

# EVALUATING THE OUTCOMES OF TECHNICAL-VOCATIONAL EDUCATION AND TRAINING TOWARDS DEVELOPING SKILLS FOR THE TOURISM SECTOR

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## ABSTRACT

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**Received:** 17 March 2022  
**Revised:** 18 October 2022  
**Accepted:** 25 October 2022  
**Published:** 16 June 2023

**Citation:**  
Sumaya, A. A., & Ortega-Dela Cruz, R. A. (2023). Evaluating the outcomes of technical-vocational education and training towards developing skills for the tourism sector. *Humanities, Arts and Social Sciences Studies*, 23(2), 284–296.

Quality technical vocational education and training is one of the responses of the Philippine government to address unemployment. But an assessment of trainees in one Technical Education and Skills Development (TESDA) institution in Taguig City revealed low to very low scores in twenty-first century skills. The use of multiple levels of evaluation under the Level one and Level two of Kirkpatrick Model were carried out. The objectives were to determine the level of twenty-first century skills and competence of trainees; to assess the achievement of learning outcomes in Technical-Vocational Education and Training (TVET); and to analyse the relationship between the outcomes and level of twenty-first century skills. Statistical analysis showed significant difference between pretest and posttest scores implying the effectivity of the selected tourism qualifications to develop employable skills. Tests for twenty-first century skills highlight some improvement in scores. Results of the statistical test reveal insufficient evidence to suggest a significant relationship between the variables. The gaps and issues raised include the time-consuming procedures of competency-based training, underutilization of work-based training delivery and uneven administrative support processes. This study recommends a focus on a systems perspective approach in terms of planning professional development, improving administrative mechanisms and giving timely feedback

**Keywords:** Twenty-first century skills; technical-vocational education and training; evaluation

## 1. INTRODUCTION

Education for all has been one of the primary mandates of the Philippine government. The constitution even commands the state to give priority to education, and to protect and promote the rights of all citizens to quality education at all levels. This means that the government must take the appropriate steps to make education accessible to all for it is a relevant and essential component of national development. Further, in this time of globalization, it is imperative that the country's educational system is comparable with its neighbouring countries and even across the world so that Filipino graduates and professionals are competitive in the global

arena. According to the National Economic and Development Authority (NEDA), in the case of medium-term plans, the Philippine Development Plan 2017-2022 also includes lifelong learning opportunities for all to reduce inequalities in human development (NEDA, 2017). The reason for its prominence across all development plans is that education is considered as both a means and an end to the state and its citizens. With competent education, citizens are enabled to realize their full potential as well as to contribute to nation-building.

The rapid globalization and changes in the world economy have implications in the employability of Filipinos. In 2015, the Philippine economy grew by 5.8 %. This was driven by the high employment rate posted at 93.7 %. The services sector had the highest share of the total employment with 54.7% while the industry sector got 16.2 % and the agricultural sector employment share reached 29.1% (Technical Education and Skills Development Authority [TESDA], 2015).

The Technical Education and Skills Development Authority (TESDA) has its share in producing the skilled workforce across these sectors. The conduct of Study on Employability of TVET Graduates (SETG) yearly provides evidence and confirmation that Technical Vocational Education and Training or TVET graduates are being employed. There are three modalities of training where these graduates are coming from: institution-based, community-based and enterprise based. Institution-based training refers to training conducted by a technical vocational institution in the traditional classroom setting. Community-based training on the other hand refers to training conducted outside the classroom and in the community where the training is needed. Lastly, Enterprise-based training, as the word implies, is training held in the industry or the company by either under Dual Training System or Dual Training Program and Apprenticeship Program or Learnership Program. All these imply that the skills being taught and developed through TVET play a part towards getting a job (TESDA, 2015). However, there is still the question whether the skills they learned are enough for the jobs in the future. Many educators term these as twenty-first century skills.

In October 2016, 150 trainees of TESDA Women's Centre (TWC) participated in a nationwide assessment conducted by the Philippine Talent Mapping Initiative (PTMI), coordinated with the Department of Labour and Employment and the Public Employment Service Office. The objective of the assessment and survey is to measure the trainee's skills profile on the workforce development. The tool used was based on a standardized test aligned on twenty-first century skills. The results of the assessment concluded that the participants from the institution garnered low to very low scores across most of the twenty-first century skills (Del Rosario, 2017). Being one of the renowned TESDA-Technology institutions in the country funded by taxpayers and with six of the flagship program qualifications of TWC belonging to the Tourism sector which is highly in-demand for both technical and critical job skills, this prompted the Centre Chief to revisit the contributing factors in the institution that led to such assessment outcomes. Hence, the rationale for this study.

The lead agency of TWC is TESDA. With its vision to be "the transformational leader in the technical education and skills development of the Filipino workforce", its graduates are expected to be equipped with the skills and knowledge to meet the global demand. This is reflected on the agency's National Technical Education and Skills Development Plan which identified the most sought-after skills that a Filipino worker must possess in the twenty-first century. The skills identified comprise the following characteristics: 1) technically competent; 2) innovative and creative; 3) knowledge based, with higher order thinking (HOT) skills; 4) with foundational life skills; 5) in pursuit of lifelong learning opportunities; and 6) possessing desirable work attitudes and behaviour. However, based on the results of the latest assessment of twenty-first century skills, it can be inferred that trainees of TWC have low to very low competence in those crucial characteristics. The results might have an effect on the graduates' employability and readiness for work.

The research study of the Guidance Counsellor of TWC regarding the assessment conducted recommended that exertive effort needs to be done to properly inculcate twenty-first century skills to the centre's trainees including revisiting all the curricula, review of training regulations as well as proper incorporation of learning outcomes into day-to-day classroom discussion and workshop activities (Del Rosario, 2017). The study further noted initial steps to embed twenty-first century skills in the curriculum of basic competencies. The emphasis on embedding these skills still requires feedback. This research is a step towards addressing the recommendation of the previous study as well as adding new knowledge about TVET in the context of the Philippines, its teaching and learning approaches and how it can or cannot develop twenty-first century skills.

The twenty-first century skills are a growing recognition that individuals need a wide array of knowledge to meet the needs of the modern workplace especially in today's world (Del Rosario, 2017). These skills or competencies are considered crucial components in ensuring the readiness of graduates for their careers. These skills go beyond simple academic knowledge- they reflect the broad and changing perceptions in the use of education such as technology, globalization, migration, and competition. These changes in the world pose new ways of thinking, learning, and working in order to succeed (Soland et al., 2013).

Among the varied and famous sets of twenty-first century skills, the American Management Association 2010 Critical Skills Survey states that the “Four Cs” namely (a) critical thinking and problem solving; (b) communication; (c) collaboration and (d) creativity and innovation are needed in the professional business field and will become even more important to workforce organizations in the future. There is presently little research in the Philippines dedicated to evaluating the enhancement of these skills and more so its relation to TVET. Distinct researches are concentrated more on evaluation of TVET programs to measurable effects employment (Deitmer and Heinemann, 2009), while others are focused on standardized performance indicators including 1) completion of courses and 2) completion of qualifications (Liu & Clayton, 2016).

The Philippines is in a unique position where there is a surplus in skilled individuals for the Tourism sector while the rest of Asia is experiencing a deficit (TESDA, 2016). This means that the country is producing more graduates for the sector than most countries. However, the same report stated that the curricula of tourism courses are disjointed with international standards of services such that graduates are often stuck at low-paying positions. Based on the Tourism Development Plan of the country, TESDA plays a crucial role in ensuring that the qualifications undergo assessment at par with the region’s standards as well as maintaining a registry of certified workers. One of the main recommendations of the report is to review the training regulations continuously to provide a more substantial education resulting in competent workers with a definite edge in the international labour market (TESDA, 2016).

With the centre’s all-female trainers in Bartending National Certificate (NC) Level II, Bread and Pastry Production NC II, Food and Beverage Services NC II and Housekeeping NC II and having distinct facilities for each one combined with its Competency-Based Training (CBT) curricula and other courses, the low to very low scores of TWC trainees in a standardized assessment of twenty-first century skills are indicative of the challenges faced by the institution in achieving its lead agency’s mandate. This may have implications on the employability of graduates of TWC programs in the future, specifically for the services sector which includes the tourism industry. Hence, an evaluation of the outcomes of technical vocational education and training in the context of developing skills for the tourism sector was conducted. In this case, evaluation refers to the results of an assessment or appraisal to TWC and its TVET programs in relation to stated objectives, standards, or criteria, with focus on four currently running programs under the tourism sector catering to both men and women. The evaluation and measurement of process in TVET is considered multifaceted and demanding (Liu & Clayton, 2016). Thus, there is a need to balance the evaluation of both in the framework to be used for TVET.

The purpose of this research study is to evaluate the outcomes of technical vocational education and training, with particular focus on tourism sector as it relates to the development of twenty-first century skills in TESDA Women’s Centre. Specifically, the study (i) determined the level of skills and competence of trainees following the Learning and Innovation Skills Framework from Partnership for twenty-first Century Skills (2015), including critical thinking, communication, collaboration, creativity and innovation; (ii) assessed the outcomes of technical vocational education and training in terms of achievement of its intended learning outcomes; and (iii) analysed the relationship between the achievement of learning outcomes and level of twenty-first century skills.

This study is significant to TWC in providing insights on what are the strengths and weaknesses of the institution are in developing 21st century skills for its trainees, making the training management unit aware of how curriculum, instruction, assessment and learning environment factor in the development of critical job skills and competencies trainees ought to learn. This study is also significant to technical-vocational institutions and curriculum developers as reference for designing or redesigning programs that address 21st century skills development.

## 2. MATERIALS AND METHODS

### 2.1 Research design

The study employed mixed method research design, specifically the combination of descriptive and correlational methods. The qualitative aspect was done through surveys, focused group discussions and questionnaires to obtain pertinent information. Key Informant Interviews with administration and management personnel were also conducted. The correlation was applied to determine the relationship between outcomes of TVET and twenty-first century skills developed during the training using quantitative data. The Kirkpatrick Four-level model was the framework to which evaluation was conducted at every crucial point in the training. One study points the effectivity and adaptability of the evaluation model in planning the training intervention and helping trainees and employers understand the factors that facilitate training transfer and produce results (Moldovan, 2016). For higher education, the model has been observed to help clarify the criteria and create plans for assessment of educational outcomes in which specific instruments and

indicators are likened to corresponding criteria (Praslova, 2010). This means that the model provides context for understanding the role of various indicators in the overall picture of assessment.

## **2.2 Theoretical framework**

The study incorporated Systems Theory in the methodology, analysis, discussion of results and recommendation of courses of action. According to the theory, institutions of education can be understood as open systems connected to their environment in various ways, including input, output and feedback (Praslova, 2010). As elements such as outcomes, outcome-related standards and increased access to information are introduced to the system, educational institutions have to incorporate these in the management of objectives (Anderson et al., 2019). This implies that the Systems Theory can be applied in TVET as the evaluation and feedback loop is a fundamental component in the process of continuous improvement of its programs.

## **2.3 Selection of respondents**

Random sampling method was used to determine the number of trainees who took the twenty-first century skills test and whose TVET outcomes were monitored. From a population of 94 trainees in total for the four program qualifications of tourism sector that were considered, 76 trainees were included in the study through stratified random sampling. These were the program qualifications currently running during the data gathering phase. Given that the trainees who took the first 21st century skills assessment have already graduated, it is important to determine if the current trainees were able to develop the said skills alongside technical-vocational skills. Purposive sampling was used for the key informant Interviews of the faculty and administrative officials as well as the focused group discussions of the graduates of the training centre due to the limitation of number of interviewees. Selection was limited to the availability of the trainers and officials, with three out of four trainees attending the discussion, while two officials were interviewed and corresponded through phone calls. The five graduates included in the focused group discussion were those who accepted the invitation and were available on the day.

## **2.4 Instrumentation**

The research study employed pre- and post-test for the hard skills or the main outcomes of the technical-vocational education and training. A variety of identification questions, true or false statements, and matching type were present in the tests of Food and Beverage Services NC II, Housekeeping NC II and Bartending NC II. For Bread and Pastry Production NC II, there were questions that require computations such as conversion of units. All tests have a total score of 40 points. Based on the telephone conversation with the proponents of the tests, the instrument has been used since 2017 for their trainees.

For the twenty-first century skills assessment, the researcher adapted free electronic sources of standard tests for critical thinking, collaboration, and creativity. The final assessment tool used a combination of questions of the Watson-Glaser-type of test for critical thinking skills with 16 items, situational judgment type of test for collaboration comprised of ten questions, Remote Associates type of test for Creativity comprised questions and an English language proficiency test for communication comprised ten questions.

There was an evaluation form answered by the sample population for the first level of the Kirkpatrick Model of Evaluation at a pre-determined period of the institutional training. The researcher adapted an 11-item five-point Reaction rating scale adapted from the Iowa ESL Regional Training Activity Evaluation form, which is part of the Centre for Applied Linguistics website. The statements were classified into an evaluation of the four components of TVET outcomes: 1) curriculum, program goals and objectives; 2) instruction and training methodologies; 3) learning experience; and 4) achievement of learning outcomes. The level of agreement was translated to the following ordinal score: Strongly Agree = 5; Agree = 4; Neutral = 3; Disagree = 2; Strongly Disagree = 1. The same form was used across all sectors as the statements refer to general reactions about the training.

Focused group discussions were employed to gather pertinent data from a set of graduates of the tourism sector and a separate one for trainers of tourism-related programs. Key informant interviews from the Supervising Technical Education and Skills Development Specialist and the Training Management Unit Head of TWC were conducted to discuss the process as well as the outcomes of the training from the perspective of the administration.

## **2.5 Data analysis**

TVET and twenty-first century skills were analysed using descriptive statistics including frequency distribution and percentages computed based on the number of observations. Descriptive statistics was also used to present the test scores for the 4Cs. For the frequency distribution and percentages, Microsoft Excel was the software used. For the other analysis, the Statistical Package for Social Sciences (SPSS) was used. The qualitative data were presented in frequency distribution tables and used to support quantitative data where they are applicable.

The first level of evaluation was computed using frequency distribution. The T-test for Paired Two Sample for Means was used to determine the significant difference of pre-test and post test scores of the sample population using a standardized test from a similar institution. Spearman's (rho) rank order correlation was used to test for significance and direction of correlation. The post test scores of the trainees on the evaluation of TVET outcomes were considered as the dependent variable while the scores of the twenty-first century skills were used as the independent variable. The scores on the twenty-first century skills test used a five-point Likert scale to have an ordinal rating from a frequency distribution formulated based on the number of items per type of test taken.

The results of the tests together with the information gathered from the focused group discussions and key informant interviews were analysed using content analysis and comparisons from the answers of other stakeholders.

### 3. RESULTS AND DISCUSSIONS

#### 3.1 Level of skills and competence of TWC trainees

The results of the adapted twenty-first Century Skills Test are presented in Table 1.

**Table 1:** Frequency of Scores in Twenty-First Century Skills Test per Program, 2019

	Score Range	Creativity		Collaboration		Critical Thinking		Communication	
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
<b>FBS NC II</b>	Very High	6	33.3	2	11.1	2	11.1	4	22.2
	Above Average	0	0.00	0	0	10	55.6	8	44.4
	Average	1	5.56	3	16.7	3	16.7	3	16.7
	Below Average	8	44.4	9	50.0	1	5.56	1	5.56
	Very Low	3	16.7	4	22.2	2	11.1	2	11.1
	Total	18	100	18	100	18	100	18	100
<b>HSK NC II</b>	Very High	4	21.0	4	21.0	5	26.3	10	52.6
	Above Average	2	10.5	4	21.0	5	26.3	4	21.0
	Average	8	42.1	6	31.6	7	36.8	4	21.0
	Below Average	2	10.5	2	10.5	1	5.26	0	0
	Very Low	3	15.8	3	15.8	1	5.26	1	5.26
	Total	19	100	19	100	19	100	19	100
<b>BAR NC II</b>	Very High	3	15.0	2	10.0	4	20.0	5	25.0
	Above Average	1	5.00	1	5.00	9	45.0	7	35.0
	Average	4	20.0	6	30.0	5	25.0	6	30.0
	Below Average	6	30.0	10	50.0	2	10.0	2	10.0
	Very Low	6	30.0	1	5.00	0	0	0	0
	Total	20	100	20	100	20	100	20	100
<b>BPP NC II</b>	Very High	16	84.2	3	15.8	5	26.3	7	36.8
	Above Average	0	0.00	0	0	11	57.9	7	36.8
	Average	0	0.00	11	57.9	1	5.26	2	10.5
	Below Average	2	10.5	2	10.5	0	0	0	0
	Very Low	1	5.26	3	15.8	2	10.5	3	15.9
	Total	19	100	19	100	19	100	19	100

#### 3.2 Higher critical thinking skills

For this skill, trainees from Bread and Pastry Production NC II had the highest frequency on the upper scale with more than half (57.9%) scoring above average while more than a quarter (26.3%) scored very high for the critical thinking appraisal test. This was followed by Food and Beverage Service NC II trainees with more than half (55.6%) scored above average while more than a tenth (11.1%) scored very high. Meanwhile,

less than half (45.0%) of Bartending NC II trainees scored above average on the test while a fifth (20.0%) scored very high and a quarter (25.0%) belonged to the scored average. On the other hand, more than a third (36.8%) of the Housekeeping NC II trainees scored average while more than a quarter (26.3%) of those who took the critical thinking test scored either above average or very high. The results imply that the trainees have above average skills in critical thinking.

The graduates who were interviewed during the focus group discussion were able to recall learning experiences that they relate to this skill. Among their responses were: *"I remember one time we had a roleplay where we were to handle guest complaints and we really had to be rational and study the situation first before acting out what is the best way to solve the complaint, (Graduate 1)"* according to one of the graduates of Food and Beverage Services NC II. Meanwhile, one of the graduates of Bread and Pastry Production states, *"we had an activity that involved research and so we had to test our experiment. I think that really taught me to think critically and apply theories in a practical way, to look for more information (Graduate 2)."* These responses show that there are learning experiences that are not outright focused on developing critical thinking skills, but still allow the trainees to apply such skills in their respective courses. One of the trainers in the focus group discussion confirm this stating, *"I give out task sheets asking what the trainees will do given a particular type of guest, or a specific incident for them to answer (Trainer 1)"* as an activity to develop critical thinking and problem solving, which may not be sufficient to increase this particular skill. The implication of the results points to a deliberate incorporation of this skill in tourism courses and should be developed even further.

### 3.3 Better communication skills

In terms of communication skills, more than half (52.6%) of housekeeping trainees who took the test scored very high, while more than a fifth (21.0%) scored above average or average. Meanwhile, less than half (44.4%) of Food and Beverage Services NC II trainees who took the proficiency test scored above average while more than a fifth (22.2%) scored very high. For Bartending NC II trainees, more than a third (35.0%) scored above average while a quarter (25.0%) scored very high. Almost a third (30.0%) scored average on the communication skills test. In the case of Bread and Pastry NC II, more than a third (36.8%) scored either above average or very high while a tenth (10.5%) scored average. One graduate of Food and Beverage Services NC II recalled that *"Our in-house (SIT) required us to engage in conversations with guests (Graduate 3),"* while one graduate of Housekeeping NC II stated that, *"one of our activities was taking telephone calls and the assessment forced me to really engage in English conversations (Graduate 4)."* These imply that for tourism courses, there are training delivery methods that allow trainees to enhance and develop their communication skills. And this skill should be continuously improved.

### 3.4 Middling collaboration skills

For this skill, half (50.0%) of the trainees from Bartending NC II who took the situational judgment tests scored below average while almost a third (30.0%) scored average. Food and Beverage Services NC II trainees fared almost similarly, with half (50.0%) scored below average, almost a quarter (22.2%) scored very low while almost a fifth (16.7%) scored average. Bread and Pastry Production NC II trainees scored better, with more than half (57.9%) score average while a tenth (10.5%) scored below average. Almost a fifth (15.8%) scored very low, the same for very high. In the case of trainees of Housekeeping NC II, almost one-third (31.6%) of those who took the collaboration test scored average, while both very high and above average scores were taken both by a more than a fifth (21.0) of the sample population. The graduates interviewed during the focus group discussion can recall specific activities that they are allowed to work in pairs or groups, including one Housekeeping NC II graduate who narrated that *"in performing and using appliances for Housekeeping, I learned more with the help of my co-trainees (Graduate 5)."* A graduate of Bartending NC II mentioned that *"in our institutional assessments, we are expected to work in pairs, which is some form of collaboration activity (Graduate 6)."* For a Food and Beverage Services NC II, all she remembered was *"that the week before the assessment, we as a class decided to review as a team, to help those who were having difficulty in the demonstration (Graduate 7)."* These responses showed that there are limited instances in the Tourism programs where the trainees are expected to work as a team. Most activities, including assessment, are individualized. This limits the trainer's ability to even measure such during demonstration. The trainers admit to this as one of them mentioned in the focus group discussion that *"CBT is mostly individual in approach (Trainer 2)."* However, the trainer for Bartending pointed out that they are trying *"peer mentoring as a method where trainees study via small groups, and the use of dividing the class and deliberately conducting simultaneous two core competencies so that the class can interact and help build confidence when discussing a particular topic, the other person has not yet taken (Trainer 3)."* These results imply that tourism sector programs need to break away from the notion that CBT approach is only individualized training, but there can be learning experiences enriched with collaborative activities.



### 3.5 Low creativity and innovation skills

In terms of creativity, majority (84.2%) of the trainees from Bread and Pastry Production NC II scored very high while the rest scored below average to very low. On the other hand, while one-third (33.3%) of the trainees from Food and Beverage Services NC II scored very high on the remote associates test, almost half (44.4%) scored below average while almost a fifth (16.7%) scored very low on creativity. The scores for Housekeeping showed a fifth (21.0%) scored very high, but almost half (42.1%) of the trainees scored on the average range. A quarter (26.2%) scored below average or very low. In the case of the graduates, none were able to recall any lesson or activities that are related to creativity and innovation. The nearest activities they remembered were napkin folding for Food and Beverage Services NC II and towel folding for Housekeeping NC II. For extracurricular activities, a Bread and Pastry Production graduate pointed out the *“intramurals, where we had to improvise on costumes. (Graduate 8)”* The few responses indicated that the graduates did not have enough learning experiences that connect to creativity. This constraint is reflected by one of the trainers who enumerates *“how the trainees are able to set up tables, fold napkins and perform table skirting as activities for creativity (Trainer 4)”*. For Bartending NC II, their trainer mentioned *“giving activities where the trainees can experiment with their drinks and beverages (Trainer 5)”* as ways of incorporating creativity as a twenty-first century skill. On the other hand, the trainer for Bread and Pastry Production said that they *“try to add more on learning the current trends related to the course, especially during their Supervised In-house Training, in line with developing creativity (Trainer 6).”* The implication of these results is the need to plan more learning experiences with the objective of developing creative thinking and innovation.

### 3.6 Achievement of TVET learning outcomes

Following the Kirkpatrick Evaluation Model (Kirkpatrick, 1959), the first two levels were evaluated using various instruments. The results of the first level or the reaction of the trainees to the learning environment are presented per outcome including (i) curriculum, program goals and objectives; (ii) instruction and training methodologies; (iii) learning experience; and (iv) achievement of learning outcomes.

### 3.7 Strength of competency-based training

For Food and Beverage Services NC II, most of the trainees (61.1%) strongly agreed that the objectives of the training were clearly defined. More than half (57.9%) from Housekeeping NC II had the same sentiment, and most (70.0%) of the respondents from Bartending NC II strongly agreed, for Bread and Pastry Production NC II, most (63.2%) only agreed. When asked if participation and interaction were encouraged, the proportions who strongly agreed are almost the same- 55.6% for Food and Beverage Services NC II, 52.6% for Housekeeping NC II, and 57.9% for Bread and Pastry Production NC II. Majority (75.0%) of the Bartending NC II trainees however, strongly agreed. As to the statement of whether the training objectives were met, the figures are varying across the programs. For Bread and Pastry Production NC II, most (63.2%) only agreed, while less than half (47.4%) from housekeeping trainees strongly agreed. For Food and Beverage Services NC II, more than half (55.6%) strongly agreed while majority (70.0%) of Bartending NC II trainees strongly agreed. This supports the study that one of the strengths of CBT is in the meeting of the immediate needs of the trainees (Okoye & Michael, 2015). Based on the key informant interview with the acting Centre Chief, *“the goal of each program is now being linked to the key performance indicators which mean the number of enrolled is a crucial initial point of the Tourism sector’s objectives starting 2020.”* That implies that the initial impressions of the trainees as to whether the curriculum of TWC meets their needs will matter later in the training.

### 3.8 Instruction as a strong point

For Bartending NC II trainees, majority (75.0%) strongly agreed that the learning materials distributed were helpful. Meanwhile, more than half (57.9%) of the trainees from Bread and Pastry Production NC II strongly agreed. Half (50.0%) of the trainees from Food and Beverage Services NC II also strongly agreed, while majority (63.2%) of the Housekeeping NC II only agreed to the statement. When asked if they were knowledgeable about the training topics, majority (85.0%) of the trainees from Bartending NC II strongly agreed while for most (68.4%) of Bread and Pastry Production NC II trainees, and almost the same proportion for Housekeeping NC II (63.2%) and Food and Beverage Services NC II (61.1%). Lastly, as to the preparedness of their trainers, almost all (90.0%) of the trainees from Bartending NC II strongly agreed while majority (73.7%) from Housekeeping NC II also share the same sentiment. For Bread and Pastry Production NC II and Food and Beverage Services NC II, more than half (57.9 % and 55.6% respectively), strongly agreed to the statement. This affirms the research that trainees get individual support and help from their trainers as a strong point of CBT (Okoye & Michael, 2015). This factor is pointed out by the acting Centre Chief as she mentions during the key informant interview, *“several of our trainers in the tourism sector are recipients of awards from TESDA Central Office which we consider as evidence to their effectivity in developing world-class skills.”* The implication of the results is for tourism sector trainers to further continue improving their skills in teaching, particularly in training twenty-first-century skills.

### 3.9 Sufficient learning experiences

When the trainees were asked if the time allotted for the training was sufficient, majority (70.0%) of Bartending NC II trainees strongly agreed. This percentage is almost the same as Bread and Pastry Production NC II (68.4%). Only half (50.0%) of Food and Beverage Services NC II trainees strongly agreed, while majority (63.2%) of Housekeeping NC II trainees only agreed. Almost one-fifth (15.8%) answered neutral. It should be noted that the graduates interviewed during the focus group discussion were recommending for less extracurricular activities, while a graduate from Bread and Pastry Production NC II outrightly suggested that *"TWC can add more hours on the training duration (Graduate 9),"* with the program having the shortest training periods among the tourism sector qualifications. It implied that the training duration is observed by trainees as not being optimized. When asked if the training room and facilities were adequate and comfortable, almost half (42.1%) of Housekeeping NC II trainees strongly agreed, while a small portion (5.30%) disagreed. The rest of the programs showed that more than half of Food and Beverage Services NC II trainees strongly agreed to the statement. This level of agreement is almost the same for Bread and Pastry Production NC II trainees (57.9%). As for Bartending NC II trainees, almost all (90.0%) percent strongly agreed. This affirms a study that mentions CBT's main advantages including the flexible delivery, orientation to performance and self-paced methodologies (Monaco, 2017). The extreme range of remarks on this factor can be attributed to the level of renovation that occurred during the data collection. The graduate of Housekeeping NC II in the focus group discussion remarked that she hopes *"TWC adds improvement on the facilities to look more like that of the industry (Graduate 10)."* Whereas the Bartending NC II trainees had just received a full renovation of their training facilities, the Housekeeping NC II is still waiting for its turn. The acting Centre Chief mentioned that *"the recent renovations, especially in Bartending NC II means a more conducive environment for learning, but it also implies more funds needed to develop all the facilities in the tourism sector."* The implication of the results points to the administration to hasten its processes in updating facilities and plan for additional sources of funding to satisfy the needs of the trainees.

### 3.10 An environment for enabling achievement

When asked if the topics covered were relevant, majority (75.0%) of Bartending NC II trainees strongly agreed to the statement. Half (50.0%) of Food and Beverage Services NC II trainees also strongly agreed, while more than one-tenth (11.1%) were neutral. For Bread and Pastry Production NC II and Housekeeping NC II, more than half (both 52.6%) only agreed with a small number (10.5 and 5.30%, respectively) answered neutral. As to the organization and each of following the content of the respective programs, most (65.0%) of Bartending NC II trainees strongly agreed. For Food and Beverage Services NC II, while half (50.0%) of the trainees strongly agreed, more than one-tenth (11.1%) disagreed. More than half (52.6%) of Bread and Pastry Production NC II trainees only agreed to the statement while one-tenth (10.5%) answered neutral. Less than half (47.4%) of Housekeeping NC II trainees only agreed, while a one-tenth (10.5%) also answered neutral. Lastly for the statement of whether the training experience will be useful in their work, majority (85.0%) of Bartending NC II trainees strongly agreed, same case for Housekeeping NC II (73.7%). More than half (66.7%) of Food and Beverage Services NC II also strongly agreed almost the same to the answers of Bread and Pastry Production NC II trainees (63.2%). This supports a report that claims CBT leads to consistency in performance standards which in turn allows trainees to meet the standards in the certification process (Monaco, 2017). The implication of the results in this factor is that although the training experience is useful and relevant for work, the organization and content of some programs are not always easy to follow. It is an indication to trainers to review their content and learning experiences to achieve optimum outputs.

The results of the evaluation of TVET outcomes across four aspects from the sample population are presented in Table 2.

**Table 2:** Evaluation of TVET Learning Outcomes per Program

Statement		Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)
<b>FBS NC II</b>					
Curriculum, Program Goals and Objectives	1	61.1	33.3	5.6	0
	2	55.6	44.4	0	0
	3	55.6	33.3	5.60	5.60
Instruction	1	50.0	50.0	0	0
	2	61.1	38.9	0	0
	3	55.6	38.9	0	5.6



**Table 2:** Evaluation of TVET Learning Outcomes per Program (Continued)

	Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)
Learning Experience	1	50.0	38.9	5.6	5.6
	2	55.6	44.4	0	0
Achievement of Learning Outcomes	1	50.0	38.9	11	0
	2	50.0	22.2	16.7	11.1
	3	66.7	33.3	0	0
<b>HSK NC II</b>					
Curriculum, Program Goals and Objectives	1	57.9	36.8	5.3	0
	2	52.6	42.1	0	5.3
	3	47.4	42.1	10.5	0
Instruction	1	42.1%	52.6	5.30	0
	2	63.2	36.8	0	0
	3	73.7	26.3	0	0
Learning Experience	1	21.1	63.2	15.8	0
	2	42.1	42.1	10.5	5.3
Achievement of Learning Outcomes	1	42.1	52.6	5.3	0
	2	42.1	47.4	10.5	0
	3	73.7	26.3	0	0
<b>BAR NC II</b>					
Curriculum, Program Goals and Objectives	1	70.0	30.0	0	0
	2	75.0	25.0	0	0
	3	70.0	30.0	0	0
Instruction	1	75.0	25.0	0	0
	2	85.0	15.0	0	0
	3	90.0	10.0	0	0
Learning Experience	1	70.0	30.0	0	0
	2	90.0	10.0	0	0
Achievement of Learning Outcomes	1	75.0	25.0	0	0
	2	65.0	35.0	0	0
	3	85.0	15.0	0	0
<b>BPP NC II</b>					
Curriculum, Program Goals and Objectives	1	36.8	63.2	0	0
	2	57.9	31.6	10.5	0
	3	31.6	63.2	5.3	0
Instruction	1	57.9	42.1	0	0
	2	68.4	26.3	5.3	0
	3	57.9	36.8	0	5.3
Learning Experience	1	68.4	31.6	0	0
	2	57.9	42.1	0	0
Achievement of Learning Outcomes	1	36.8	52.6	10.5	0
	2	36.8	52.6	10.5	0
	3	63.2	36.8	0	0

Result of the t-test paired two sample for means per program showed significant difference in the training specifically between the pre-test and post test scores of Food and Beverage Services NC II ( $t(18,17) = 15.4, p < 0.05$ ), Bartending NC II ( $t(20,19) = 15.4, p < 0.05$ ), and of Bread and Pastry Production NC II ( $t(19,18) = 7.89, p < 0.05$ ). However, no significant difference was found between the pre-test and post test scores of Housekeeping NC II ( $t(19,18) = -0.68, p > 0.05$ ).

Most of the results of the t-test confirm the findings of a research stating that a cumulative improvement in trainee test scores occurs after implementing an individualized training model (Herold, 2017). It also asserts the findings that acquisition of skills is encouraged when trainees are engaged in the curriculum, instruction, and performance assessment (Darling-Hammond & Adamson, 2010). However, the results of Housekeeping NC II in the test reflect one of the limitations of competency-based training which states that when little attention is given to the identification of essential job skills, then the resulting training course is likely to be ineffective (National TVET Trainers Academy, 2012). The implication of the results is that for most of the programs, it should continue enhancing the CBT approach while for courses that had no significant difference in the test results, a review of the processes and gaps is imperative.

### 3.11 Relationship between the outcomes and twenty-first century skills

The results of the Spearman's Rank Order Correlation ( $\rho$ ) Test for non-parametric variables are presented in Table 3.

**Table 3:** Relationship Between the Outcomes and Twenty-First Century Skills per Program

<b>Bartending nc ii</b>		<b>Creativity</b>	<b>Collaboration</b>	<b>Critical thinking</b>	<b>Communication</b>
Spearman's rho	Correlation	-.058	-.532	-.420	-.294
	Coefficient				
	Sig. (2-tailed)	.809	.016	.065	.209
	n	20	20	20	20
<b>BREAD AND PASTRY PRODUCTION NC II</b>					
Spearman's rho	Correlation	.406	-.205	-.259	-.047
	Coefficient				
	Sig. (2-tailed)	.085	.401	.285	.847
	n	19	19	19	76
<b>FOOD AND BEVERAGE SERVICES NC II</b>					
Spearman's rho	Correlation	-.189	-.081	.195	-.152
	Coefficient				
	Sig. (2-tailed)	.452	.751	.438	.548
	n	18	18	18	18
<b>HOUSEKEEPING NC II</b>					
Spearman's rho	Correlation	.406	-.205	-.259	-.047
	Coefficient				
	Sig. (2-tailed)	.085	.401	.285	.847
	n	19	19	19	19

\*\*. Correlation is significant at the 0.01 level (2-tailed).

\*. Correlation is significant at the 0.05 level (2-tailed).

Analysis of the results show that the relationships are varied: there are mostly negative relationships with a few positive ones, but the strength of majority belong to moderate, weak, or trivial. The only exception is the substantial negative relationship between collaboration and post-test scores for Bartending NC II. These results imply that twenty-first century skills are not being developed independently. The results also confirm the findings cited by one report, that these skills cannot be taught as individual and separate subjects and the application of these skills is made possible within a core body of knowledge (Pavlova, 2018). This means that twenty-first century skills remain difficult to measure separately within the context of developing technical-vocational skills.

It should be noted that for Bartending NC II, there are significant training delivery modes used by the trainer which are not applied by other program qualifications. The trainer repeatedly mentioned peer mentoring and collaborative projects in the training of core competencies. These are much aligned with the constructivist approaches. One research claims that constructivist approaches such as brainstorming, peer mentoring, critique and collaborative projects have significant effect on developing twenty-first century skills – including higher order thinking skills and the four C's (Mays, 2015).

The implications of these results mean that in the case of TWC's tourism sector, the outcomes used in the study are related to each program. The outcome achieved, in this case the post-test score, is not a distinct

measure in view of the development of twenty-first century skills. This further means that TWC must identify other measurable outcomes that can be used to demonstrate learning gained in twenty-first century skills. However, it should be noted that these results do not negate the effectivity of the training delivery approach as to the respective core competencies under tourism sector courses.

All the results confirm the findings of existing literature claiming that there is only a very small degree of relationship between outcomes of training and twenty-first century competencies or skills (Finegold & Notabartolo, 2016). The study further asserts that evaluating the immediate outcomes (Level 1) of a learning event does not imply a trainee shall process new competencies or skills leading towards its application. The result of the analysis is congruent to existing research that notes the difficulty of assessing twenty-first century skills due to some of the skills' subjectivity and defiance to a precise definition (Suto, 2013) such that studying its relationship to organizational outcomes is complicated and highly disputed (Finegold & Notabartolo, 2016). The result for Bartending NC II in terms of the relationship between posttest scores and collaboration implies and emphasizes the need for TWC to consider applying more constructivist learning theory principles in the training delivery methods used for the tourism sector. Soft skills, including twenty-first century skills, are complex to grasp and constructivist approaches in instruction and delivery such as brainstorming, peer mentoring, questioning and conversation, collaborative projects and simulations are essential to cut across and lead to meaningful learning (Mays, 2015).

#### 4. CONCLUSIONS

The results of the study showed that TWC conforms to the national goals of TESDA, but its objectives are limited to core competencies only. The assessment of the 4Cs- revealed an improvement on the scores of the sample population. But a substantial number still scored below average to very low in collaboration and creativity. The first level evaluation of curriculum, instruction, learning environment and assessment all scored high in strong agreement to the statements. The statistical analysis of pre-test and post-test scores affirms the effectivity of CBT approach in training technical skills to the sample population while the results of the results of the Spearman's rank order correlation test showed there is no sufficient evidence to suggest correlations between any of the outcomes of TVET and twenty-first century skills.

This study presents findings that have major and broader implications not only in the case of the Philippines but in other countries worldwide. As the importance of TVET is not confined merely in allowing students to gain practical experience in their chosen career path before they even graduate but, in a more futuristic way of serving, as an instrument for promoting economic development, expanding employment opportunities and improving the quality of human life. Technical vocational education and training is effective in so far as to develop core competency skills that are necessary for entry level employment. It is therefore important to be given sufficient focus in research for education management, just as basic and tertiary levels are produced. The use of distance, online or blended learning, advanced information, and communication technology as well as new ways of teaching and learning can all be applied for research in the field of TVET.

New skills including the spectrum of twenty-first century, soft and life skills remain secondary to the development of hard skills in TVET, hence institutions need to find a balance and to utilize an integrative approach to achieve both outcomes. The results of the study show that although the two types of skills have no direct relationship with each other, there can be progress made in both.

One of the related literatures cited in this study say that to develop twenty-first century skills, schools need to understand and apply twenty-first century skills teaching (Soland et al., 2013). The result of the study, indicating the weak relationship between TVET outcomes, and twenty-first century skills, does not diminish the implication that professional development in trainers is paramount to provide training to students of technical vocational education. This is perhaps even more important now to gain expertise on the subject matter. Where the 4Cs are already integrated, difficulties in translating the curriculum into clear learning experiences and effective measurement or assessment methods arise. Thus, TVET institutions such as the TWC require thoroughly thought-out training plans that incorporate not only the classroom aspect, but also work-based learning. This means that industry coordination and communication go beyond letters and memoranda of agreement but continuous partnership and timely evaluation on both ends.

Consequently, the achievement of both TVET outcomes and development of twenty-first century skills entail a working feedback mechanism, meaningful forms and personnel to process the information and should be given priority. The work and outputs of TVET are not only essential to the trainees, but more importantly, to the trainers involved. Any institution must establish this mechanism and must be used in a systems perspective to continuously improve education management.

The research was conducted on TESDA Women's Centre in Taguig City, Philippines with particular focus on four tourism sector program qualifications (Bartending NC II, Bread and Pastry Production NC II, Food and Beverage Services NC II, and Housekeeping NC II) including the trainees for the fourth quarter of 2019. Only those programs that have institution-based training during the data gathering period were considered. Another limitation was the unavailability of pre-test and post-test exams for tourism sector programs at TWC. The researcher had to search for another TESDA Technology Institution that offers the same program qualifications which conduct pre-test and post-test using standardized exams. The data were limited by the sampling method and methods of data analysis used. For the Kirkpatrick Model of Evaluation, only until the second level was used given the time constraint and availability of respondents. This is commonly used in education setting and considered valid.

It is recommended for future researchers to further study the relationship of supervised in-house or industry training to twenty-first century skills development, conduct tests on a larger population of trainees from other industry sectors such as agriculture, automotive, metals and engineering and electronics, or in other TESDA institutions and expanding the evaluation to competencies aside from communication, collaboration, critical thinking, and creativity.

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