Original Article

Assessment of Technical Competencies and Professional Readiness among BIT-FT Student Interns for School Year 2025-2026: Bridging the Gap Between Academe and the Food Industry

Annie Capin [1,*]

Received: 01 April 2026; Revised: 04 June 2026;
Accepted: 06 June 2026; Published: 10 June 2026

DOI: https://doi.org/10.66074/Q4V8F1K6

Abstract
This study providess a comparative analysis of the technical and soft skills perceived by student interns and those observed by supervisors. The aim was to assess the synchronization of the Bachelor of Industrial Technology (BIT) curriculum with the operational requirements of the food manufacturing industry. Using a mixed-methods research approach, data were collected from graduating interns and their respective industry supervisors to identify potential competency gaps. For Technical Competencies—including Good Manufacturing Practices (GMP), HACCP, Sanitation and Safety, Industrial Skills, and Equipment Operation—mean differences ranged from +0.84 to +1.09 on a 5-point scale, all statistically significant (p<0.05p<0.05 to p<0.01p<0.01, Mann-Whitney U). Students rated themselves near ceiling (grand mean = 4.64 "strongly prepared), while supervisors assigned moderate scores (grand mean = 3.87- "prepared"). In contrast, Soft/Behavioral Competencies — Communication & Coordination, Adaptation & Problem Solving — showed smaller, non-significant gaps (p > 0.10), indicating closer rater alignment. Only Ethics & Industrial Professionalism yielded a significant but modest difference (+0.50 + 0.50, p = 0.04). The largest discrepancy occurred in Sanitation and Safety (+1.09 + 1.09, p = 0.002). Findings suggest a systematic overconfidence bias in technical self-perception, potentially reflecting a curriculum-practice gap where greater academic training emphasizes minimum

[1] Aurora State College of Technology, Philippines
* anniecapin@ascot.edu.ph

Volume 2, Issue 2, June 2026

knowledge over observed, real-world execution. Soft skills may be more accurately self-assessed due to direct, frequent feedback in workplace interactions. Practically, the disparity risks student interference and supervisor dissatisfaction regarding job readiness. To move students from "Prepared" to "Strongly Prepared" status, the study suggests a curriculum improvement strategy focusing on high-fidelity industrial simulations and the development of a proactive food safety culture to ensure full industry preparedness. Recommendations include replacing self-report technical assessments with blind, supervisor-led practical evaluations and using calibration exercises (e.g., sharing this data with trainees) to improve metacognitive accuracy. Addressing this gap is essential for aligning educational outcomes with industry expectations.

Keywords: curriculum alignment, workplace readiness, technical competencies, soft skills competence, internship

1. Introduction

The global food manufacturing sector is currently experiencing unprecedented technological integration, commonly known as Industry 4.0. This era is characterized by the transition from traditional manual work to automated technologies, real-time data monitoring, and stringent global safety regulations (Schwab 2017). For the Philippines and other emerging countries, the food industry remains a pillar of national security and economic stability. As a result, there has never been a greater demand for highly skilled "technologists"—professionals that have both scientific knowledge of food safety and practical experience managing industrial machinery (Augustin et al., 2016).

Academic institutions, particularly those offering the Bachelor of Industrial Technology (BIT), are expected to produce graduates who can instantly contribute to this fast-paced environment. The BIT curriculum, unlike those of other scientific schools, is ideally positioned to focus on the "man-machine interface," emphasizing equipment operation, maintenance, and shop-floor management. On-the-job training (OJT) is an important part of this academic journey. This Work-Integrated Learning (WIL) phase is the ultimate litmus test for Curriculum Alignment, as students must apply classroom theories to industrial realities (Zegwaard & Rowe, 2019).

However, a "preparedness gap" often exists between the college laboratory and large-scale industry. Students frequently experience "reality shock" when confronted with high-speed production quotas, complex industrial responses, or the stringent documentation required for international food safety assessments (Flynn et al., 2013). Furthermore, while students may be technically competent, they frequently struggle with workplace "soft skills" such as inter-departmental communication and ethical decision-making under duress (Succi & Canovi, 2020).

The transition of Food Technology interns for the School Year 2025-2026 is particularly interesting as the industry recovers and evolves in the aftermath of technological advances. There is an urgent need to assess whether the current BIT curriculum remains aligned with the latest industrial standards for food safety, laboratory precision, and equipment operation. If a misalignment is discovered, it may result in underperformance during OJT and decreased employability for graduates (Jackson 2018).

This study thus looks into the level of workplace readiness among BIT-Food Technology students. By examining their performance and perceived preparedness during their OJT, this study aims to provide empirical data that will help the institution improve its curriculum and ensure that its "products"—the students—are well-matched to the expectations of the current food industry.

2. Methodology

2.1 Research Design

This study employed a mixed-methods research design. In this study, quantitative survey ratings were used to measure the magnitude and significance of competency gaps between student interns' current preparedness and supervisors' perceptions. This design was appropriate, as it allows for the collection of quantifiable data that can be statistically analyzed to identify patterns in students' perceived competencies and supervisors' observations. (Creswell & Creswell, 2018). The qualitative open-ended responses explained the reasons behind those gaps. The thematic analysis determines the recurring responses regarding the perceived and observed preparedness of student interns and supervisors.

2.2 Locale of the Study

The study was conducted at Aurora State College of Technology (ASCOT) in cooperation with the Host Training Establishment (HTE), where the BIT Food Technology students' interns were deployed for SY 2025-2026.

2.3 Respondents

The respondents in this study consisted of 25 senior BIT-Food Technology students from Aurora State College of Technology and 7 supervisors from the Host Training Establishment (HTE) where the BIT-FT students were deployed. The researchers utilized purposive sampling, a non-probability sampling technique where participants were selected based on specific criteria (Etikan, et al., 2016))—in this case, being currently enrolled in or having just completed the OJT program and the supervisors/team leaders who directly supervised the student interns.

2.4 Data Gathering Instrument

The primary tool for data collection was a Researcher-Made Survey Questionnaire, modified from the questionnaire used in the related studies (Jackson, 2018; Succi et al., 2020; Kramer et al., 2023). The instrument was divided into four sections: (1) Demographic Profile, (2) Technical Skill Preparedness, (3) Soft Skills Preparedness and (4) Qualitative Gap Analysis. It utilizes a 5-point Likert Scale to measure the intensity of the students' perceptions and supervisors/team leaders' observation:

Scale	*Range*	*Verbal Interpretation*
5	4.21-5.00	Strongly Prepared / Strongly Agree
4	3.41-4.20	Prepared / Agree
3	2.61-3.40	Moderately Prepared / Neutral
2	1.81-2.60	Unprepared / Disagree/Novice
1	1.00-1.80	Strongly Unprepared / Strongly Disagree

2.4 Validity and Reliability of the Instrument

To ensure that the items in the questionnaire were valid and reliable, the instrument was reviewed and validated by experts and other knowledgeable individuals, specifically the faculty of the School of Industrial Technology, for comments, corrections, and enrichment. The instrument was pre-tested among non-respondent students of Aurora State College of Technology, specifically the first-year Bachelor of Industrial Technology major in Food Technology students. Comments and suggestions were gathered and incorporated before the instrument was utilized in this study. Cronbach's Alpha was used in computing the reliability coefficient. Based on the analysis, the result is 0.90, with a verbal interpretation of very reliable.

2.5 Data Gathering Procedure

Upon receiving ethical clearance and approval, the survey was administered online via Google Forms. Respondents were provided with an Informed Consent Form that ensured confidentiality and their right to withdraw at any time. Collected data was kept secured and used solely for research purposes.

During data collection, students and supervisors were provided with the Google link. The students rated as they perceived it, while the supervisors rated as what they generally observed of the students' preparedness.

2.6 Data Analysis Techniques

Frequency counts and percentages were utilized to describe the respondents' demographic profile. The mean was used to determine the technical and soft skills preparedness as perceived by the students and as observed by the supervisors. A t-test was used to determine whether there were significant differences in preparedness, in terms of technical and soft skills, as perceived by students and observed by supervisors.

3. Results

3.1 Demographic Profile

Table 1. Sex and type of respondents.

Respondents	Frequency	Percentage
Students		
Male	7	21.88
Female	18	56.25
Supervisor		
Male	3	9.38
Female	4	12.50
Total	32	100

Table 1 shows the respondents' types and sexes. Female student respondents accounted for 56.25 percent of the group, followed by male students at 21.88 percent. Female supervisors also dominated the supervisor respondents at 12.50 percent, compared with 9.38 percent for male supervisors. These show that gender equality in the food industry is observable; everyone is given equal opportunity.

3.2 Extent of Preparedness on Technical Skills and Competence as Perceived by Students and Observed by Supervisors/Team Leader

Table 2. Summary of descriptive statistics on the perceived preparedness on the technical skills and competencies by students.

Perceive Technical Preparedness	Mean	Verbal Interpretation
Good Manufacturing Practices (GMP)	4.71	Strongly Prepared
Hazard Control (HACCP)	4.69	Strongly Prepared
Sanitation and Safety	4.80	Strongly Prepared
Industrial Skills	4.70	Strongly Prepared
Equipment Operation and Processing	4.60	Strongly Prepared
Overall mean	4.70	Strongly Prepared

The summary of descriptive statistics on the perceived preparedness on technical skills and competence by the students in Table 2 shows the over all of rating of 4.70 that they were "Strongly prepared" as reflected in the verbal interpretation specially on sanitation and safety which got the highest mean of 4.80, this means that they were very particular with it specifically on executing food handling with proper hygiene and safety following standards and policy. It was followed by GMP, with a mean of 4.71, indicating that monitoring and documenting personnel compliance with PPE and handwashing were evident. Industrial skills, with a mean of 4.70, indicate that maintaining product consistency standards and preparing and executing proper cost and portion control are evident. It also shows that hazard control and equipment operation has an expert mean of 4.69 where practical execution of HACCP and food safety audits, conducting "corrective actions and calibrating basic safety tools was evident, and 4.60, where interpreting technical manuals and machine digital interface display was observed, respectively, which means that in these technical skills, interns have lesser preparedness.

Table 3. Summary of descriptive statistics on the observed preparedness on the technical skills and competence by supervisor/team leaders.

Perceive Technical Preparedness	Mean	Verbal Interpretation
Good Manufacturing Practices (GMP)	3.82	Prepared
Hazard Control (HACCP)	3.53	Prepared
Sanitation and Safety	3.67	Prepared
Industrial Skills	3.78	Prepared
Equipment Operation and Processing	3.65	Prepared
Over all mean	3.69	Prepared

Table 3 shows the summary results of the observed preparedness on technical skills and competence of the OJT students/interns by the supervisors/team leaders at the host training establishment where they took their OJT/immersion program. It revealed that the overall mean was 3.69, with the verbal interpretation of "Prepared" observed. All the indicators were also given the "Prepared" verbal interpretation. In the observation as shown in the table, student interns got the highest mean of 3.82 in the GMP where they can execute "clean-in-place (CIP) " and "clean-out-of-place" (COP) procedures. As observed in the industrial skills, the mean was 3.78, indicating that students can follow complex industrial recipes, maintain product consistency standards, set up standardized sensory evaluations, and understand the principles of food/meal planning. In terms of sanitation and safety, which had a mean of 3.67, it shows that student interns can handle food properly, following standard hygiene and safety policies. In terms of equipment operation, which had a mean of 3.65, it reflects that interns are capable of managing blast freezers or cold storage systems, monitoring temperature logs, understanding and performing basic "first line" maintenance, and identifying mechanical "wear and tear" that could lead to physical contamination.

Table 4. Summary of comparative descriptive statistics on the perceived and observed preparedness of the technical skills and competencies by students and supervisors/team leaders.

Perceive Professional Competencies	Mean/*Interpretation*		Overall Mean
	Students	Supervisors/ Team Leaders	
Good Manufacturing Practices	4.71 *Strongly Prepared*	3.82 *Prepared*	4.27 *Strongly Prepared*
Hazard Control (HACCP)	4.69 *Strongly Prepared*	3.53 *Prepared*	4.11 *Prepared*
Sanitation and Safety	4.80 *Strongly Prepared*	3.67 *Prepared*	4.24 *Strongly Prepared*
Industrial Skills	4.70 *Strongly Prepared*	3.78 *Prepared*	4.24 *Strongly Prepared*
Equipment Operation and Processing	4.60 *Strongly Prepared*	3.65 *Prepared*	4.13 *Prepared*
Grand mean	4.70 *Strongly Prepared*	3.69 *Prepared*	4.20 *Prepared*

Table 4 presents a summary of Descriptive Statistics on perceived and Observed Preparedness in Technical Skills and competencies for students and Supervisors/Team Leaders. The grand mean of 4.70 with the verbal interpretation of strongly prepared on the preparedness of technical skills and competencies as perceived by the students signifies that student confidently rate themselves as strongly prepared while their supervisor rated them with the grans mean of 3.69 with the verbal interpretation of "prepared" which implies that the student interns are prepared in terms of skills and competencies but ss observed by their supervisor, they still need enough exposure in terms of industry standard since the college is limited with the industry standard.

3.3 Extent of Preparedness on Professionalism or "Soft" Skills as Perceived by Students and Observed by Supervisors/Team Leader

Table 5 shows that student interns or OJT students perceived themselves as prepared in terms of professional and soft skills, including adaptability and problem-solving, as well as ethics and industrial professionalism, with the highest mean of 4.60, corresponding to the verbal interpretation "strongly agree". It shows that students can adapt to shifting work schedules and fast-paced environments and work effectively within a multidisciplinary team. In terms of ethics and professionalism, students can collaborate with multi-level staff, demonstrate strong teamwork, interpersonal skills, and good customer relations. The communication and coordination skills were rated 4.50, with a verbal interpretation of "strongly agree," indicating that the student intern can perform inventory, translate technical food safety data into simple instructions, and confidently report process deviations or safety "near-misses" to immediate supervisors.

Table 5. Summary of descriptive statistics on the perceived preparedness of professional and soft skills by students.

Perceive Professional Competencies	Mean	Verbal Interpretation
Communication and Coordination	4.50	Strongly Agree
Adaptability and Problem Solving	4.60	Strongly Agree
Ethics and Industrial Professionalism	4.60	Strongly Agree
Overall mean	4.57	Strongly Agree

Table 6 shows the observed professional and soft skills preparedness of the supervisors/team leaders for student interns/OJT students. It revealed that student interns' adaptability and problem-solving skills were rated 4.24, with the verbal interpretation of “strongly agree,” which means they can adapt to shifting work schedules and fast-paced environments and can effectively work within a multidisciplinary team. The student's communication and coordination skills, as observed, were rated 4.10, with the verbal interpretation of “Agree,” indicating that they can perform inventory, write clear and concise shift turnover reports, effectively translate technical food safety data into simple instructions, and report process deviations with confidence. As observed, students' ethics and industrial professionalism were rated 4.07, with a verbal interpretation of “agree,” indicating they adhere to the company’s policy, manage time effectively, collaborate with multi-level staff, and maintain good customer relations.

Table 6. Summary of descriptive statistics on the observed preparedness on professional and soft skills preparedness by supervisor/team leaders.

Perceive Professional Competencies	Mean	Verbal Interpretation
Communication and Coordination	4.10	Agree
Adaptability and Problem Solving	4.24	Strongly Agree
Ethics and Industrial Professionalism	4.07	Agree
Over all mean	4.14	Agree

As shown in Table 7, the summary of Descriptive Statistics on the Perceived and Observed Preparedness on Professional and Soft Skills by Students and Supervisors/team leaders implies that students are professionally prepared based on their perceived preparedness, however, they need to be more conscious of the policies and standards of the real world of work. As observed by the supervisor, they need more exposure and embracement.

Table 7. Summary of comparative descriptive statistics on the perceived and observed preparedness on professional and soft skills by students and supervisors/team leaders.

Perceive Professional and Soft Skills Preparedness	Mean/*Interpretation*		Overall Mean
	Students	Supervisors/ Team Leaders	
Communication and Coordination	4.50 *Strongly Agree*	4.10 *Agree*	4.30 *Strongly Agree*
Adaptability and Problem Solving	4.60 *Strongly Agree*	4.24 *Strongly Agree*	4.42 *Strongly Agree*
Ethics and Industrial Professionalism	4.60 *Strongly Agree*	4.07 *Agree*	4.35 *Strongly Agree*
Grand Mean	4.57 *Strongly Agree*	4.14 *Agree*	4.36 *Strongly Agree*

3.4 Significant Differences in the Perceived Preparedness of Students and Observed Preparedness by the Supervisor/Team Leaders

Table 8 shows the Mann-Whitney U test. It revealed that six (6) of the eight (8) competencies showed a statistically significant difference among the student interns. Specifically, GMP, HACCP, and sanitation and safety (all technical competencies) were identified as showing highly significant differences ($p < 0.01$). Industrial Skills, equipment operation, and ethics revealed significant differences ($p < 0.05$). However, Communication, Adaptation, and problem-solving were not significantly different ($p > 0.05$). This means that student interns consistently rated themselves high, with a mean range of 4.51-4.80, with verbal interpretation of above "agree/prepared," with a perception gap ranging from 0.84 to 1.09 points higher, while the supervisors rated the student interns lower with a range of 3.63-4.19 ("neutral to agree"). This result also shows that the average perception gap on a 5-point scale was 0.77.

The variability pattern shows that supervisors were more variable (GMP, Technical skills), indicating that supervisors disagree more on these competencies. In terms of similar variability (HACCP, Sanitation, Safety, and equipment operation), both groups show consistent ratings. The more variable respondents (communication, adaptation, and ethics) show a wider range of self-perception.

Table 8. Comparison of technical skills and competencies preparedness perceived by students and observed by supervisors.

Competency	Student Mean (SD)	Supervisor Mean (SD)	Mean Difference	Mann-Whitney U	p-value	Significant (α=0.05)
Technical Competencies						
Good Manufacturing Practices (GMP)	4.74 (0.45)	3.75 (0.89)	+0.99	28.5	0.009	Yes ($p < 0.01$)
Hazard Control (HACCP)	4.69 (0.50)	3.63 (0.52)	+1.06	23.5	0.004	Yes ($p < 0.01$)
Sanitation and Safety	4.80 (0.46)	3.71 (0.44)	+1.09	20.5	0.002	Yes ($p < 0.01$)
Industrial Skills & Technology	4.68 (0.48)	3.84 (0.63)	+0.84	31.5	0.016	Yes ($p < 0.05$)
Equipment Operation & Processing	4.58 (0.52)	3.65 (0.57)	+0.93	30.0	0.012	Yes ($p < 0.05$)
Soft/Behavioral Competencies						
Communication & Coordination	4.51 (0.54)	4.12 (0.40)	+0.39	53.5	0.103	No
Adaptation & Problem Solving	4.57 (0.52)	4.19 (0.30)	+0.38	56.0	0.135	No
Ethics & Industrial Professionalism	4.57 (0.51)	4.07 (0.32)	+0.50	45.5	0.040	Yes ($p < 0.05$)
Grand Mean	**4.64**	**3.87**	**+0.77**			

3.5 Primary Challenges or Gaps Identified by Students between their Classroom Learning and the Actual Industry Requirements

3.5.1 Theoretical Foundation vs Operational Reality – The "Knowing How" to "Showing How" Shift

The student-interns reported the identification of a shift from "knowing how" to "showing how". They described the classroom as a "safe zone," an environment centered on conceptual planning, experiments and principles. In this setting, the student is focused on logic, food technology, simulated industry learning, and decision-making under the instructor's guidance. In contrast, the industry environment "test of performance" demands practical application, where student interns are not asked about principles but are tested on how well they can operate industrial equipment under real-world conditions. Responses supporting this include;

Respondent 2 commented, *"A classroom teaches how things are done, while industry tests how well you can actually do them in real conditions"*.

Respondent 3 stated, *"Real work experience. In the classroom, we learn the process and do experiments, industry, however, let us perform the whole process that meets the standards with real situation".*

Respondent 8 said, *"In school, ideal procedures build the foundation while the industry demands speed, flexibility, teamwork and real-time decision making."*

Respondent 17 remarked, *"The biggest gap is the difference between practice theory and actual practice. In the classroom, we focus more on proper procedures and step-by-step cooking, but in the industry, everything is fast-paced, requiring multitasking, time pressure, and teamwork. Also, you need to adjust quickly and be efficient even under stress, which is not fully experienced in the classroom."*

The qualitative feedback shows that the classroom context primarily prioritizes conceptual planning, experiments, principles, and guided visual learning.

3.5.2 Controlled Ideality vs High-Pressure Dynamics – the "Reality Shock"

The classroom offers a controlled and small-scale environment where variables are minimized. If an experiment fails in the classroom, it is a learning opportunity; if a process fails in the industry, it results in financial loss and safety risks. This resulted a "reality shock to student interns, from a less pressured to a highly pressured environment requiring faster paced.

Respondent 6 stated that, *"There is less pressure in the classroom. In food industry, work is faster, more pressured, real customers are served who might complain, precise and accurate and strict."*

The responses highlight that the industry is dynamic and high-pressure. Students are required to follow strict processes while multitasking. The gap here is the "reality shock" of moving from a slow-paced, guided laboratory to a fast-paced industrial floor, précised and accurate with no or limited error.

As mentioned by respondent 13, *"In school, everything is done in a controlled and perfect way. But in the food industry, things move fast. If resources are limited, you need to make decisions."*

3.5.3 The Competency Bridge: Managing the Unexpected

This focuses on the "unwritten curriculum"—the soft skills and problem-solving abilities required to survive the industrial operation. The gap identified by the students involves time management, communication skills, and the management of unexpected issues (complaints or technical glitches).

Remarked by respondent 14, "*Classroom teaches food safety, nutrition facts, recipes, business concepts, prepare dishes, make meal plan, prepare reports, calculate food cost as planned. In the industry, however industry makes you follow their rules, learn the way they want to deal in complicated, high-pressure situations, manage unexpected issues like equipment breakage, customer complaints, last minute order* *changes, handle sudden shortage of ingredients and need to apply food safety rules in fast paced environments"*

While the classroom teaches techniques for "fast-paced movement," the industry demands cognitive resilience. This includes the ability to manage a crisis (unexpected issues) while maintaining professional communication and teamwork.

As observed by respondents 29*, "In school, everything is organized, follow step by step recipe and enough time to finish the task, however in the industry, cooking quickly s mandatory, handle multiple task and only little room for mistakes. Another is skills beyond cooking, soft skills such as teamwork, good communication, ability to handle pressure, customers, and unexpected problems are a must."*

3.6 Specific Tools, Equipment, and Processes used in the Industry that were Unavailable in the College

3.6.1 Technology Resource Gap- Small-Scale vs. Industrial-Scale Equipment

The classroom environment can only simulate tools, equipment, and facilities on a smaller scale due to their cost, scale, and complexity. Generally, the industry focused on speed, efficiency and consistency.

Respondent 37 commented,*" Bigger and more advanced food industry standard equipment was absent from the classroom, maybe due to its cost, scale, and complexity. The industry also uses standardized recipes, inventory control, and food safety procedures. Overall, the industry is focused on speed, efficiency and consistency.".*

The industry relies more on efficiency, precision, and volume, using advanced tools, machines, and modern systems to maintain consistency and meet industry demand. This is supported by respondent 2, *"Industry relies more on efficiency, precision and volume using tools and systems to maintain consistency and meet the demand, while our classroom environment can simulate on a smaller scale."*

3.7 Suggested Improvement for the BIT food Tech Curriculum to Make Future Interns More "Work-Ready"

3.7.1 Immersive Bridging through Simulation and Exposure

The data emphasize that bridging the gap requires a transition from passive learning to active familiarization with industrial scales. Attending exhibits and training sessions was not merely an extracurricular activity but a vital strategy for aligning theoretical knowledge with operational realities. The mention of "industry-scale practical skills" suggests that students realize the limitations of small-scale laboratory tools. Respondent 4 supported this comment with the comment, "Letting students to attend exhibits/trainings in the actual work for familiarization specially the do's and dont's, quality standards and policy will be a great help."

To address this, the findings suggest that the college must provide simulated laboratory environments that are "fully equipped." When the school environment mirrors the toolsets and equipment used in industry, students can adjust to the work environment more effectively and faster. Respondents 3 remarked, "*More practical activities and real-life simulations can be considered. Giving students opportunities to go out to Aurora to explore and gain more experiences will help prepare students better for the real work environment".* Another respondent, 17, said, *"Adding more hands-on training and simulation of the real kitchen environment where students can experience time pressure and teamwork. Also, introducing modern equipment and proper kitchen workflow will help student interns prepare. Extending internship hours or providing more industry exposure can also help prepare students better for real work situations".*

3.7.2 Behavioral Conditioning under Pressure

A critical shift from "learning a task" to "conditioning a behavior" is identified. The responses highlight the need for simulated time-pressure scenarios. In the industrial food sector, speed and consistency are as important as accuracy. By introducing timed simulations in the classroom, students build the confidence necessary to maintain standards when the environment becomes high-pressure. Respondent 29 supported this saying, "*To make student interns work-ready, first, more hands-on training in a real kitchen setting where students experience fast-paced work and actual operation can help adjust to pressure and multitasking. Second, include training on industry-standard equipment and systems, such as inventory management, food safety procedures, and proper kitchen workflow. Lastly, develop soft skills like teamwork, communication and handling customers or problems, since these are important in the workplace".*

This conditioning extends to soft skills behavior, where teamwork and physical/mental strength are viewed as "vital." The industry is not just a place of work but a place of endurance. As stated by respondent 5, *"More experiential learning to improve skills expands beyond cooking, handling bad situations. Workplace behavior such as simulated rush hour scenarios, builds speed, confidence and consistency."*

3.7.3 Technological and Digital Competency Integration

The discussion points toward a growing need for digital competencies alongside manual techniques. Modern food manufacturing involves automated systems and digital documentation (Industry 4.0). The students' desire to familiarize themselves with "digital competencies" during their training reflects the industry's shift toward data-driven quality control and automated processing lines. As quoted by respondent 14, "*Awareness on the use of high-tech equipment in the industry must be considered".*

It was supported by respondent 10, saying *"To bridge theoretical knowledge with industry-scale practical skills, operational realities and digital competency through targeted enhancement. First, integrate industry-grade tools and simulation by investing in scaled-down versions of commercial equipment and setting up a mini production line for hands-on practice. Use software simulations for POS systems, inventory management platforms, and HACCP documentation tools to familiarize student interns with digital workflow. Second, expand practical training with real-world constraints by replacing small-batch assignments with projects requiring large-scale recipe standardization, cost calculation, and quality consistency across multiple batches, and by introducing "challenge scenarios" (e.g., supply chain delays, equipment malfunctions, regulatory changes) to build problem-solving skills under pressure. Lastly, strengthen the technology and regulatory modules by partnering with industry professionals to share case studies on real operational issues.*

3.8 Impact of the results on the Curriculum, Students, Industry, and Supervisors

3.8.1 Impact of the Curriculum

The study's results serve as a critical diagnostic tool for academic administrators and department heads. It will serve as evidence to develop a more technology-driven and industry-aligned curriculum. It will also serve as justification for upgrading the college's facilities to simulate better the high-pressure, complex environment of the food industry. Soft skills integration highlights the need of inserting "Industrial Communication" and "Food Safety Culture" components into the professional subjects.

3.8.2 Impact on the Students

The students experience a transition from a theoretical confidence to operational competence. The study helps students manage the "reality shock" by providing a clearing view of the technical and ethical rigidities of the workplace. As graduates who have trained under an aligned curriculum are more likely to be "expert", they are more competitive in the job market. Identifying their own "perception gaps" encourages a lifelong learning and self-correction mindset for professional growth.

3.8.3 Impact on the Food Industry

The industry will benefit from a more predictable, high-quality workforce. By aligning the curriculum with industry standards, needs, and priorities, food industries spend less time and money on remedial training for new hires. As the students have adopted "behavior-based safety," the risk of industrial errors and contamination during the Internship period decreases.

3.8.4 Impact on the supervisors

As the supervisor's role shifts from “basic instructor” to “industrial mentors”. The study provides a clearer framework for supervisors to assess interns, moving away from subjective ratings towards objective, competency-based ratings. Onboarding will be easier, as well-prepared interns and supervisors can focus on higher-level mentoring rather than going back to basics. Operational efficiency is attained when interns are well prepared. They contribute positively to the production quotas and safety audits rather than becoming a liability.

4. Discussion

The dominance of females among the respondents clearly signifies gender equality in the food industry. Atchley (2025) reported that women managers are documented as aligned with company values, respected by peers, and granted access to flexible policies.

The primary quantitative findings of this study are a significant and systematic gap between BIT-FT student interns' self-ratings and their supervisors' evaluations. With students interns consistently overrating their technical competence, while supervisors assigned only moderately preparedness assessments, particularly in technical competencies (GMP, HACCP, Sanitation & Safety), where gaps exceed 1.0 point on a 5-point scale, indicating substantial misalignment between self-perceived and observed readiness that requires immediate attention. Supervisor variability in rating GMP and Industrial Skills suggests inconsistent standards that need calibration. Qualitative feedback reveals that the classroom setup primarily prioritizes conceptual planning, experiments, principles, and guided learning. In the industry, practical application and actual performance under real-world conditions. They evaluate not what a student understands conceptually, but how effectively and efficiently they perform (“Show How”) a method that meets industry standards.

The qualitative findings expand on the quantitative results by clarifying “why” the gap exists. This quantitative result is complemented by qualitative findings that explain why the gap exists. Students themselves noted a clear shift from “knowing how” to “showing how,” describing the classroom as a “safe zone” for conceptual learning with instructor supervision, as opposed to the industry as a “test of performance” with actual execution under real work conditions. The qualitative theme of “Controlled Ideality vs. High-Pressure Dynamics” offers further insight into the technical competency gaps: students reported that classroom failure is a relatively low-stakes learning opportunity, whereas industry failure can result in financial losses and safety risks. As noted by Narain et al. (2023), the industry serves as a “live laboratory” where the standard of success is not a grade on a paper, but the output that meets commercial/industry safety standards in the actual environment. It involves multitasking and following community-standard processes. According to Flynn et al. (2013), this "ideality gap" occurs because academic settings often lack the "noise" of industrial operations, such as broken machinery, staff shortages, and rigid production deadlines.

Technical skills are more observable and measurable, providing a clearer basis for disagreement, compared to soft skills, which may be considered more subjective, enabling both parties (student intern and supervisor) to interpret behaviors similarly. However, respondents may be more accurate in self-assessing soft skills, since both parties perceived and observed the competence similarly. This supports the findings of Jackson (2018), who argued that workplace readiness is not just about technical "hard" skills, but the ability to navigate the social and operational complexities of a professional team under stress. According to Alkhaldi et al. (2025), while successful classroom testing can boost students' confidence, they frequently struggle with the "behavioral readiness" needed to address real-time process irregularities on a production line. Furthermore, supervisors' "Prepared" ratings indicate that, while students are work-ready, they lack the operational autonomy anticipated of an experienced industrial technologist (Flynn et al., 2013).

Soft skills show better alignment, with communication, coordination, adaptation, and problem-solving demonstrating no statistically significant difference, suggesting closer rater alignment. Ethics and industrial professionalism as soft competencies show a significant but smaller gap, requiring shared understanding development. This pattern supports the presence of a self-enhancement bias among students, in which academic success in controlled environments inflates confidence without corresponding real-world execution ability—a phenomenon previously documented by Alkhaldi et al. (2025), who noted that successful classroom testing does not guarantee behavioral readiness on a production line. The result also shows higher performance standards for the supervisors. Lack of feedback and social desirability have a medium gap, due to respondents' lack of awareness of the performance gap and their tendency to rate themselves favorably.

A comparable, if slightly smaller, significant difference was found in Professional and Soft Skills Preparedness. While students were confident in their flexibility and ethics, supervisors found a severe gap in Communication and Coordination. The supervisors' lower grade suggests that interns may fail to interpret technical facts into clear, actionable directions for various levels of production staff. This is consistent with Jackson's (2018) findings, which indicate that "work-ready" graduates often lack the industrial language and interpersonal skills needed to bridge the gap between academic theory and professional practice. Furthermore, the lower supervisor scores in Ethics and Industrial Professionalism indicate that students have yet to internalize a "Food Safety Culture fully," which necessitates proactive risk identification rather than passive rule-following (Griffith et al., 2010).

One's first impression of the non-significant differences in Communication and Adaptation when looking at soft skills may lead one to assume that students are accurately assessing themselves on these skills. But the qualitative data suggest a more nuanced reading. Students identified "Managing the Unexpected" as a major challenge and named time management, crisis communication, and problem-solving under stress as the “unwritten curriculum” that is not formally taught. This mismatch between high self-ratings (quantitative) and descriptions of struggle (qualitative) suggests that the quantitative agreement may result from mutual leniency or a universally shared interpretation of the situation, rather than actual mastery. Jackson (2018) found that work-ready graduates often lack the industrial language and interpersonal accuracy to bridge academic theory with professional execution, a finding echoed here. The qualitative theme “Behavioral Conditioning under Pressure” further elaborates that students grasp the necessity of timed simulations and stress inoculation, the very ingredients missing that would turn self-reported confidence into supervisor-identified competence.

The integration of mixed methods is perhaps most striking in the realm of ethics and professionalism. This was quantitatively significant, as the students rated themselves (“Strongly Agree”) and the supervisors rated (“Agree”). Ethics was defined by students qualitatively as teamwork, interpersonal skills and customer relations. However, supervisors may use a different standard for their lower ratings, e.g., a proactive food safety culture versus a passive rule-following approach, as discussed by Griffith et al. (2010). There were no qualitative student responses concerning proactively identifying risks, taking ownership of incident reporting, or making ethical decisions under production pressure. This suggests students equate ‘being polite and punctual’ with professionalism, whereas supervisors expect anticipatory compliance. This gap is not merely perceptual, but behavioral, hence the statistical significance even for a soft competency.

Lastly, the qualitative themes on “Technology Resource Gap” and “Technological and Digital Competency Integration” add explanatory depth to the quantitative finding that Equipment Operation showed a gap, with students specifically reporting experience with manual sealers, while industry uses automated continuous band sealers and school blast freezers rather than full cold storage systems. Schwab (2017) argues that technical graduates need to be digitally literate to manage the man-machine interface of modern factories in the context of Industry 4.0. In the study by Hassoun et al. (2024), a notable and progressive transition from a technology-driven, efficiency-focused model of Industry 4.0 emphasizes the importance of developing and implementing technologies that increase efficiency. Without the complex, resource-intensive integration of advanced technology, students will continue to overestimate their preparedness while supervisors observe only moderate readiness. The curriculum must therefore transition from rule-following exercises to an internalized, proactive food safety culture supported by realistic, pressure-tested simulations and blind, supervisor-led practical assessments.

Finally, these findings show that the BIT-Food Technology curriculum is effective in laying the groundwork for competence, but it requires a more robust integration of industrial simulation and scenario-based soft-skill training to achieve true industry alignment. When a curriculum isolates technical operations from real-world crisis scenarios, it leaves graduates poorly equipped to handle unexpected disruptions, which are common in modern industrial manufacturing (Zegwaard et al., 2019). The immediate implication is that the course syllabi must be redesigned to shift from passive classroom laboratory planning to active mechanical executions.

To further enhance studies related to this, may consider including calibration sessions for supervisors, individual feedback for student interns with the largest gaps, the development of shared competency rubrics, and reassessment after interventions. Priority should be given to the three technical competencies with gaps, such as adding blind, where supervisor–led practical assessment precedes student self-evaluation, and conducting audits in real production lines. The suggestion to extend internship hours and industry exposure implies that the current timeframe may be insufficient for students to fully internalize the professional stamina required for long-term careers in manufacturing (Zegwaard & Rowe, 2019).

5. Conclusion

The study shows that there is a statistically significant "Perception Gap" between BIT-Food Technology students' self-perceived workplace readiness and the actual performance evaluation by industry supervisors. While the College curriculum successfully instills high theoretical confidence in student interns, leading them to perceive themselves as "strongly prepared," the industry evaluation classifies them as "prepared." This critical discrepancy is most pronounced in high-stakes technical domains, specifically Hazard Critical Control Point (HACCP) and Industrial Equipment Operation, along with a recognized soft-skill deficiency in communication and coordination.

The key implication of the findings requires an immediate paradigm shift within the educational framework. The transition of students from conceptual knowledge to operational autonomy requires a curriculum that shifts from traditional to an immersive, technology-driven approach. This conversion necessitates upgrading the college facilities to fully equipped, high-fidelity simulation laboratories and integrating time-pressured, high-stress, milestone-based, problem-based learning situations in the classroom that mimic real-world work friction, equipment deviations, and customer complaints. Introducing this build, interns' physical and mental endurance is hence minimized, "reality shock". Adopting problem-based learning methods that include intentionally designed failures forces students to practice active crisis management and fast-paced communication before facing real financial risk on the job.

Finally, this research provides a dual contribution to both academia and the food industry. For academe, it offers an experiential, data-driven framework for curriculum development, calibration, and resource allocation, highlighting the necessity of teaching behavioral "Food Safety Culture" rather than static compliance. For the food industry sector, it will serve as a collaborative to reduce training overhead, standardize evaluation mechanisms, and secure a highly resilient, adaptive workforce capable of navigating the complex, fast-paced demands of current food manufacturing production lines.

Acknowledgment

Sincere acknowledgment and appreciation are extended to the ASCOT administration for the opportunity to conduct this research study. Gratitude is also expressed to the faculty of the School of Industrial Technology–Food Technology section for the inspiration provided. The participation of the OJT interns and supervisors/team leaders from different HTEs as respondents in this study is gratefully recognized. Appreciation is likewise extended to family, friends, colleagues, peer reviewers, and all others who, in one way or another, contributed to the success and improvement of this work.

Conflict of Interest Statement

The author declares no conflicts of interest and ensures transparency in the publication process.

References

Alkhaldi, S., Hod, R., Isa, Z. M., Idris, I. B., & Karim, N. (2025). The impact of food safety training programs on knowledge, attitude, and practice on food safety among migrant workers–a review. *Current Research in Nutrition and Food Science Journal*, *13*(2), 541-558. http://dx.doi.org/10.12944/CRNFSJ.13.2.1

Augustin, M. A., Riley, M., Stockmann, R., Bennett, L., Kahl, A., Lockett, T., Osmond, M., Sanguansri, P., Stonehouse, W., Zajac, I., & Cobiac, L. (2016). Role of food processing in food and nutrition security. *Trends in Food Science & Technology*, *56*, 115-125. https://doi.org/10.1016/j.tifs.2016.08.005

Atchley, C. (2025), Closing the gender gap in management. https://www.foodbusinessnews.net/articles/print/28544-closing-the-gender-gap-in-management

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications. https://scholar.google.com.ph/scholar?q=Creswell,+J.+W.,+%26+Creswell,+J.+D.+(2018).+Research+design:+Qualitative,+quantitative,+and+mixed+methods+approaches+(5th+ed.).+SAGE+Publications.&hl=en&as_sdt=0&as_vis=1&oi=scholart

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). *Comparison of convenience sampling and purposive sampling*. American Journal of Theoretical and Applied Statistics, 5(1), 1-4. https://doi.org/10.11648/j.ajtas.20160501.11

Flynn, K., Wahnström, E., Popa, M., Ruiz-Bejarano, B., & Quintas, M. A. (2013). *Ideal skills for European food scientists and technologists: Identifying the most desired knowledge, skills and competencies*. Innovative Food Science & Emerging Technologies, 18, (2) 246-255. https://doi.org/10.1016/j.ifset.2012.09.004

Griffith, C. J., Livesey, K. M., & Clayton, D. A. (2010). *The assessment of food safety culture*. British Food Journal, 112(4), 439-456. https://doi.org/10.1108/00070701011034448

Hassoun, A., Jagtap, S., Trollman, H., Garcia-Garcia, G., K. Duong, L. N., Saxena, P., Bouzembrak, Y., Treiblmaier, H., Parra-López, C., Carmona-Torres, C., Dev, K., Mhlanga, D., & Aït-Kaddour, A. (2024). From Food Industry 4.0 to Food Industry 5.0: Identifying technological enablers and potential future applications in the food sector. *Comprehensive Reviews in Food Science and Food Safety*, *23*(6), e370040. https://doi.org/10.1111/1541-4337.70040

Jackson, D. (2018). Developing Graduate Career Readiness in Australia: Shifting from Extra-Curricular Internships to Work-Integrated Learning. *International Journal of Work-Integrated Learning, 19(1), 23-35.* https://ro.ecu.edu.au/ecuworkspost2013/4456/

Kramer, A., Hoover, E. R., Hedeen, N., DiPrete, L., Tuttle, J., Irving, D., Viveiros, B., Nicholas, D., Monroy, J. A., Moritz, E., & Brown, L. (2023). Development of an Empirically Derived Measure of Food Safety Culture in Restaurants. *Journal of Food Protection*, *86*(3), 100043. https://doi.org/10.1016/j.jfp.2023.100043

Narain, D., & Dwivedi, R. (2025). Importance of Internship in Bridging the Gap between Industry and Academia. *International Journal of Advanced Research in Science Communication, and Techhnology*, *6*(3), 92-96. https://inspirajournals.com/uploads/Issues/1258681330.pdf

Schwab, K. (2016). The fourth industrial revolution. In *World Economic Forum* (Vol. 12). https://www.academia.edu/download/52565109/01_The_Fourth_Industrial_Revolution.pdf

Succi, C., & Canovi, M. (2020). Soft skills to enhance graduate employability: comparing students and employers' perceptions. *Studies in Higher Education*, *45*(9),1834–1847. https://doi.org/10.1080/03075079.2019.1585420

Zegwaard, K. E., & Rowe, A. D. (2019). *Research-informed curriculum and advancing innovative practices in Work- integrated Learning*. International Journal of Work-Integrated Learning, 20(4), 323-334. https://www.ijwil.org/files/IJWIL_20_4_323_334.pdf

Author Contributions: Capin, A.; Study design, method conception, data collection, data analysis and manuscript writing.