD Projectors, Laptops,	1 day	Participants: School Administrators Speakers: Dr. Ryan L. Cerveza Dr. Paulo Jan F. Samson	Snacks/Meals: P300.00 per pax	90% of the school administrators can enhance their leadership styles.

4. Discussion

The primary contribution of this study lies in its re-evaluation of educational leadership through a socio-technical systems lens, challenging historical assumptions about gender, management, and technological readiness. The career trajectories of the educational leaders in this study present notable deviations from existing literature. While Eckman (2004) observed that both genders typically start as educators before advancing to the principalship, a pattern mirrored here, her finding that men transition into administrative roles more rapidly was not supported by this cohort. Furthermore, Eckman (2004) highlighted a prevalent coaching background among male administrators compared to females; conversely, only a single male participant in the current research possessed coaching experience. By demonstrating that career progressions are standardizing across genders, this research establishes that modern institutional systems are primed for merit-based digital transformation, where advancement is tied to administrative capability rather than legacy gender roles.

Regarding daily routines, a universal commitment to campus visibility and direct interaction emerged among all subjects. Holder (2012) suggested that female administrators operate with a distinct set of priorities, heavily weighted toward interpersonal awareness. However, this gender-based divergence did not materialize in the current data. Instead, participants across the board emphasized the absolute necessity of leaving their offices to engage directly with students and faculty. Viewing these routines in the context of information systems demonstrates that contemporary school leadership necessitates a highly communicative, hands-on approach that transcends traditional gender paradigms. As Davidson and Olson (2003) noted, the social context of schools powerfully shapes the use of technology; therefore, this universal presence and engagement from administrators are vital acts of translation required for successful ICT integration.

Sherman et al. (2008) underscored the profound impact of positive role models, noting that many female leaders were inspired to pursue administration by encouraging principals. While that prior study focused exclusively on women, the present findings illustrate that such positive reinforcement is equally vital for men. The mentoring data here aligns with standard academic definitions while challenging several gender-specific assumptions. Dunbar and Kinnersley (2011) describe mentoring as an experienced professional offering guidance and counsel to help novices cultivate leadership capabilities and secure advancement. This dynamic was explicitly evident for all 22 subjects. Although Kinnersley (2009) suggested mentors are typically assigned supervisors, a scenario reported by only one male in this group, the remaining 21 participants described organic relationships built on a mutual desire for professional growth, aligning with Yates (2005).

Interestingly, the findings diverge from established literature regarding gender-matched mentorship. While Antonaros (2010) asserted that female professionals generally gravitate toward female mentors, multiple women in this study effectively leveraged guidance from male mentors. This aligns with Naholi (2008), who found that men frequently mentor women, even though female executives often guide other women. Ultimately, these results reinforce the conclusions of Garn and Brown (2008) and Kinnersley (2009), who determined that a mentor's gender is statistically insignificant to the success of the relationship. In the context of ICT integration, this robust, cross-gender

professional networking is critical. Raman and Thannimalai (2019) found that professional development and structured support were significant predictors of technology integration, while gender was not. The fact that all eight women in the current study reported robust mentoring networks directly contradicts McGovern-Robinett (2002), who identified a severe lack of mentorship as a primary roadblock for aspiring female leaders. This points to an encouraging cultural shift where professional learning networks—a prerequisite for institutional AI and technology readiness—are highly accessible.

A thematic review of the interviews reveals a striking lack of perceived professional hurdles. In stark contrast to the conclusions of Garcia-Retamero and Lopez-Zafra (2006), neither the male nor female subjects reported experiencing overarching prejudice. Additionally, no participants cited obstacles in securing their current roles. This contradicts Conrad and Rosser (2007), who argued that women face a more complex path to advancement due to perceived hiring discrimination, role conflicts, and gender stereotypes. It also challenges Sherman et al. (2008), who suggested that entrenched male leadership models erect institutional barriers for women.

Remarkably, not a single respondent mentioned the struggle to balance career and family, a challenge heavily spotlighted by Morrison (2012). When viewed within the local academic landscape, these results imply a sociocultural evolution where career progression is increasingly dictated by institutional requirements and individual merit rather than archaic gender gatekeeping. This structural evolution is a necessary foundation for bridging the systemic gaps identified by Adewale (2025), who noted an apparent digital divide in technology use based on gender. By dismantling traditional hiring barriers, educational systems can deploy leadership strategies that equitably enhance technology acceptance.

Furthermore, the findings concerning professional networking significantly departed from prior literature. Eckman (2004) detailed how an exclusive good old boys network heavily influenced career trajectories, with male subjects relying on a web of phone calls to secure jobs, a luxury denied to female peers. In contrast, the current administrators utilized networking strictly as a peer support system, seeking out colleagues in similar environments to act as sounding boards, rather than as an instrumental tool for career acquisition. This highlights a results-oriented administrative landscape where objective hiring procedures are replacing informal, exclusionary circles, allowing for more structured data governance and systematic organizational growth.

Eagly and Karau (2002) define gender roles as collective assumptions regarding male and female attributes, often functioning as normative standards for desirable behavior. However, this theoretical framework starkly contradicts the participants' self-reported traits and objectively measured skills. Historically, societal norms framed women as fragile individuals requiring insulation from the harsh professional world, while men were depicted as inherently stronger and better equipped for workplace demands (Barnett, 2004). The testimonies of the eight female administrators in this study provide zero evidence that such archaic viewpoints hold any modern relevance.

In analyzing leadership capabilities, Burns (2006) suggested that female principals were more deeply invested in instructional pedagogy and were conditioned to prioritize interpersonal relationships far more than men. This division was not distinctly visible among the 22 participants. While everyone acknowledged the necessity of relationship-building, the male administrators emphasized this competency far more prominently than the women. More significantly for the field of information systems, female respondents demonstrated identical peak scores in both human and technical abilities. This empirical evidence heavily aligns with Banoglu (2011), who found that female principals demonstrated higher competency in the leadership and vision dimensions of technology management.

Campbell et al. (2010) identified several skills beneficial for female leaders, including communication, broad strategic vision, business acumen, interpersonal proficiency, and content expertise. In this study, these identical skills were reported by both genders, indicating they are not inherently tied to sex. This corresponds with Holder (2012), whose subjects argued that essential leadership traits are universal, attributing any variations to individual personality differences rather than gender. By proving that women possess exceptionally high task and technical capabilities, this study contributes a vital piece of evidence that the personnel pipeline is fully equipped for the technical demands of managing modern ICT infrastructures.

Regarding specific administrative approaches, the vast majority of the cohort, 19 out of 22 administrators, exhibited transformational leadership, which focuses on elevating the potential of others (Lowe, 2011). In contrast, transactional leadership, which relies on a conditional system of rewards and penalties, was barely mentioned. Viewing these approaches through the context of industrial management and digital transformation highlights the most critical socio-technical implication of the research. Laouni (2020) demonstrated that transformational leadership styles are directly associated with higher technology integration levels in schools. This is further corroborated by Ruloff and

Petko (2021), who found that transformational leaders achieved more rapid and profound changes in digital implementation compared to transactional leaders. Because the administrators in this cohort predominantly rely on collaborative, capacity-expanding models, they inherently possess the optimal management framework required to foster organizational triumph in AI and ICT integration. The subsequent training program developed from this data directly operationalizes this potential, providing the structured framework needed to continuously adapt leadership functions to the rapidly advancing technological landscape.

5. Conclusion

Distinct gender-based variations in leadership styles fundamentally shape the socio-technical readiness of educational institutions. Female administrators possess high proficiency in specialized technical domains and utilize a task-oriented approach, making them highly effective at defining the structural roles and clear expectations necessary for ICT integration. Conversely, male administrators primarily demonstrate human-centered capabilities and a relationship-focused style, providing the essential socio-emotional cohesion required to guide personnel through systemic digital transformations. Ultimately, executing the proposed evidence-based development program will empower these educational leaders to adapt to a rapidly advancing global landscape, equipping them to successfully integrate AI and modern technology into their administrative frameworks while elevating the overall quality of institutional management within the secondary education sector.

In light of these conclusions, several actionable steps are recommended to bridge the gap between current findings and future administrative needs. Aspiring school administrators should use these findings as a practical starting point to critically examine how gender dynamics and leadership styles influence socio-technical management and technological adoption. Additionally, educational districts should actively implement the developed training initiative to strengthen leadership quality and ICT management expertise. For future studies, a wider range of research should be conducted regarding the effectiveness of implementing multiple new technological programs and initiatives, specifically measuring the operational impact this has on school administrators and staff at the school level. Finally, future research would benefit from a comparative study to examine what school administrators view as their own socio-technical leadership skills and styles against how others, such as subordinates or peers, view those same leadership characteristics.

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