

Barriers and Enablers in Implementing Food Safety Training in TESDA-ISAT: Perspective from Trainers and Administrators

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ABSTRACT

This study investigated the barriers and enablers in the implementation of food safety training at TESDA-Isabela School of Arts and Trades (ISAT) using a mixed-methods descriptive design. Data were collected from 30 purposively selected trainers and administrators through validated survey questionnaires and semi-structured interviews. Quantitative data were analyzed using descriptive and inferential statistics, while qualitative data underwent thematic analysis. Findings identified key challenges such as logistical constraints and varying levels of institutional support, alongside enabling factors like trainer competence and learner motivation. The integration of results provided a comprehensive understanding of training implementation, highlighting the importance of strengthened institutional support and continuous improvement strategies.

INTRODUCTION

Food safety is essential for protecting public health, maintaining consumer trust, and ensuring economic stability. In the Philippines, foodborne illnesses remain a persistent concern, often linked to inadequate food handling and sanitation practices. As a result, food safety education has become increasingly important in reducing risks and improving knowledge, attitudes, and practices (KAP) among food handlers (Sinha & Sandhu, 2023). However, the implementation of food safety training programs continues to face several barriers.

In technical and vocational education settings such as TESDA institutions like the Isabela School of Arts and Trades (ISAT), food safety training is critical in preparing industry-ready graduates. Despite this, challenges persist, including limited time, insufficient resources, and inadequate trainer knowledge, which often result in incomplete or rushed instruction (Howells et al., 2007; Wandolo et al., 2018). These issues are further compounded by outdated materials and limited access to training equipment, particularly in public institutions with budget constraints.

Human factors also affect training effectiveness, including low motivation, resistance to change, and weak engagement among trainees (Youn & Sneed, 2016; Wandolo et al., 2018). Without strong institutional monitoring, learned practices may not translate into sustained behavioral change (Howells et al., 2007). Similar challenges are observed in other foodservice contexts, such as the food truck industry, where time and financial pressures hinder compliance with food safety standards (Ghezzi et al., 2021).

While online food safety programs offer partial solutions by improving knowledge and practices, their impact on attitudes remains limited (Berglund et al., 2024). Effective training requires improved instructional design, including shorter sessions, simplified content, and stronger risk communication strategies. Institutional and stakeholder support is also essential in strengthening implementation through policy alignment and resource sharing (Mana-ay, 2020).

Overall, enabling factors such as qualified instructors, adequate resources, administrative support, and stakeholder engagement are crucial for sustaining effective food safety training (Howells et al., 2007; Wandolo et al., 2018; Ghezzi et al., 2021). This study therefore examines the barriers and enablers of food safety training implementation in TESDA-ISAT as perceived by trainers and administrators, along with their assessments and recommendations for improving training effectiveness and sustainability.

LITERATURE REVIEW

Overview of Food Safety Education and Its Role in Public Health

Food safety education is a vital component of public health promotion as it enhances consumer awareness and strengthens practices aimed at preventing foodborne illnesses. According to Eruaga (2024), educating individuals about food safety significantly contributes to reducing risks of contamination and disease, particularly through improved hygiene and handling practices. However, despite the importance of such education, it remains underemphasized in many academic settings. Morrone and Rathbun (2003)

noted that in higher education institutions, food safety is often overlooked, even though it is highly relevant for young adults who prepare meals independently.

In regions like Africa, where street food vending is widespread, the public health burden caused by contaminated food has led to numerous outbreaks. Mensah et al. (2012) highlighted the need for a holistic “farm-to-fork” approach to food safety in such contexts, involving not just food handlers but also governments and communities. In response to such challenges, the World Health Organization has supported countries in building stronger food safety systems through evidence-based policies, improved laboratory capacities, and more effective foodborne disease surveillance (Mensah et al., 2012).

Nevertheless, legislative and regulatory efforts alone have had only limited success in ensuring food safety across populations. Abdussalam and Käferstein (1994) argued that large-scale health education efforts are needed, particularly through primary health care systems. Such campaigns should combine scientific knowledge with culturally appropriate practices and local food customs to make food safety education more effective and accessible.

Globally, foodborne diseases continue to pose significant risks. Charlebois (2002) reported that between 8 to 10 percent of the world’s population experiences foodborne illnesses annually, with a 300 percent increase over the past 30 years. These illnesses can result in severe complications and long-term health effects. To combat this trend, health experts advocate for a comprehensive farm-to-table food safety strategy involving multiple sectors. Woteki et al. (2001) emphasized the importance of collaboration between government agencies, the food industry, and consumers to ensure effective interventions. Key methods include the implementation of good agricultural and manufacturing practices, the adoption of the Hazard Analysis Critical Control Point (HACCP) system, and the development of rapid detection technologies (Bakar, 2012).

Despite these advancements, global food safety systems still face challenges due to environmental changes, demographic shifts, industrial food production, and international trade. Käferstein and Abdussalam (1999) noted that improving monitoring techniques and increasing reliance on voluntary compliance and education are essential to overcoming such barriers. Education remains the cornerstone of preventive strategies, with food safety programs serving as an integral part of national risk management efforts (Charlebois, 2002).

In this context, Technical and Vocational Education and Training (TVET) institutions play a critical role in equipping the workforce with practical food safety knowledge and skills. In developing countries like the Philippines, where TESDA-ISAT operates, TVET is central to preparing learners for employment in food-related industries. Bakar (2011) and Kiran Budhrani et al. (2018) emphasized the importance of TVET in enhancing workforce readiness through hands-on training and technical education. However, challenges remain in terms of integrating occupational health and safety, including food safety, into TVET curricula. Zakir Hussain (2021) revealed that only 40 percent of TVET respondents in one study felt confident enough to assist in safety-related matters, underscoring the need for more robust safety education in these institutions.

To improve the delivery of food safety training in TVET institutions, researchers recommend integrating safety policies and structured training into institutional planning. Syazwan Syah Zulkifly et al. (2023) found that training significantly influences safety awareness and competency among TVET instructors. By incorporating food safety into national education policies and strengthening its emphasis in the curriculum, countries can raise the standard of health literacy among future workers.

Recent research also supports the expansion of food safety education through a comprehensive policy framework and technological innovation. Razikordmahaleh et al. (2018) called for integrated efforts involving multiple stakeholders and supportive macro-environments. Public education campaigns, delivered through both traditional and social media, can boost consumer knowledge and encourage safer practices (Eruaga, 2024). Meanwhile, emerging technologies such as the Internet of Things (IoT), blockchain, and artificial intelligence (AI) are being used to improve food traceability and safety standards across global supply chains (Ayeni & Olagoke-Komolafe, 2024).

However, one of the continuing barriers in food safety education is the lack of time, resources, and comprehensive curriculum coverage, especially among educators. Eley et al. (2021) emphasized the importance of increasing educator knowledge and confidence through training. They also recommended embedding food safety topics more consistently within school and TVET programs across Europe as a model for improving food literacy at scale.

Common Barriers in the Implementation of Food Safety Training

The effective implementation of food safety training in technical-vocational institutions such as the Technical Education and Skills Development Authority-Isabela School of Arts and Trades (TESDA-ISAT) is often hindered by a range of barriers that limit both the quality and accessibility of training programs. One of the most frequently reported challenges is time constraints, which affect the capacity of trainers and administrators to deliver comprehensive and well-paced instructional sessions (Ghezzi et al., 2021; Howells et al., 2007; Pei Liu & Eaton, 2022). These constraints may be due to compressed schedules, multiple institutional responsibilities, or the limited availability of qualified training personnel. As a result, critical food safety concepts are sometimes covered briefly or inadequately, affecting learners' understanding and retention.

Inadequate resources, including outdated facilities, insufficient equipment, and a lack of updated training materials, further restrict effective implementation (Sinha & Sandhu, 2023; Wandolo et al., 2018). These issues are particularly common in publicly funded vocational schools like TESDA-ISAT, where budget limitations often lead to makeshift or substandard learning environments (Pei Liu & Eaton, 2022). Without access to appropriate infrastructure and tools, both trainers and trainees face difficulties in achieving meaningful, hands-on learning.

Beyond structural limitations, interpersonal and contextual factors also pose significant challenges. For instance, language barriers and weak communication between trainers and learners may impede the flow of information, especially in diverse classrooms with students from various linguistic or cultural backgrounds (Pei Liu & Eaton, 2022). Such disconnects reduce learner engagement and may

cause misunderstandings during training sessions. Financial constraints are another barrier, affecting both institutional budgets for training and learners' ability to attend or complete programs (Ghezzi et al., 2021; Pei Liu & Eaton, 2022).

A critical issue in many training programs is the lack of technical expertise among some instructors. Trainers who are not well-versed in current food safety regulations or lack real-world experience may struggle to deliver relevant and accurate instruction (Boulfoul & Brabez, 2022). This shortfall becomes more serious when institutions do not provide regular professional development or opportunities for trainers to stay updated with evolving food safety standards. Similarly, some trainees enter the program without sufficient background knowledge, making it difficult for them to grasp technical content, particularly if the sessions are fast-paced or not learner-centered (Youn & Sneed, 2016).

In addition to instructional limitations, motivation and attitude-related factors influence the effectiveness of training implementation. Learners who show low motivation, disinterest, or indifference may not engage meaningfully in the sessions, which in turn affects knowledge retention and practice (Youn & Sneed, 2016; te Pas et al., 2013). Some students may perceive food safety training as repetitive or unrelated to their immediate roles, thus reducing their willingness to participate. Likewise, trainers who lack institutional support or incentives may also demonstrate low morale or disengagement. Studies show that internal motivators, such as professional growth and skill development, are often more effective in encouraging active participation than externally imposed requirements (Gostlow et al., 2017). In addition, accessibility issues, such as inconvenient schedules, distant training venues, or competing personal and work obligations, further discourage both trainers and learners from committing to the program (Ward & Wood, 2000; Gostlow et al., 2017).

Managerial and administrative shortcomings also limit the success of food safety training in institutions like TESDA-ISAT. A major issue is the absence of proper monitoring and evaluation mechanisms, which reduces accountability and hampers continuous improvement (Putri, 2022). Without systems to assess whether the training content is applied in practice or whether learning objectives are being achieved, the long-term impact of training efforts is uncertain. Moreover, poor coordination between institutional departments—such as curriculum planning, training operations, and health compliance—can lead to disjointed program delivery. This becomes even more problematic when institutions lack qualified personnel to oversee food safety components or when those involved in program design have a limited background in food safety standards.

Research also emphasizes that context-specific barriers in other sectors parallel the challenges faced in TESDA-affiliated institutions. For example, the food truck industry has reported issues such as limited time, restricted funding, and unsuitable training spaces (Ghezzi et al., 2020; Ghezzi et al., 2021). These conditions mirror those observed in many vocational training environments. Similarly, in school-based foodservice settings, resource shortages and employee-related problems have been linked to poor compliance with safety protocols (Youn & Sneed, 2016). These patterns highlight the need to abandon

one-size-fits-all approaches and instead promote contextualized training models that reflect the operational realities of each learning institution. In the case of TESDA-ISAT, the diversity of learners, irregular schedules, and infrastructure limitations must all be considered when designing and implementing food safety training programs.

Institutional, Logistical, and Policy-Level Challenges

Bureaucratic inefficiencies and rigid administrative structures pose substantial barriers to the effective implementation of food safety training in institutions like TESDA-ISAT. These limitations often manifest in slow decision-making processes, redundant procedural requirements, and resistance to innovation. Research by Kovač (2020) emphasizes the tension between efforts to streamline administrative processes (debureaucratization) and the necessity of maintaining constitutional accountability and public service integrity. In practice, such tensions can delay or obstruct the rollout of training programs, particularly when approvals, certifications, and inter-agency coordination are involved. This is evident in Nigeria, where rigid bureaucratic systems have directly hindered timely policy implementation and project delivery (Aliyu et al., 2016). These findings suggest that unless TESDA-ISAT's administrative systems are designed to be adaptive and responsive, food safety training initiatives may encounter delays, poor enforcement, or inefficiencies in resource allocation.

International examples further highlight how administrative culture and governance structures impact institutional performance. In South Africa, Shava and Muringa (2024) noted that while continuous learning frameworks could help address administrative inefficiencies, entrenched political interference and cultural resistance continue to prevent meaningful innovation in local governments. Similarly, Brazilian public administration has struggled with implementing performance-driven models due to fiscal and bureaucratic limitations (Rezende, 2009). These case studies suggest that TESDA-ISAT may benefit from adopting a more dynamic and participatory administrative model – one that empowers training managers to adapt quickly to contextual demands, while ensuring coordination between various departments involved in food safety education.

Policy misalignment and fragmentation across different levels of the educational system can obstruct the coherent implementation of food safety training programs. These misalignments often occur when standards, curricula, and assessment mechanisms are not synchronized across agencies or governance levels. Fullan (1996) originally emphasized that fragmented and excessive reform initiatives can demotivate educators and diminish the impact of well-intended changes. More recently, Whitaker et al. (2022) have shown how early childhood education in the U.S. suffers from limited alignment between state-level policy levers and institutional implementation, making reform efforts disjointed and inconsistent. In a vocational training context such as TESDA-ISAT, similar misalignments between national standards, training modules, and certification mechanisms may limit the quality and consistency of food safety training outcomes.

Federal systems often exacerbate this issue. In Australia, for example, while bureaucrats acknowledge the problems caused by misalignment, they often hesitate to see greater alignment as a viable solution, citing the need for flexibility (Savage & O'Connor, 2018). Meanwhile, the rise of alternative teacher preparation programs such as Teach For Taiwan exemplifies how new initiatives may align with deregulation policies but conflict with established educational structures (Thomas & Xu, 2022). These examples point to the complex dynamics TESDA-ISAT might face when navigating between national education policy directives and local implementation realities. Without clear coordination between agencies setting standards and those tasked with execution, food safety training may become fragmented, reducing its practical effectiveness and undermining efforts at national workforce development.

Financial constraints remain a foundational barrier to the effective implementation of food safety training, particularly in vocational and technical institutions where facilities and equipment are essential. Research by Weiss et al. (2019; 2021) on pediatric subspecialty programs highlights that funding limitations not only restrict program size but also directly impact access to educational resources and opportunities for scholarly engagement. In contexts where institutions rely heavily on extramural or fluctuating funding, perceived financial insecurity becomes a persistent obstacle to program development. TESDA-ISAT may similarly experience constraints that prevent the acquisition of up-to-date laboratory equipment, development of specialized training materials, or recruitment of qualified trainers – factors essential for credible food safety education.

Parallel challenges are evident in vocational training programs in Sub-Saharan Africa, where underfunding has resulted in outdated curricula, poor infrastructure, and limited instructional materials (Muya et al., 2006). These issues mirror those faced by TESDA-ISAT, where sustained investment is needed to upgrade training facilities and keep pace with industry standards. Recommendations for overcoming these challenges include increasing government regulation of vocational training, fostering employer partnerships for cost-sharing, and encouraging private sector investment in training delivery (Muya et al., 2006). Adopting similar strategies could help TESDA-ISAT overcome systemic funding limitations and provide high-quality, industry-relevant food safety training.

The internal culture of an institution plays a critical role in determining how safety training is received, implemented, and sustained. Organizational culture shapes employee behavior, influences communication dynamics, and determines how safety-related values are prioritized (Burke et al., 2008). In the context of TESDA-ISAT, a strong safety culture could encourage both trainers and trainees to approach food safety training with seriousness and accountability. Conversely, a culture of complacency or indifference may undermine these efforts. Studies show that leadership and supervisory behaviors have a profound impact on establishing a culture where safety is normalized and respected (Mohamed Ali Al Mazrouei et al., 2019). Leaders who actively promote

safety practices and model expected behaviors can enhance training effectiveness and reduce resistance among participants.

Moreover, the structure and flow of information within an organization are indicative of its cultural health. Westrum (2004) suggests that an open and responsive information culture enables organizations to identify safety concerns quickly and take appropriate corrective actions. In contrast, organizations with poor communication practices may fail to detect or address issues in a timely manner. Adams (2003) notes that effective safety training programs not only transfer knowledge but also build employee commitment by fostering a deeper understanding of the value of safety practices. For TESDA-ISAT, cultivating a supportive and proactive training environment could be pivotal in maximizing the impact of food safety training initiatives. This would involve not only formal training interventions but also leadership engagement, peer reinforcement, and continuous organizational learning.

The geographic and infrastructural divide between rural and urban areas creates significant disparities in training access, delivery, and resource allocation. In many rural settings, limited transport infrastructure, long travel distances, and poor communication systems hinder consistent attendance and participation in training programs (Mariam Ismail & Ariffin, 2020). This challenge is particularly relevant to TESDA-ISAT training centers operating in remote areas, where food safety training may be deprioritized due to accessibility issues. Worku Nega et al. (2021) highlight how separate institutional setups for rural and urban areas can lead to duplication of efforts and inefficiencies, often exacerbating logistical problems in peri-urban and rural contexts. Without a unified system, the implementation of food safety training risks being uneven and inconsistent.

In addition, rural areas often face limitations in infrastructure essential for training delivery, such as stable power, internet access, and proper storage facilities. Suryadi Hadi et al. (2024) report that poor transportation systems and lack of cold storage in Indonesian rural areas compromise agricultural product safety, illustrating the broader implications of logistical inadequacies on food safety outcomes. Similarly, López and Winkler (2018) point out that rural institutions often operate under financial strain due to higher transaction costs and lack of economies of scale. For TESDA-ISAT, these conditions imply a need for tailored approaches in rural areas, such as mobile training units, partnerships with local governments, or satellite training centers, to ensure equitable access and quality implementation of food safety training across all regions.

METHODOLOGY

This study utilized a mixed-methods descriptive research design to examine the barriers and enablers in the implementation of food safety training at TESDA-Isabela School of Arts and Trades (ISAT). It combined quantitative and qualitative approaches, using a structured survey questionnaire and semi-structured interviews to capture both measurable data and in-depth insights. The respondents consisted of 30 purposively selected TESDA-certified trainers and administrators with relevant experience in food-related programs. The research instruments were validated and pilot-tested to ensure reliability, with the survey

employing a Likert scale and the interviews allowing for detailed contextual responses aligned with the study's objectives.

Data collection involved securing institutional approval, obtaining informed consent, and administering surveys either in print or online, followed by one-on-one interviews conducted face-to-face or virtually. Ethical standards such as voluntary participation, confidentiality, and data privacy were strictly observed. Quantitative data were analyzed using descriptive statistics and inferential tools like Pearson correlation and chi-square tests, while qualitative data underwent thematic analysis. The integration and triangulation of both data sets ensured a comprehensive and credible interpretation of findings regarding food safety training implementation.

RESULTS AND DISCUSSION

Table 1. Mean and Standard Deviation on Perceived Barriers to Food Safety Training Implementation

Indicators	Mean	Verbal Interpretation
1. Time constraints limit the delivery of complete food safety training sessions.	4.20	Agree
2. Training materials are outdated and insufficient.	4.05	Agree
3. There is a lack of functional kitchen/laboratory equipment.	4.10	Agree
4. Trainees are not always motivated to attend or complete training.	3.95	Agree
5. Trainers have limited access to updated food safety information.	4.00	Agree
6. Communication gaps exist between trainers and trainees.	3.85	Agree
7. Trainers are assigned multiple tasks beyond teaching responsibilities.	4.25	Agree
8. Sessions are often rushed due to limited training time.	4.15	Agree
9. Food safety is not consistently prioritized in scheduling and budgeting.	3.90	Agree
10. There is limited access to digital tools or e-learning materials.	3.75	Agree
Overall Mean	4.02	Agree

Table 1 presents the mean and standard deviation of respondents' perceptions regarding the barriers to food safety training implementation at TESDA-ISAT. The overall mean score of 4.02, verbally interpreted as Agree, indicates that respondents generally perceive several barriers as significantly affecting the quality and effectiveness of food safety training. This aligns with Wandolo et al. (2018), who found that barriers such as time, resources, and

facilities significantly shape the effectiveness of hospitality-related food safety programs.

Overall, the findings highlight that trainers and administrators at TESDA-ISAT face multifaceted barriers, with the heaviest emphasis on time constraints, workload distribution, and adequacy of resources. These issues mirror international findings, as studies across diverse contexts consistently point to time, costs, inadequate facilities, and poor organizational structures as major impediments to effective training (Wandolo et al., 2018; Ghezzi et al., 2021; Nissanka & Dissanayake, 2019). Addressing these barriers through better workload management, improved facilities, and institutional support is critical for strengthening food safety training outcomes.

Table 2. Mean and Standard Deviation on Perceived Enablers of Food Safety Training

Indicators	Mean	Verbal Interpretation
1. There is strong administrative support for food safety training.	4.30	Strongly Agree
2. Trainers regularly undergo professional development.	4.15	Agree
3. Stakeholders are involved in enhancing food safety training.	4.05	Agree
4. TESDA guidelines are clearly communicated and implemented.	4.20	Agree
5. Trainers are highly motivated to deliver quality instruction.	4.25	Strongly Agree
6. Materials and equipment are provided on time and in adequate quantity.	3.90	Agree
7. Support from local government or NGOs strengthens training programs.	3.85	Agree
8. There is collaboration among trainers and departments.	4.10	Agree
9. Student participation is generally active and enthusiastic.	4.00	Agree
10. Institutional monitoring encourages better implementation.	4.05	Agree
Overall Mean	4.09	Agree

Table 2 shows the respondents' perceptions of the enablers of food safety training implementation at TESDA-ISAT. The overall mean score of 4.09, verbally interpreted as Agree, indicates that respondents generally acknowledge the presence of several institutional and instructional supports that contribute positively to food safety training. This is consistent with Nissanka and Dissanayake (2019), who emphasized that program effectiveness is not only limited by barriers but is equally strengthened by institutional enablers.

The highest-rated enabler is “There is strong administrative support for food safety training” ($M = 4.30$, $SD = 0.75$). This suggests that institutional leadership provides clear backing to food safety initiatives, whether through policy direction, program funding, or allocation of resources. Research highlights that administrative support plays a pivotal role in sustaining food safety programs, as it ensures alignment with organizational priorities and guarantees resource allocation (Mana-ay, 2020).

Closely following this is “Trainers are highly motivated to deliver quality instruction” ($M = 4.25$, $SD = 0.78$). This finding echoes studies that report that trainer motivation is a vital enabler of training effectiveness because it directly affects teaching quality and learner outcomes (Bambara et al., 2012). Even with limited resources, motivated trainers are more likely to adopt adaptive strategies that maintain instructional standards and engage learners meaningfully.

Other highly rated enablers include “TESDA guidelines are clearly communicated and implemented” ($M = 4.20$) and “Trainers regularly undergo professional development” ($M = 4.15$). The significance of these findings aligns with Cotter et al. (2022), who observed that standardized guidelines and continuous capacity-building are crucial for ensuring training quality, yet often underutilized. Similarly, ongoing professional development ensures trainers remain updated on current practices, strengthening competency-based learning delivery (Nissanka & Dissanayake, 2019).

Collaboration among trainers and departments ($M = 4.10$) and stakeholder involvement ($M = 4.05$) also scored positively. This underscores the importance of teamwork and external partnerships in fostering effective food safety training. According to Mana-ay (2020), collaboration across institutional and industry stakeholders not only enhances resource mobilization but also ensures that training programs remain industry-relevant and comprehensive.

On the other hand, enablers with relatively lower mean scores include “Materials and equipment are provided on time and in adequate quantity” ($M = 3.90$) and “Support from local government or NGOs strengthens training programs” ($M = 3.85$). Although still interpreted as Agree, these suggest that logistical and external supports are not consistently reliable. Cotter et al. (2022) similarly found that resource provision and external partnerships are often inconsistent, limiting the sustainability of training programs despite institutional intent.

Overall, the findings indicate that while TESDA-ISAT faces significant barriers in implementing food safety training, several enablers help sustain and enhance program delivery. Strong administrative support, motivated trainers, adherence to guidelines, and professional development stand out as the most powerful enablers. These align with the literature that identifies administrative commitment, trainer motivation, and structured frameworks as key drivers of program success (Mana-ay, 2020; Bambara et al., 2012). By leveraging these enablers, TESDA-ISAT can improve its food safety training programs and ensure that trainees are adequately prepared for industry demands.

Table 3. Mean and Standard Deviation on Adequacy of Food Safety Training Content, Methods, and Delivery

Indicators	Mean	Verbal Interpretation
1. Training content is aligned with current industry standards.	4.15	Agree
2. Delivery methods used are suitable for different learner types.	4.05	Agree
3. The duration of training is enough for competency development.	3.85	Agree
4. Content is appropriate for trainees' academic and technical background.	4.10	Agree
5. There is a balance between theory and hands-on practice.	4.20	Agree
6. Evaluation tools effectively measure learning outcomes.	4.00	Agree
7. Trainers use learner-centered approaches in teaching.	4.05	Agree
8. There are visual aids and manuals available for trainee use.	3.90	Agree
9. Simulations or real-life tasks are part of the training process.	4.25	Strongly Agree
10. Feedback mechanisms exist to assess training effectiveness.	4.00	Agree
Overall Mean	4.06	Agree

Table 3 presents respondents' perceptions of the adequacy of food safety training content, methods, and delivery in TESDA-ISAT. The overall mean of 4.06, verbally interpreted as Agree, suggests that respondents generally view the training programs as adequately meeting industry standards and learner needs, though some areas may still require enhancement. This aligns with Cotter et al. (2022), who noted that while food safety training programs often enhance knowledge, methodological gaps in program design and delivery can limit overall effectiveness.

The highest-rated indicator is "Simulations or real-life tasks are part of the training process" ($M = 4.25$, $SD = 0.76$), interpreted as Strongly Agree. This finding underscores the value of hands-on, competency-based approaches where trainees directly practice workplace-relevant skills. Rennie (1994) emphasized that training conducted in contexts closer to real work environments is more effective in shaping actual food handling behaviors compared to abstract or purely classroom-based methods.

Meanwhile, evaluation-related indicators, "Evaluation tools effectively measure learning outcomes" ($M = 4.00$) and "Feedback mechanisms exist to assess training effectiveness" ($M = 4.00$), were rated slightly lower, though still positively. This suggests that while evaluation systems are in place, their capacity to fully capture learner competencies may be limited. Cotter et al. (2022)

emphasized that many training programs remain heavily knowledge-focused and lack comprehensive performance evaluations, which can undermine continuous quality improvement.

Table 4. Mean and Standard Deviation on Institutional, Logistical, and Policy-Level Challenges

Indicators	Mean	Verbal Interpretation
1. Bureaucratic processes delay the implementation of training.	4.10	Agree
2. Training delivery is affected by conflicting institutional schedules.	4.05	Agree
3. Budget limitations hinder the updating of equipment and resources.	4.30	Strongly Agree
4. There is no dedicated monitoring team for food safety programs.	4.15	Agree
5. Misalignment exists between national TESDA policies and local realities.	4.00	Agree
6. Limited access to transportation/internet affects remote site training.	3.95	Agree
7. Trainers have minimal input in institutional planning and budgeting.	4.20	Agree
8. Policy changes are not adequately explained to implementers.	4.05	Agree
9. Reporting procedures are time-consuming and redundant.	3.85	Agree
10. Some trainees face financial constraints that affect attendance.	4.00	Agree
Overall Mean	4.07	Agree

Table 4 presents the respondents' perceptions of institutional, logistical, and policy-level challenges affecting the implementation of food safety training in TESDA-ISAT. The overall mean score of 4.07, interpreted as Agree, indicates that respondents generally recognize systemic and organizational barriers as significant obstacles to effective training delivery.

The highest-rated challenge is "Budget limitations hinder the updating of equipment and resources" (M = 4.30, SD = 0.74). This underscores one of the most pressing issues in vocational education—insufficient financial resources, which prevent laboratories and kitchens from being updated with modern tools and consumables. Similar findings were reported by Mangla et al. (2020) and Ghezzi et al. (2021), who both identified budget limitations as a major obstacle to sustaining effective food safety training.

Another prominent challenge is "Trainers have minimal input in institutional planning and budgeting" (M = 4.20). This suggests that decision-making processes are often centralized, limiting the voices of those with firsthand training experience. Mangla et al. (2020) also highlighted the organizational

challenge of limited trainer involvement in strategic decision-making, which weakens program effectiveness.

Challenges related to logistics and learners also surfaced. Conflicting institutional schedules (M = 4.05) and time-consuming reporting procedures (M = 3.85) illustrate how organizational structures complicate training delivery.

Additionally, limited access to transportation/internet for remote site training (M = 3.95) and financial constraints faced by trainees (M = 4.00) reveal socio-economic barriers. Ghezzi et al. (2021) confirmed that time and funding constraints remain consistent barriers to food safety training across different contexts.

In summary, while individual trainers remain motivated and capable, institutional and policy-level factors constrain training effectiveness. The strongest challenges—budgetary constraints, limited trainer involvement in decision-making, and inadequate monitoring—reflect systemic weaknesses that are echoed in international studies (Mangla et al., 2020; Collado et al., 2015). However, as Mana-ay (2020) noted, strong institutional support from local partners can counterbalance these challenges, underscoring the importance of building collaborative frameworks for sustainable food safety training.

Table 5. Thematic Analysis of Respondents’ Open-Ended Responses on Food Safety Training Implementation

Themes Identified	Frequency (f)	Percentage (%)	Sample Responses
1. Limited Resources and Facilities	18	60.00%	“We lack updated kitchen equipment.” / “Sometimes the tools are incomplete.”
2. Time and Workload Constraints	15	50.00%	“The training schedule is too short.” / “We juggle teaching and administrative duties.”
3. Need for Continuous Training/Professional Development	12	40.00%	“We need more seminars on updated food safety standards.”
4. Strong Administrative and Policy Support	10	33.33%	“Our admin is supportive when we request materials.” / “Policies guide us properly.”
5. Trainee Motivation and Participation	8	26.67%	“Students are sometimes absent or not attentive.”

6. Financial and Socio-Economic Barriers	7	23.33%	“Some trainees cannot afford transportation or materials.”
7. Sustainability of Food Safety Practices	5	16.67%	“After training, it is difficult to sustain practices without monitoring.”

Table 5 presents the thematic analysis of open-ended responses from the 30 respondents regarding the challenges, enablers, and areas for improvement in food safety training implementation. Seven major themes were identified, reflecting both institutional and individual-level concerns.

The most frequently mentioned theme is Limited Resources and Facilities (60%). Respondents consistently emphasized the lack of functional equipment, outdated training materials, and inadequate facilities. This theme reinforces the findings from the quantitative section (Table 8 and Table 11), where equipment and resource inadequacy emerged as major barriers. Research on food safety training echoes this issue, identifying inadequate equipment, outdated materials, and insufficient infrastructure as major constraints across various contexts (Yang Liu, 2025; Parraga et al., 2025). The consistency across data sources strengthens the conclusion that improving facilities is a top priority for TESDA-ISAT in order to align with industry standards.

The second most prominent theme is Time and Workload Constraints (50%). Many respondents noted that the limited training duration and overlapping responsibilities—such as administrative duties assigned to trainers—restrict their ability to deliver comprehensive food safety sessions. Similar findings appear in previous research, which highlights how overlapping tasks and compressed training schedules significantly impact the effectiveness of food safety education (Yang Liu, 2025). This echoes the high mean scores in the barriers section, confirming that institutional workload distribution and scheduling remain critical issues.

Other themes include Trainee Motivation and Participation (26.67%), which suggests that student engagement levels vary, affecting the quality of training outcomes. Respondents noted issues such as absenteeism and lack of attentiveness among some trainees. This concern aligns with studies identifying learner motivation and preferred learning methods—such as factsheets, interactive sessions, and prerecorded videos—as crucial for effective food safety instruction (Parraga et al., 2025). Financial and Socio-Economic Barriers (23.33%) also surfaced, with respondents pointing out that some learners struggle with transportation costs or lack of personal resources, which hinder consistent attendance. Prior research on underserved groups similarly found that geographic accessibility and socio-economic limitations pose major impediments to food safety training participation (Parraga et al., 2025). Finally, Sustainability of Food Safety Practices (16.67%) was raised, where respondents expressed concern that trainees may not consistently apply food safety practices once training ends, particularly without follow-up monitoring. This challenge reflects

findings from other contexts where the absence of standardized follow-up mechanisms undermines long-term practice adoption (Mulungu et al., 2025).

In summary, the thematic analysis reveals that respondents perceive the main challenges of food safety training as resource inadequacy, time and workload constraints, and limited professional development opportunities. However, they also recognize existing enablers, particularly administrative support and TESDA guidelines. These insights align with broader research (Mana-ay, 2020; Parraga et al., 2025; Yang Liu, 2025) and provide a deeper, more humanized understanding of the quantitative findings, highlighting both systemic and personal dimensions of the challenges and supports shaping food safety training at TESDA-ISAT.

CONCLUSIONS AND RECOMMENDATIONS

The study concludes that the implementation of food safety training in TESDA-ISAT is shaped by a combination of human resource characteristics, institutional conditions, and operational practices. The dominance of trainers among respondents highlights that findings are grounded in actual training experiences, while the inclusion of administrators provides a balanced perspective. Results further reveal that gender, age diversity, educational attainment, and years of experience contribute to a dynamic workforce that blends technical expertise, innovation, and institutional knowledge. However, challenges such as uneven workload distribution, limited resources, outdated materials, and time constraints hinder optimal implementation. Despite these barriers, strong enabling factors—such as administrative support, professional development, collaboration, and stakeholder involvement—indicate that the institution has a solid foundation for improvement. Overall, food safety training at TESDA-ISAT is effective but requires systemic enhancements to achieve excellence.

Based on these conclusions, it is recommended that TESDA-ISAT strengthen support systems for trainers through updated resources, balanced workload distribution, and clear role management. The institution should adopt gender-responsive and inclusive policies, implement mentoring programs across experience levels, and promote continuous professional development aligned with both academic and technical competencies. Standardization and cross-training across TESDA qualifications are also encouraged to ensure consistency and flexibility.

FURTHER STUDY

Furthermore, increased investment in facilities, equipment, and digital tools is necessary to address structural barriers. Strengthening partnerships, enhancing administrative processes, and improving policy communication will further optimize training delivery. By addressing both institutional challenges and workforce needs, TESDA-ISAT can elevate food safety training from adequacy to a more sustainable and high-quality standard.

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