Original Article

Influence of Employee Awareness on TTI Preparedness for ISO 21001 Implementation: The Mediating Role of Employee Motivation

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Received: 06 September 2026; Revised: 20 October 2026;
Accepted: 25 October 2026; Published: 30 October 2026

DOI: https://doi.org/10.66074/H9M1F7T2Q

Abstract

This study examined the relationship between employee awareness and TESDA Technology Institution (TTI) preparedness for ISO 21001:2018 implementation, with employee motivation as a mediator variable. It also determined the levels of employee awareness, employee motivation and TTI preparedness. The researcher employed purposive sampling to gather data from 244 respondents across the participating TTIs in Region XI, using researcher-adapted questionnaires that were validated by experts. Descriptive statistics, Spearman correlation coefficient (Spearman's rho), and hierarchical regression analysis were utilized for the statistical treatment of the data. The results of the study revealed that TTI Employees in Region XI are highly aware of the functions and purpose of the ISO 21001:2018 standard. The study indicated a mean score of 4.33 and a standard deviation of 0.55. A high level of motivation was also noted among TTI employees, as indicated by a mean score of 3.86 and a standard deviation of 0.40. The analysis also demonstrated a high level of preparedness for the adoption and implementation of the EOMS in terms of the organization's context, leadership, planning, support, operations, performance evaluation, and improvement. This is indicated by 4.05 mean score and 0.68 standard deviation. All three variables had relatively low to moderate standard deviations, suggesting consistency in responses and reflecting a shared out look among employees. The results of the correlation analysis of the variables indicated a significant positive relationship among

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Volume 2, Issue 4, December 2026

employee awareness, employee motivation, and TTI preparedness. A test of mediation using hierarchical regression demonstrated partial, not full, mediation, as employee awareness has a significant direct effect on TTI preparedness. Therefore, motivation is an important but not exclusive mechanism.

Keywords: employee awareness, employee motivation, ISO 21001:2018, TESDA, technology institutions preparedness

1. Introduction

Educational organizations today operate in an environment of accountability and continuous improvement. Globalization, competition, shifting labor market requirements, and higher expectations for relevant, high-quality, and inclusive learning experiences intensify these demands. These pressures have prompted educational organizations to adopt Quality Management Systems (QMS) to improve operational processes and achieve excellence in educational services (Bannawol, 2024; Diez et al., 2020; Shakman et al., 2020).

Implementing ISO standards is a major organizational change that goes beyond mere procedural compliance and requires a complete institutional transformation (Lutete, 2025). According to Weiner (2009, 2020), successful change implementation depends on organizational readiness, as evidenced by employees' shared understanding of the change, acceptance of its objectives, and willingness to engage in the process actively. Organizational readiness includes technical competence as well as behavioral and psychological factors such as awareness and motivation (Lamb et al., 2023; Natalia, 2023; Rahi et al., 2022). This implies that employee awareness and motivation are essential to determining educational organizations' readiness (Özkan, 2025). Although many studies have examined ISO implementation, they have paid less attention to behavioral factors. Most research in educational organizations has focused on fragmented studies of structural and managerial success factors, such as technical infrastructure, financial and organizational resource allocation, leadership, and strategic commitment (Abu Bakar et al., 2024). Limited attention has also been paid to human-centric aspects of organizational readiness (Panagiotidou et al., 2025). Moreover, studies of educational organizations that employ mediation analyses are scarce. As a result, the role of employees' cognitive and motivational states in the holistic contribution to institutional preparedness for ISO 21001:2018 remains underexplored (Abu Bakar et al., 2024; Özkan, 2025; Weiner, 2009).

This gap is especially consequential for institutions undertaking the laborious and costly process of complying with ISO requirements, such as the TESDA Technology Institutions (TTIs), which are set to implement ISO 21001:2018 as part of comprehensive quality assurance reforms. In the Philippines, where employees are

naturally resistant to change and have low commitment (Reyteran, 2021), ISO implementation may be seen as just added paperwork (Santos & David, 2021). Without assessments of employee awareness, motivation, and organizational preparedness, ISO implementation may become an exercise in compliance rather than a driver of stakeholder satisfaction and continuous quality improvement (Gray et al., 2022).

To address this gap, this study examines employee motivation as a mediator linking employee awareness to TTI preparedness for ISO 21001:2018 implementation. The expected outcomes will provide evidence-based insights to help TTIs and policymakers develop targeted interventions to support ISO certification and the successful implementation of the standard. Without empirical data on how employee awareness, employee motivation, and organizational preparedness interact, TTIs may misallocate resources toward structural reforms at the expense of human factors crucial to successful implementation.

This study is grounded in the Socio-Technical Systems Theory of Trist and Bamforth (1951), which emphasizes the interaction between an organization's social system (staff, culture, motivation, and relationships) and its technical system (processes, standards, structures, and technologies). Implementing ISO 21001:2018 requires staff awareness and participation, as well as alignment of institutional policies and processes (Abu Bakar et al., 2024). In this study, employee awareness and motivation represent aspects of the social system, while TTI preparedness reflects employees' perceptions of the institution's capacity to implement the required systems and processes.

Within this framework, Self-Determination Theory (Deci & Ryan, 2000) helps explain how awareness may relate to motivation. Understanding the functions and purpose of ISO 21001:2018 may help employees feel capable of performing related tasks and recognize their value. Opportunities for involvement and autonomy may further support motivation (Gagné & Deci, 2005). Vroom's (1964) Expectancy Theory adds that employees may exert greater effort when they believe their work can contribute to valued outcomes. Together, these ideas explain why awareness may be associated with employees' motivation to participate in ISO-related activities.

Weiner's (2009) Organizational Readiness for Change Theory clarifies the model's preparedness dimension. It defines readiness as organizational members' shared willingness to implement a change (change commitment) and their shared belief that they can do so (change efficacy). Employees who understand ISO requirements may contribute directly to preparedness by fulfilling their responsibilities and aligning their work with institutional processes. Awareness may also be indirectly linked to preparedness through motivation, which supports participation in documentation, implementation, and improvement activities. Socio-Technical Systems Theory remains the overarching explanation: preparedness depends on how these human contributions interact with the institution's systems and processes.

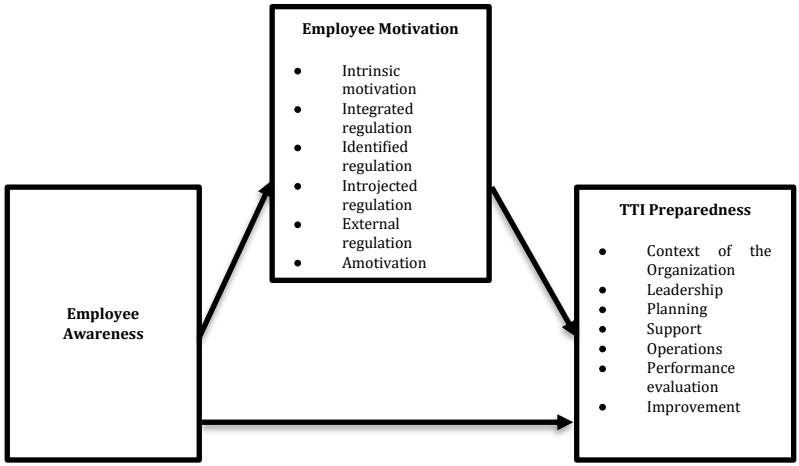


Figure 1. Conceptual framework of the study.

Figure 1 presents the study's conceptual framework. The independent variable is employee awareness. The dependent variable is TTI preparedness, measured across the organizational context, leadership, planning, support, operations, performance evaluation, and improvement. The mediator variable is employee motivation, measured by intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation, and amotivation. The framework contends that employee awareness influences TTI preparedness for ISO 21001:2018 implementation through employee motivation.

2. Methodology

A quantitative, cross-sectional research design with a mediation analysis was used to address the research questions about relationships among variables (Thomas & Zubkov, 2023). The descriptive component assessed the levels of employee awareness, employee motivation, and Technical and Vocational Institutions (TTIs) preparedness for ISO 21001:2018 implementation among TTIs in TESDA Region XI (Haden, 2019). The correlational component examined significant relationships among employee awareness, employee motivation, and TTI preparedness (Creswell & Creswell, 2017).

Hierarchical regression analysis examined associations among employee awareness, employee motivation, and TTI preparedness (Baron & Kenny, 1986; Stone-Romero & Rosappa, 2004). The mediation effect was assessed by examining changes in regression coefficients and the significance of the indirect pathway, providing evidence on whether employee motivation serves as the mechanism through

which awareness influences institutional preparedness for ISO 21001:2018 implementation (Hayes & Rockwood, 2017).

2.1 Sources of Data

The primary data in this study were collected through survey questionnaires designed to capture respondents' perspectives and opinions (Dalati & Gómez, 2018) regarding employee awareness, employee motivation, and Technical and Technological Institute (TTI) preparedness to implement ISO 21001:2018, the Educational Organization Management System, in TESDA Region XI.

2.2 Data Gathering Instrument

The researcher adapted standardized survey instruments from established research and tailored them to the study context. Employee awareness was evaluated using a researcher-modified questionnaire adapted from Balahadia et al. (2022), which included minor wording revisions and the addition of 5 items to reflect the principles of ISO 21001:2018. Employee motivation was measured with the Work Extrinsic and Intrinsic Motivation Scale (WEIMS) developed by Tremblay et al. (2009). TTI preparedness for ISO 21001:2018 implementation was assessed with a researcher-developed questionnaire based on the ISO standard readiness checklist.

Table 1. 5-point Likert scale for employee awareness.

Scale	Mean Score Range	Description	Interpretation
1	1.00-1.80	Not Aware	This means that you are unaware
2	1.81-2.60	Slightly Aware	This means that you are minimally aware
3	2.61-3.40	Neutral	This means that you are somewhat aware
4	3.41-4.20	Aware	This means that you are generally aware
5	4.21-5.00	Very Aware	This means that you are fully aware

The employee awareness questionnaire comprises 25 items (Balahadia et al., 2022). The employee motivation questionnaire contains 18 items, organized into six domains with three items per domain (Tremblay et al., 2009). The preparedness questionnaire, based on the ISO standard readiness checklist, includes 27 items divided into seven domains: two domains contain five items each, two contain four items each, and the remaining three contain three items each. All three instruments were consolidated into a single survey comprising 70 items, each measured on a 5-point Likert scale. QMS experts with doctoral degrees validated the questionnaire, and it was later pilot-tested at the Provincial Training Centers. With 30 responses, reliability was assessed using Cronbach's alpha, yielding 0.97, which is considered excellent.

Table 2. 5-point Likert scale for employee motivation.

Scale	Mean Score Range	Description	Interpretation
1	1.00-1.80	Strongly Disagree	This reflects a very high level of disagreement
2	1.81-2.60	Disagree	This reflects a high level of disagreement
3	2.61-3.40	Neutral	This reflects a moderate or undecided position
4	3.41-4.20	Agree	This reflects a high level of agreement
5	4.21-5.00	Strongly Agree	This reflects a very high level of agreement

Table 3. 5-point Likert scale for TTI preparedness.

Scale	Mean Score Range	Description	Interpretation
1	1.00-1.80	Not at all Prepared	This reflects a very low level of preparedness
2	1.81-2.60	Unprepared	This reflects a low level of preparedness
3	2.61-3.40	Somewhat Prepared	This reflects a moderate or undecided position
4	3.41-4.20	Prepared	This reflects a high level of preparedness
5	4.21-5.00	Fully Prepared	This reflects a very high level of preparedness

2.3 Sampling Techniques

The researcher used purposive sampling to select five TTIs from Davao City, Davao del Sur, Davao de Oro, and Davao Oriental, based on relevance and accessibility. Davao del Norte and Davao Occidental have no TTIs.

Table 4. Respondents of the study.

Description	No. of Respondents
TTI A	89
TTI B	36
TTI C	47
TTI D	48
TTI E	52
Total	272

Within the participating TTIs, the researcher used complete enumeration, with all employees serving as respondents to ensure comprehensive representation of personnel in each institution (United Nations, 2025). These techniques ensured that key subgroups were represented and that data were collected from employees involved in the ISO 21001:2018 process.

Purposive sampling is appropriate for studies that require representation of key groups when random selection is not feasible (Etikan et al., 2016; Patton, 2002). Respondents included Plantilla and Contract of Service (COS) personnel at TESDA Region XI TTIs. These employees are involved in organizational processes for implementing ISO 21001:2018. Respondents were categorized by role as trainers, assessors, administrative personnel, or multi-function personnel. The Regional Director of TESDA Region XI mandated all employees at TTIs to complete the survey. Of 272 employees, 244 responded, yielding a response rate of 89.71 percent.

2.4 Statistical Treatment

The data collected from employees of TESDA Technology Institutions in TESDA Region XI were analyzed using descriptive and inferential statistics to address the research objectives comprehensively. These analyses included the mean, standard deviation, Spearman's rho (Spearman's correlation coefficient), and hierarchical regression.

Descriptive statistics, specifically the mean and standard deviation, summarized and described the levels of each variable (Kotronoulas et al., 2023). These measures provide an overview of the general perception and consistency of responses regarding employee awareness, employee motivation, and TTI preparedness in TESDA Region XI.

Spearman's rho is a nonparametric rank-order correlation suitable for ordinal-level Likert-scale instruments. It does not assume a normal distribution (Fonseca, 2015) and measures the monotonic association between variables. Because linearity could not be assumed, Spearman's rho correlations were used to test associations among employee awareness, employee motivation, and TTI preparedness.

Furthermore, Hierarchical Regression Analysis was used to examine the relationship between employee awareness and TTI preparedness for ISO 21001:2018 implementation, with employee motivation serving as a mediator. Hierarchical Regression Analysis enables the determination of the unique contribution of each variable in explaining the dependent variable (Baron & Kenny, 1986; Hayes, 2022; Stone-Romero & Rosappa, 2004). The mediation effect was assessed by examining changes in regression coefficients and the significance of the indirect pathway, providing evidence on whether employee motivation explains the mechanism through which awareness influences institutional preparedness for ISO 21001:2018 implementation (Hayes & Rockwood, 2017).

Hierarchical regression analyses were conducted to determine the extent to which variance in TTI preparedness was explained by employee awareness and motivation. To ensure robust estimation, bootstrapping with 5,000 resamples was used to generate bias-corrected 95% confidence intervals for the indirect effect. Variables were entered into the regression model using a forced-entry approach.

3. Results

3.1 Level of Employee Awareness among TESDA Region XI TTIs regarding the Main Functions and Purpose of ISO 21001:2018

Table 5 shows that the highest mean was 4.41 (SD = 0.64) for awareness of ISO's support for the quality mission, vision, and objectives. The lowest mean was 4.03 (SD = 0.25) for recognition of ISO's consideration of internal customer (staff) needs. The overall awareness mean was 4.33 (SD = 0.55), interpreted as Very Aware.

Table 5. Level of employee awareness among TESDA Region XI TTIs regarding the main functions and purpose of ISO 21001:2018

Items		Mean	SD	Description
International Organization for Standardization (ISO)…				
1	helps standardize our Technical Vocational Education and Training (TVET) processes.	4.35	0.69	Very Aware
2	is a tool for handling documentation.	4.30	0.66	Very Aware
3	is a tool for standardizing institutional processes.	4.35	0.65	Very Aware
4	measures learner and others stakeholder's satisfaction level.	4.33	0.66	Very Aware
5	takes into consideration internal customer needs (staff needs).	4.03	0.25	Aware
6	ensures that suppliers are properly evaluated and regularly monitored.	4.25	0.71	Very Aware
7	helps reduce errors and delays in our daily work.	4.33	0.68	Very Aware
8	helps organize and standardize how work is done in TESDA Technology Institutions (TTIs).	4.35	0.65	Very Aware
9	helps the TTIs better understand and meet customer requirements.	4.38	0.65	Very Aware
10	is a tool for managing and improving quality of our products.	4.37	0.64	Very Aware
11	is a tool for continual improvement of our institution.	4.38	0.65	Very Aware
12	supports quality mission, vision, and objectives.	4.41	0.64	Very Aware
13	supports quality policies.	4.37	0.66	Very Aware
14	clearly defines duties and responsibilities.	4.33	0.65	Very Aware
15	ensures that quality policies are clearly communicated to employees.	4.35	0.60	Very Aware
16	leads to organized written collection of fundamental practices.	4.28	0.64	Very Aware
17	improves customer's confidence on services.	4.32	0.67	Very Aware
18	helps set clear work standards and performance expectations.	4.33	0.63	Very Aware
19	enhances quality inspection.	4.40	0.64	Very Aware
20	improves communication within and out of the institution.	4.34	0.64	Very Aware
21	promotes environmental sustainability and climate change awareness.	4.27	0.73	Very Aware
22	promotes ethical TVET practices.	4.30	0.71	Very Aware
23	supports transparency and accountability in decision-making.	4.37	0.63	Very Aware
24	ensures protection of learners' and other stakeholders' personal data.	4.30	0.68	Very Aware
25	promotes secure management of institutional data.	4.33	0.66	Very Aware
Employee Awareness		4.33	0.55	Very Aware

The lowest-rated awareness indicator concerned the consideration of internal customer (staff) needs (M = 4.03, SD = 0.25), although it remained within the Aware category. This finding suggests that most TTI employees believe ISO does not take internal customers' (staff) needs into account, which can negatively affect motivation and engagement. While general awareness is high, TTIs should implement targeted training and intervention strategies to ensure comprehensive understanding. This suggests that reinforcement is needed to inform and educate TTI employees about ISO's consideration of internal customer needs. Employees who are aware of this function of an ISO-based QMS will actively contribute to implementing the quality system.

3.2 Level of Employee Motivation among TTIs for the Implementation of ISO 21001:2018

Employee motivation was assessed using 18 items across six WEIMS dimensions. Table 6 presents the descriptive results, including raw item scores for the amotivation dimension.

Table 6. Level of employee motivation among TTIs for the implementation of ISO 21001:2018.

	Items	Mean	SD	Description
The reasons why I am presently involved in my work is …				
Intrinsic motivation				
1	because I derive much pleasure from learning new things.	4.24	0.65	Strongly Agree
2	for the satisfaction I experience from taking on interesting challenges	4.27	0.62	Strongly Agree
3	for the satisfaction I experience when I am successful at doing difficult tasks.	4.15	0.68	Agree
Integrated motivation				
4	because it has become a fundamental part of who I am.	4.25	0.63	Strongly Agree
5	because it is part of the way in which I have chosen to live my life.	4.12	0.75	Agree
6	because this job is a part of my life.	4.23	0.69	Strongly Agree
Identified regulation				
7	because this is the type of work I chose to do to attain a certain lifestyle.	4.18	0.69	Agree
8	because I chose this type of work to attain my career goals.	4.25	0.66	Strongly Agree
9	because it is the type of work I have chosen to attain certain important objectives.	4.16	0.67	Agree
Introjected regulation				
10	because I want to succeed at this job, if not I would be very ashamed of myself.	4.08	0.84	Agree
11	because I want to be very good at this work, otherwise I would be very disappointed.	4.11	0.78	Agree
12	because I want to be a “winner” in life.	4.06	0.79	Agree
External regulation				
13	for the income it provides me.	4.23	0.69	Strongly Agree
14	because it allows me to earn money.	4.15	0.74	Agree
15	because this type of work provides me with security.	4.12	0.71	Agree
Amotivation				
16	I ask myself this question, I don’t seem to be able to manage the important tasks related to this work.	2.42	1.08	Disagree
17	I don’t know why, we are provided with unrealistic working conditions.	2.32	0.95	Disagree
18	I don’t know, too much is expected of us.	2.23	0.92	Disagree
Employee Motivation		3.86	0.40	Agree

Across the motivation items, the highest observed mean was 4.27 (SD = 0.62) for satisfaction from taking on interesting challenges (intrinsic motivation). The lowest

mean was 2.23 (SD = 0.92) for the amotivation statement "I don't know, too much is expected of us." The overall reported mean was 3.86 (SD = 0.40), interpreted as Agree. The responses in the amotivation item are reverse-coded.

Generally, the findings show that intrinsic motivation yielded very high mean scores. This indicates that TTI employees in TESDA Region XI are motivated by the inherent value of their work, interest in learning, and personal satisfaction. This finding may help TTI implement an intervention targeting intrinsic motivation, enabling employees to embrace quality management initiatives more effectively. This is particularly important in the context of ISO 21001:2018 implementation, as higher levels of intrinsic motivation foster greater commitment and beyond-compliance participation in the quality journey and continuous process improvement.

The high mean scores for integrated regulation indicate that TTI employees in TESDA Region XI are personally satisfied, interested, and value their work, but they may not fully internalize it as part of their identity, unlike intrinsically motivated individuals. Compared with other types of motivation, this one still reflects a high level of internalization.

Even if a task may not be inherently enjoyable, TTI employees may still recognize the value and importance of their work in achieving personal objectives; this is evidenced by a high level of identified regulation among them.

Controlled types of motivation, such as introjected and external regulation, had high mean scores but were slightly lower than those for autonomous motivation, including intrinsic motivation, integrated, and identified regulation. These findings suggest that certain TTI employees in TESDA Region XI are motivated by external rewards, such as salary and job security, or by internal pressures, such as shame, disappointment, or failure. While external motivation enhances commitment, engagement, and overall preparedness, it only ensures short-term engagement.

Amotivation, or a lack of motivation, received a low mean score, which is, on average, described as "Disagree." This indicates that employees do not experience disengagement or a lack of motivation. They are motivated either by controlled or by autonomous factors. This finding is positive, especially for the intent to implement an ISO-based management system. According to Darmawan (2020), amotivation is associated with resistance to change and poor performance. In general, the low level of amotivation among employees in TESDA XI Technology Institutions suggests that employees are motivated and willing to participate in ISO 21001:2018 implementation, thereby supporting organizational preparedness.

These findings affirm that employee motivation is a critical mediator in the relationship between employee awareness and TTI preparedness. Although employees may already be highly aware of QMS standards, their ability to translate that awareness into sustained preparedness depends on the level and type of motivation.

3.3 Level of TTI preparedness for the implementation of ISO 21001:2018

Preparedness for ISO 21001:2018 implementation reflects an institution's readiness across systems, leadership, resources, organizational culture, and human capital to adopt and sustain the EOMS effectively. ISO 21001:2018 is organized around ten interrelated clauses, seven of which are auditable and define an institution's readiness and capability to implement an EOMS (ISO, 2018). In this study, TTI preparedness was evaluated using 27 items aligned with seven auditable areas of ISO 21001:2018. Table 7 summarizes employee-reported preparedness.

Table 7. Level of TTI preparedness for the implementation of ISO 21001:2018.

	Items	Mean	SD	Description
To what extent is your TTI prepared in the following areas?				
Context of the Organization				
1	it has determined the internal issues that affect its mission, strategic direction, and delivery of TVET programs.	4.05	0.79	Prepared
2	it has determined the external issues that affect its mission, strategic direction, and delivery of TVET programs.	4.03	0.78	Prepared
3	it has identified relevant interested parties (e.g., learners, trainers, industry partners, parents/guardians, TESDA) and their needs/expectations.	4.14	0.75	Prepared
4	it has defined and documented the scope of its Quality Management System (QMS).	4.07	0.76	Prepared
5	it has established, implemented, and maintained processes required for QMS.	4.07	0.81	Prepared
Leadership				
6	the top management has demonstrated leadership and commitment to QMS.	4.04	0.83	Prepared
7	our Quality Policy is clearly defined.	4.08	0.82	Prepared
8	our Quality Policy is communicated across the institution.	4.06	0.84	Prepared
9	our Quality Policy is understood across the institution.	4.03	0.82	Prepared
10	the top management demonstrated responsibility by emphasizing the importance of conforming to quality management requirements.	4.05	0.83	Prepared
Planning				
11	it has identified and addressed risks that may affect TVET quality.	4.01	0.80	Prepared
12	it has identified and addressed opportunities that may affect TVET quality.	4.01	0.78	Prepared
13	it has measurable overall quality objectives aligned with the policy.	4.04	0.78	Prepared
14	it has established measurable quality objectives at relevant functions and levels	4.04	0.77	Prepared
Support				
15	it has provided and properly managed the resources needed (staff, facilities, and work environment).	3.99	0.79	Prepared
16	it has ensured trainers, assessors, and staff are competent and properly trained for their roles.	4.08	0.78	Prepared
17	it has control over documents and records.	4.03	0.78	Prepared

Operation				
18	it has reviewed stakeholder requirements/need before commitments are made.	4.08	0.72	Prepared
19	it has control over externally provided products/services (e.g., partner institutions, suppliers, industry collaboration).	4.06	0.76	Prepared
20	it has identified and properly addressed errors or deficiencies in all its TVET services.	3.98	0.76	Prepared
Performance Evaluation				
21	it has regularly monitored and evaluated learner and other stakeholder's performance.	3.99	0.79	Prepared
22	it has regularly reviewed its overall performance to ensure effectiveness.	4.00	0.81	Prepared
23	it has conducted internal audits at planned intervals.	4.07	0.75	Prepared
24	it has conducted regular management reviews using data and stakeholder feedback.	4.00	0.82	Prepared
Improvement				
25	it has implemented correction and corrective actions for identified nonconformities.	4.07	0.76	Prepared
26	it has implemented continual improvement initiatives in its operations.	4.07	0.73	Prepared
27	it has identified opportunities for improvement and implemented appropriate actions to fulfill client requirements and enhance client satisfaction.	4.10	0.75	Prepared
TTI Preparedness		**4.05**	**0.68**	**Prepared**

Table 7 presents TTIs' level of preparedness for ISO 21001:2018 implementation across seven key areas: context of the organization, leadership, planning, support, operations, performance evaluation, and improvement. The result shows that the highest mean was 4.14 (SD = 0.75) for identifying relevant interested parties and their needs and expectations. The lowest mean was 3.98 (SD = 0.76) for identifying and addressing deficiencies in TVET services. The overall preparedness mean was 4.05 (SD = 0.68), interpreted as Prepared.

The TTIs demonstrated a high level of preparedness across all domains, indicating that institutions have established foundational structures aligned with the requirements of ISO 21001:2018. The highest-rated items were in the organizational context, particularly in identifying relevant stakeholders and their needs, with a mean score of 4.14. This suggests that TTIs recognize the importance of aligning institutional objectives with stakeholder needs and expectations. Among the seven domains, performance evaluation has the lowest mean score when the average of all its items is computed. Results indicate that top management demonstrates commitment to quality management systems, with clearly defined and communicated quality policies.

3.4 Test of Significant Relationship between Variables

Table 8 presents the Spearman's rho correlation matrix for employee awareness, employee motivation, and TTI preparedness in the context of ISO 21001:2018 implementation.

Table 8. Spearman Rank-order Correlation Matrix for Employee Awareness (EAAVE), Employee Motivation (EMAVE), and TTI Preparedness (TPAVE).

Variables	**Employee Awareness (EAAVE)**	**Employee Motivation (EMAVE)**	**TTI Preparedness (TPAVE)**	
Employee Awareness (EAAVE)	**1.000**	.635** *strong*	.566** *moderate–strong*	
Employee Motivation (EMAVE)	.635** *Strong*	**1.000**	.624** *strong*	
TTI Preparedness (TPAVE)	.566** *moderate–strong*	.624** *strong*	**1.000**	
Variable Pair		**ρ**	**p-value**	**Strength**
Employee Awareness ↔ Employee Motivation		.635**	< .01	Strong
Employee Motivation ↔ TTI Preparedness		.624**	< .01	Strong
Employee Awareness ↔ TTI Preparedness		.566**	< .01	Moderate–Strong

The figure shows the Spearman's rank correlation coefficients among these variables. The figure shows the strength and direction of relationships among employee awareness and employee motivation, employee motivation and TTI preparedness, and these two variables and TTI preparedness for ISO 21001:2018 implementation.

The relationship between Employee Awareness and TTI Preparedness is moderate, with a Spearman's rho (ρ) of 0.566. The correlation analysis shows a significant positive relationship at the 0.01 alpha level, indicating that the observed correlation is very unlikely to have occurred by chance. This suggests that higher employee awareness of the functions and purpose of the ISO 21001:2018 standard is associated with greater organizational preparedness, including leadership, planning support, operations, performance evaluation, and improvement. Therefore, the results support accepting the alternative hypothesis 1 (HA1), which posits a significant relationship between Employee Awareness and TTI Preparedness. These findings are consistent with the premise that informed and knowledgeable employees contribute more to institutional preparedness, efficiency, and effectiveness, aligning with several literature, studies and theories discussed.

This study shows how awareness translates into engagement through positive perceptions of the QMS, suggesting that awareness enhances motivation and overall organizational preparedness. The significant positive correlation between employee awareness and TTI preparedness aligns with this proposition, reinforcing the idea that

employee awareness better prepares organizations for ISO implementation. This emphasizes that TTIs are better equipped to adopt and implement ISO 21001:2018 standards when employees have higher levels of awareness.

Although Spearman's rho of 0.566 indicates a moderate, significant positive association between employee awareness and TTI preparedness, practical challenges must be addressed to achieve full preparedness for ISO 21001:2018 implementation. These findings underscore that awareness must be complemented by motivational strategies and strong leadership support to ensure comprehensive organizational preparedness.

The correlation between Employee Motivation and TTI Preparedness is significant and positive (Spearman's $\rho = 0.624$, $p < .01$). Notably, this correlation is slightly higher than the direct relationship between employee awareness and TTI Preparedness, suggesting that employee motivation plays a critical role in translating engagement into meaningful outcomes. Intrinsically motivated employees actively contribute to activities related to the implementation of the standard because they internalize the goals of the standard or feel their efforts are valued by the organization. These findings imply that higher levels of employee motivation among TTIs are significantly associated with institutional preparedness for ISO implementation.

This study's strong correlation between employee motivation and TTI preparedness suggests that fostering workforce motivation may help ensure TTIs are prepared to navigate the complexities of ISO 21001:2018 implementation. The data support the proposition that employee motivation influences TTI preparedness for ISO 21001:2018 implementation. This strong positive correlation indicates that higher motivation may lead to greater organizational preparedness.

Employee awareness and employee motivation were positively correlated (Spearman's $\rho = 0.635$, $p < .01$). Among the pairwise correlations in the matrix, the strongest is between employee awareness and employee motivation. This was the largest of the three pairwise coefficients. This strong correlation underpins the mediation model, indicating that employee awareness is the most critical and consistent factor driving motivation across the tested relationships. This suggests that employees who better understand the functions and purpose of ISO 21001:2018 are more motivated and engaged in its implementation. Therefore, alternative hypothesis 3, which states that employee awareness significantly influences employee motivation, is accepted.

Employee awareness of ISO standards, when paired with effective communication and motivation strategies, fosters a stronger sense of belonging and engagement within the organization (Balahadia et al., 2022; Kayande & Khairnar, 2018). The correlation between Employee Awareness and Employee Motivation in this study underscores the importance of integrating both awareness and motivation for successful ISO implementation.

3.5 Test of Significant Mediating Effect of the Level of Employee Motivation on the Relationship between the Level of Employee Awareness and the Level of TTI Preparedness for ISO 21001:2018 Implementation

The following conditions must be met before conducting the hierarchical regression analysis: (1) the independent variable is a significant predictor of the Table 9 presents a summary of stepwise results for the conceptual framework, which is a prerequisite before performing hierarchical regression analysis. The results confirm the assumption of linearity among the independent, mediator, and dependent variables; all paths are significant at the 0.01 and 0.05 alpha levels.

Using Hayes' PROCESS Macro Model 4 (2022), the mediation analysis examined the role of Employee Motivation in mediating the relationship between Employee Awareness and TTI Preparedness for implementing ISO 21001:2018. The results revealed several significant findings.

Table 9. Establishing the condition of linearity between variables.

	Factors	**β**	**t value**	**p value**
Path C	Constant	2.028	9.284	0.000
EA (IV) to TP (DV)	EA	0.627	13.234	0.000**
	$R = .566$; $R^2 = .320$; $\Delta R = .318$; $F = 113.956$; Sig= 0.000*			
Path A	Constant	1.978	12.136	0.218
EA (IV) to EM (M)	EA	0.436	11.667	0.000**
	$R = 0.600$; $R^2 = 0.360$; $\Delta R = 0.358$; $F = 136.127$; Sig= 0.000*			
Path B	Constant	-0.466	-1.423	0.156
EM (M) to TP (DV)	EA (c′)	0.231	3.124	0.002**
	EM	0.909	8.931	0.000**
	$R = .666$; $R^2 = .444$; $\Delta R = .441$; $F = 96.092$; Sig= 0.000*			

a. Predictors: (Constant), EA & Dependent Variable: TP
b. Predictors: (Constant), EA & Dependent Variable: EM
c. Predictors: (Constant), EA, EM & Dependent Variable: TP
*Significant at 0.05 level of significance
**Significant at 0.01 level of significance

Figure 2 illustrates the mediation model showing how Employee Motivation mediates the relationship between Employee Awareness and TTI Preparedness for the implementation of ISO 21001:2018. The figure shows the model's path coefficients and statistical values, including a significant indirect effect ($a \times b = 0.3964$, 95% BootCI [0.2614, 0.5572]), confirming partial mediation because the confidence interval does not include zero. The model meets the Baron & Kenny (1986) criteria for mediation, including (1) the independent variable is a significant predictor to the dependent variable (path c); (2) the independent variable is a significant predictor of the mediating variable (path a); and (3) the mediating variable is a significant predictor of the dependent variable (path b). After meeting these conditions, the researcher assessed the effect of the independent variable on the dependent variable through the mediating variable. This approach is appropriate, especially for testing the theoretical

soundness of the conceptual framework, in which one or more mediating variables are examined to determine whether they can influence the effect of the independent variable on the dependent variable.

The overall model explains 44.4% of the variance in TTI Preparedness (R^2 = 0.444), and Employee Motivation alone accounts for 36% of the variance in motivation (R^2 = 0.36). This highlights the strong effects of both awareness and motivation on preparedness. In practice, this means that enhancing Employee Awareness of ISO 21001:2018 through methods such as orientations, briefings, or information dissemination (IEC) will not only directly improve preparedness but also indirectly boost motivation, making awareness-building initiatives doubly effective in preparing TTIs for ISO certification readiness.

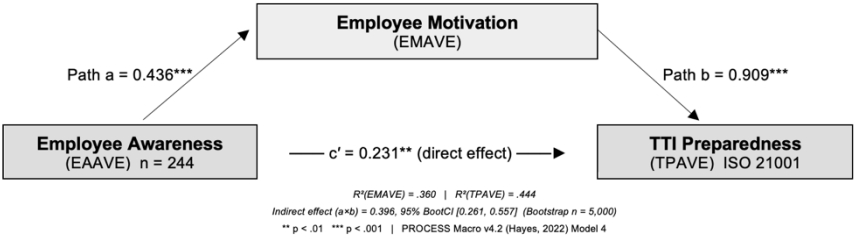


Figure 2. Mediation model showing Employee Motivation (EMAVE) as Mediator between Employee Awareness (EAAVE) and TTI Preparedness (TPAVE) for ISO 21001:2018 Implementation.

Path A of the mediation model shows a significant positive relationship between Employee Awareness and Employee Motivation ($\beta = 0.436$, $p < .001$), indicating that greater awareness of ISO 21001:2018 is associated with higher employee motivation. This finding aligns with Self-Determination Theory (Deci & Ryan, 2000), which posits that individuals are more motivated when they understand the purpose of their actions and the broader objectives behind them. The more employees understand ISO standards, the more competent and autonomous they feel, which, according to Gagné & Deci (2005), increases their motivation to contribute to the implementation process.

Moreover, Path B shows an even stronger positive relationship ($\beta = 0.909$, $p < .001$), indicating that motivated employees are highly likely to contribute to organizational preparedness. This result aligns with Organizational Readiness for Change Theory (Weiner, 2009), which holds that employees' commitment and capability to support change are crucial to an organization's readiness for new standards. In this case, motivation plays a pivotal role in preparing TTIs to adopt ISO 21001:2018 by driving employee engagement and facilitating the integration of the quality management system.

The direct effect of Employee Awareness on TTI Preparedness (c' = 0.231, p = .002) remains significant even after accounting for Employee Motivation. This finding suggests that although motivation mediates the relationship between awareness and preparedness, employee awareness also contributes directly to preparedness. This

aligns with the idea that employee awareness, while crucial, requires motivation to translate knowledge into proactive behaviors and to support effective implementation.

The indirect effect (a × b = 0.3964) is significant, indicating that Employee Motivation significantly mediates the relationship between Employee Awareness and TTI Preparedness. This partial mediation suggests that although awareness directly affects preparedness, motivation is the primary channel through which awareness translates into action and organizational readiness.

Table 10. Summary of mediated hierarchical regression for employee motivation on the relationship of employee awareness and TTI Preparedness for ISO 21001:2018 implementation.

Outcome Variable	Factors	Beta Coefficient	SE	T Value	P-Value
EM	(Constant)	-0.048	0.163	12.136	0.000
	EA	0.436	0.037	11.667	0.000
	R = 0.6000; R^2 = 0.3600; F = 136.1268; Sig. = 0.000				
TP	(Constant)	-0.466	0.327	-1.423	0.156
	EA	0.231	0.074	3.124	0.002
	EM	0.909	0.102	8.931	0.000
	R = 0.6661; R^2 = 0.4437; F = 96.0923; Sig. = 0.000				
Direct Effect of X on Y	Effect = 0.2310; SE = 0.0740; t = 3.1235; P-value = 0.0020*				

Note: Significant at the 0.05 level of significance.

Table 10 summarizes the hierarchical regression with mediation for employee motivation in the relationship between employee awareness and TTI preparedness for ISO 21001:2018 implementation. The critical finding is that employee motivation significantly mediates the relationship between employee awareness and TTI preparedness. This supports the conclusion that motivation plays an important role in the awareness-preparedness relationship, but the mediation is partial rather than full, since the direct effect of employee awareness on preparedness remains significant (effect = 0.231, P-value = 0.002). These results support the acceptance of alternative hypothesis 4 and conclude that motivation is an important but not exclusive mechanism.

This analysis supports the idea that Employee Motivation is not only a crucial mediator but also an important driver of TTI Preparedness for ISO 21001:2018 implementation. Consistent with Socio-Technical Systems Theory (Trist & Bamforth, 1951), the findings reinforce that effective ISO 21001:2018 implementation requires synergy between human factors, such as awareness and motivation, and technical systems, such as policies, processes, and standards. When human and technical systems align, organizations are better positioned to navigate the complexities of ISO certification.

4. Discussion

The findings indicate that employees in TESDA Technology Institutions (TTIs) in Region XI are very aware of quality management requirements and generally

perceive their institutions as prepared to implement ISO 21001:2018. Awareness, motivation, and perceived preparedness were positively associated. In practical terms, employees who understand the standard may better identify their responsibilities, follow established processes, and contribute to planning and improvement activities. The findings therefore suggest a workforce with a useful foundation for implementation. However, perceived preparedness should not be equated with demonstrated compliance or successful certification. The findings are merely a favorable indication that the participating TTIs are certification-ready.

The high level of awareness is consistent with Balahadia et al. (2022), who found that employees at a Philippine university were generally aware of its ISO 9001:2015 quality objectives. The present study extends that discussion to technical and vocational education institutions preparing for ISO 21001:2018. Its findings should also be considered alongside research beyond the Philippines. At an Indonesian polytechnic, Ambarwati et al. (2023) assessed ISO 21001:2018 readiness through a gap analysis of institutional requirements. Their approach highlights an important distinction: employees' favorable perceptions can indicate support for implementation, while an examination of processes and evidence is needed to establish whether an institution meets the standard's requirements. The comparatively lower preparedness ratings for performance evaluation in the present study make this distinction particularly relevant. TTIs may understand the standard and recognize stakeholders' needs, yet still need to strengthen how they monitor results, evaluate performance, and use findings for improvement.

The relationships among the three variables are consistent with the study's Socio-Technical Systems Theory framework. Awareness and motivation are aspects of the social system, whereas policies, documented processes, resources, and performance evaluation form part of the technical system. Their positive associations with preparedness suggest that employees' understanding and willingness to participate matter alongside institutional arrangements (Trist & Bamforth, 1951; Abu Bakar et al., 2024). This interpretation accords with Bendermacher et al. (2017), whose review of higher education quality culture identified leadership and communication as links between structural arrangements and staff commitment. It also aligns with Díez et al. (2020), who examined quality management in educational centers through both management processes and their effects on people and institutional performance. Together, these studies suggest that TTIs should examine how staff experience and use their quality processes, rather than assess readiness through documentation alone.

The positive awareness–motivation relationship may explain how knowledge contributes to preparedness. Employees who understand the purpose of ISO 21001:2018 and the relevance of their roles may see greater value in participating in its implementation. This is consistent with Self-Determination Theory, which links meaningful understanding and perceived competence to motivation (Gagné & Deci, 2005), and with Vroom's (1964) Expectancy Theory, which emphasizes employees' beliefs about the value of their effort. Motivation's association with preparedness is also compatible with Weiner's (2009) account of organizational readiness, in which

members' commitment to change is accompanied by their belief that the organization can carry it out. These theories help explain the observed pattern, although the present data do not directly measure each proposed psychological process.

The reported mediation analysis indicates partial rather than full statistical mediation: the indirect association through motivation was significant, whereas the direct association between awareness and preparedness remained significant after accounting for motivation. One plausible reason is that awareness has a practical route to preparedness that does not depend entirely on motivation. Employees who know the requirements may clarify responsibilities, identify gaps, maintain records, and participate in prescribed procedures even when their personal reasons for doing so vary. At the same time, understanding the standard may encourage employees to take greater initiative and sustain their participation, providing a possible route through motivation. Thus, the remaining direct path may reflect the value of knowing what must be done, while the indirect path may reflect employees' willingness to do it. This interpretation fits the socio-technical view that knowledge, employee participation, and institutional processes contribute together to readiness; it does not establish that either route caused the reported level of preparedness.

Other conditions may also help explain why motivation did not account for the entire awareness–preparedness relationship. Leadership support, available time and resources, clear assignments, and functioning evaluation procedures can affect whether knowledgeable and motivated employees can act. In a study of change management at a university in the United Arab Emirates, Ezzeddine et al. (2023) found that employees emphasized communication, capacity building, participation, and technology as areas requiring attention. Their findings provide a useful international comparison that staff engagement matters, but the conditions that allow staff to participate also need attention. For TTIs, this means that orientations and motivational initiatives should be accompanied by opportunities to contribute to process design, support for carrying out assigned tasks, and regular feedback on implementation progress.

Interpreting motivation requires particular care. The questionnaire uses the Work Extrinsic and Intrinsic Motivation Scale, which distinguishes intrinsic motivation, several forms of regulation, and amotivation (Tremblay et al., 2009). These dimensions do not all have the same meaning. Van den Broeck et al. (2021) found that different forms of work motivation relate differently to organizational outcomes, with amotivation associated with adverse outcomes. In the present study, employees reported stronger autonomous forms of motivation and low amotivation, a more informative pattern than the overall motivation mean alone. Because the reported mediation analysis combined the motivation items into a single score, it remains unclear whether the indirect association is driven primarily by autonomous motivation, controlled motivation, or by how these distinct dimensions were combined. The partial mediation finding should therefore be treated as provisional until the scale's scoring and the mediation model are checked using the respondent-level data.

The significant awareness–preparedness and motivation–preparedness correlations align with arguments that staff understanding and engagement support organizational change (Capillan et al., 2025; Mukwakungu & Mbohwa, 2018; Ibrahim & Brobbery, 2015; Suder, 2023). The awareness–motivation association is also consistent with participation-oriented change management (Ezzeddine et al., 2023; Bulat et al., 2024; Szelągowska-Rudzka, 2018) and expectancy-based explanations (Vroom, 1964). These comparisons support the interpretation of the associations but do not establish which factor caused the other.

The preparedness ratings suggest a stronger perception of stakeholder identification than of the handling of service deficiencies. This is relevant to the stakeholder orientation of ISO 21001:2018 (ISO, 2018) and to the role of leadership and systemic support described by Abu Bakar et al. (2024) and Kharemwa (2020). Reported readiness nevertheless requires confirmation through document review, internal audits, and evaluation of the effectiveness of corrective actions; employee perceptions are not themselves proof of conformity.

The motivation pattern aligns with Self-Determination Theory (Deci & Ryan, 2000; Ryan & Deci, 2020) and the WEIMS framework (Tremblay et al., 2009). Satisfaction with interesting challenges was the highest-rated item, whereas the lowest raw rating was for an amotivation statement. Intrinsic and internalized motivation may support sustained engagement, whereas external rewards and pressures may have different implications for the quality of participation (Gagné & Deci, 2005; Van den Broeck et al., 2021; Wilhelm et al., 2024). The different motivational dimensions should not be presumed to be conceptually interchangeable, and the interpretation of the overall score should account for the reverse coding described in the study.

The awareness findings are consistent with Balahadia et al. (2022), who discussed employee understanding of QMS objectives and implementation challenges. ISO (2018) and Wardhani et al. (2009) emphasize ongoing communication and employee education. The comparatively lower score for attention to staff needs identifies a specific topic for future orientations; however, the score remains in the Aware category and should not be interpreted as evidence that employees reject this ISO function. As Jo and Shin (2005), Backhouse and Ogunlayi (2020), and Santos and David (2021) suggest, awareness can coexist with implementation obstacles such as workload and limited participation.

Finally, the findings are based on a cross-sectional survey of employees from five purposively selected TTIs. The measures capture employees' perceptions at a single point in time; they cannot establish that awareness increased motivation or that either variable led to institutional preparedness. Responses from the same employees may also strengthen the observed associations. Future research could examine the motivation dimensions separately, account for differences among institutions, and compare survey responses with document reviews, internal audit findings, and subsequent implementation outcomes. Within these limits, the study suggests that TTIs should build staff understanding and participation while strengthening the processes and resources needed to implement ISO 21001:2018.

5. Conclusion

The study found high levels of employee awareness, motivation, and perceived institutional preparedness among respondents from five TESDA Technology Institutions in Region XI. Awareness, motivation, and preparedness were positively associated, and motivation partially mediated the awareness–preparedness relationship, with a significant indirect effect and a residual direct effect. These findings suggest that readiness initiatives should combine awareness-building and employee motivation support with leadership, resources, and operational improvements. Because the evidence is cross-sectional and self-reported, the results describe perceived preparedness and statistical associations rather than demonstrated ISO compliance or causal effects.

Acknowledgment

Sincere appreciation is given to all peer reviewers for their valuable comments and suggestions, which helped the author to improve the quality of the manuscript.

Conflict of Interest Statement

The author declares no conflict of interest.

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Author Contributions: Aprong, J. M.; Solely responsible for the study conceptualization, methodology, data collection, formal analysis, interpretation, and original manuscript preparation. The author reviewed and approved the final manuscript and agreed to be accountable for the integrity and accuracy of the work.