Assessing the Curriculum Implementation Effectiveness at General and Technical High Schools in Cambodia

Songheang Ai
Southeast Asian Ministers of Education Organization Regional Centre for Technical Education Development (SEAMEO TED), Phnom Penh, Kingdom of Cambodia
song.heang@yahoo.com

Vorn Tim
Southeast Asian Ministers of Education Organization Regional Centre for Technical Education Development (SEAMEO TED), Phnom Penh, Kingdom of Cambodia
timvorn@hotmail.com

Abstract

Recently the curriculum developers and policy makers have expressed alarm about the implementation effectiveness of technical education curriculum at the secondary education level in Cambodia. While most agree that the imbalance between theories and practices deserves attention for some supporting subjects of each trade contextualizing the labor market need. Skills mismatches are paid high attention for technical education development. This cross-sectional study design employs the importance-performance analysis (IPA) approach for 213 participants as year two students to assess the curriculum implementation effectiveness. The paper identifies some subjects that work well, some that need immediate actions, and some that require improvement or correction among five trades, namely electronics, electricity, animal husbandry, agronomy, and accounting and management. This assessment of curriculum implementation effectiveness points out the limitations of curriculum contents and suggests the need for a holistic approach in curriculum development participated by industry representatives, technical education teachers, curriculum experts, and policy makers.

Keywords: curriculum, general and technical high schools, teacher, and technical education.

Introduction

Curriculum is a central guide to support teachers and students in teaching and learning successfully. A curriculum is an instructional sequence of contents and direction ensuring that teaching and learning take place productively in schools (Walker, 2003). The curriculum needs to be authentic in nature, capture theories and practices, and cultivate knowledge, skills and attitude. Therefore, the curriculum is crucial for education and training.

Technical and vocational education and training (TVET) plays such an integral part in accelerating economic growth that some advanced countries prioritize it as one of the forerunners such as Germany, Japan, South Korea, UK, etc. Likewise, the Royal Government of Cambodia (RGC) also put emphasis on TVET development by setting out at least one general and technical high school (GTHS) in each province for a short-term vision and at least one general and technical high school (GTHS) in each district for a long-term vision in order to transition its economic status to an upper middle-income country in 2030 and to a high-income country in 2050. To achieve this ambition, TVET needs to have quality and responsiveness. To be responsive, the curriculum needs to embrace theories and practices capturing work reality. However, there is a curriculum gap between theories and practices without industry engagement in the curriculum development process for TVET system in Cambodia (ADB, 2016). Many students go to schools without learning anything because of irrelevant and traditional curriculum (Panth & Maclean, 2020). Training programs are found ineffective, hindering skills mismatches and skills gaps (ADB, 2020). Thus, limited quality TVET system is resulted from the mismatches between demand and supply of which curriculum is a core bridge (MoEYS, 2019).

The curriculum should be future-oriented to prepare learners to meet the emerging needs of technological innovation and the labor market (Panth & Maclean, 2020). Curriculum implementation is significant for schools that should be considered. The findings will provide learners with appropriate and relevant learning contents to ensure that the learning environment in the class is productive and concrete. Vocational subject clusters and general subject clusters can be classified in terms of “work well, need immediate action, and need improvement”. Technical education teachers will be guided functionally to modify subject clusters to meet the competency levels and interests of students. The findings will help

policy makers and curriculum developers to guide their direction and focus. GTHS management will professionally report about teachers' instructional progress. Finally, GTHS management will be able to monitor and provide teachers instructional advice and guidance following the newly-updated curriculum.

The research objective is to assess the curriculum implementation effectiveness. Responding to the objective, three research questions were raised consisting of **(1)** What subjects work well for each trade? **(2)** What subjects need immediate actions for each trade? And **(3)** What subjects need improvements for each trade?

Literature Review

TVET creates jobs and employment for the people, alleviating poverty. To achieve this, the curriculum is one of the bridges that should be assessed radically regarding subject clusters, time allotment, contents, and objectives. The subject clusters (technical subject clusters and general subject clusters) reflect the labor market need and students' interests and competency levels. There are a lot of studies highlighting subject clusters capturing students' interests and competency levels that should be raised for discussion.

The royal government of Bhutan (2019) developed the TVET curriculum framework by putting an emphasis on literacy and numeracy subjects such as English language and Mathematics. However, Roofe and Ferguson (2018), employing a qualitative content analysis approach to explore TVET curriculum contents at lower secondary level found the need to assess the curriculum contents and objectives because they lacked an alignment with one another in Jamaica. In Singapore at the secondary education level, technical students are required to study English language, mathematics and computer applications as supporting general subjects for technical courses (SEAMEO VOCTECH, 2020).

Regarding agriculture trade, Ruiz, Radtke and Scherr (2021), developing the nutrition curriculum for high school students and applying an expert review approach to assess the learning achievements found a vocational subject cluster consisting of food supply chain and food environments, nutrition lessons, cooking lessons including food safety, budgeting, and preparation. In other words, White et al. (2018), using a qualitative approach with an expert review and focus group to develop a *learn by actively participating* curriculum for

youths explored three main subjects, namely gardening, culinary skills, and family conversation/interaction.

In Malaysia, the TVET curriculum is developed by schools following the occupational standards. The entrepreneurship subject is added into the curriculum to enhance self-employment for graduates (Unit, 2009). Afolabi (2014), examining the quality of accounting students in Nigeria in light of the private and public sector perception by surveying 350 participants from the private and public enterprises found that the computer skills subject and principle of accounting needed to be added in the accounting and management curriculum.

Research Methodology

The research methodology is a crucial tool used to answer research questions to ensure that the results are empirical and scientific in nature. The rigorous systematic approaches are as follows:

Data Collection

The data was collected from the participants as technical education students currently studying year 2 at general and technical high schools (GTHSs) in Cambodia. The paper-based questionnaire, as part of self-reported appraisals, was filled out by the participants under a direct instruction by a team of researchers. The participants were gathered to sit and listen to researchers' instruction at one common hall at schools before filling out the questionnaire. Because they are high school students, they were also instructed not to copy or cheat from each other while completing the questionnaire.

The data was also collected from five GTHSs namely Community Development Institute; Kampong Chheuteal Demonstration GTHS; Sant Franscois GTHS; Preah Bat Samdach Preah Borom Neat Norodom Sihamoni GTHS; and Preah Norodom Sihamoni GTHS, located in five different provinces. The five GTHSs cover five trades consisting of electronics, electricity, agronomy, animal husbandry, and accounting and management. Electricity, electronics, and manufacturing are the main focus for Cambodia's industry-driven economy vision (Thomas, 2019). Moreover, modern agriculture has been applied to increase local food production. The accounting and management are the supporting trade

for manufacturing. The criteria for GTHSs selection are (1) delivering any trade service from year 2; (2) the participants can be assessed by appointment; and (3) GTHSs follow the curriculum guideline on technical education at upper secondary level, issued by the Ministry of Education, Youth, and Sport (MoEYS) for their instructions.

Participant Selection

The target group is year 2 students currently studying at GTHSs. The selection criteria for participants are (1) finishing studying years 1 and 2 and ready for year 3; (2) currently studying at any trade at GTHSs; (3) volunteering to participate in the study; and (4) being committed to graduate year 3. The participants are from diverse backgrounds, as described in the descriptive statistics revealing age, sex, years of studies, trade, names of schools, and school province. No incentives were provided for the participants after filling out the questionnaire.

Research Method

The critical research questions can be answered by employing the quantitative research method. Particularly, the survey research using cross-sectional study design was applied to assess the participants' opinions and belief about the curriculum implementation effectiveness at one point in time (Creswell, 2012).

Data Analysis

To analyze data from the completed questionnaire from target participants, the importance performance analysis (IPA) approach was employed using SPSS version 25.0. IPA has been used to assess the quality-of-service deliveries or attributes in terms of importance and performance, particularly in education or tourism (Deng & Pierskalla, 2018). The IPA approach scatters attributes into four quadrants namely "concentrate here" as quadrant I, "keep up the good work" as quadrant II, "low priority" as quadrant III, and "potential overkill" as quadrant IV, as shown in **[Figure 1]**. The participants rate their perceptions on the provided attributes in terms of importance and satisfaction. The attributes might fall into each quadrant referring to the participants' perceptions. As a result, any attributes falling into quadrant III (low priority) and quadrant IV (potential overkill) mean that those attributes don't contribute to overall satisfaction and importance (Deng & Pierskalla, 2018).

	Low	High	
Importance	Concentrate here	Keep up the good work	**High**
	Low priority	Potential overkill	**Low**
	Satisfaction		

[Figure 1] Importance-Performance Analysis Grid

Research Instruments

Questionnaire items capture five trades, namely electronics, electricity, agronomy, animal husbandry, and accounting and management for year 2 of the technical education curriculum for technical education at upper secondary level (MoEYS, 2015). The curriculum contents for the five trades are embedded in the questionnaire for student rating so that content validity was achieved. In addition, students from five GTHSs have been studying curriculum contents of five trades at their respective schools. Therefore, construct validity was ensured because a measurement tool represents the thing be measured. Each trade has different items/contents with the same Likert type 5-point scale. For example, for electricity trade, item 1 mentions Math (3 hours a week) with a level of satisfaction. They range from not satisfying at all (1); not satisfying (2); neutral (3); satisfying (4); and very satisfying (5) for participant ratings.

Results

The results emerged from data analysis answering research questions. The demographic information of participants and GTHSs were shown in **<Table 1>**. The trades for each school were also highlighted in the table, capturing sexes and years of studies of the participants.

<Table 1> Demographic Information of General and Technical High Schools

No	Trades	Community Development Institute				Kampong Chheuteal Demonstration GTHS				Sant Franscios Private GTHS				Preah Bat Samdach Preah Borom Neat Norodom Sihamoni GTHS				Preah Norodom Sihamoni GTHS			
		Male	Female	Total	Year2	Male	Female	Total	Year2	Male	Female	Total	Year2	Male	Female	Total	Year2	Male	Female	Total	Year2
2	Electronics	20	8	28	28																
3	Electricity					29	3	32	32												
4	Agronomy	6	31	37	37					9	6	15	15					4	20	24	24
5	Animal Husbandary					8	40	48	48					5	9	14	14				
6	Accounting and Management	1	14	15	15																
Sub total		27	53	80	80	37	43	80	80	9	6	15	15	5	9	14	14	4	20	24	24
Grand Total		213																			

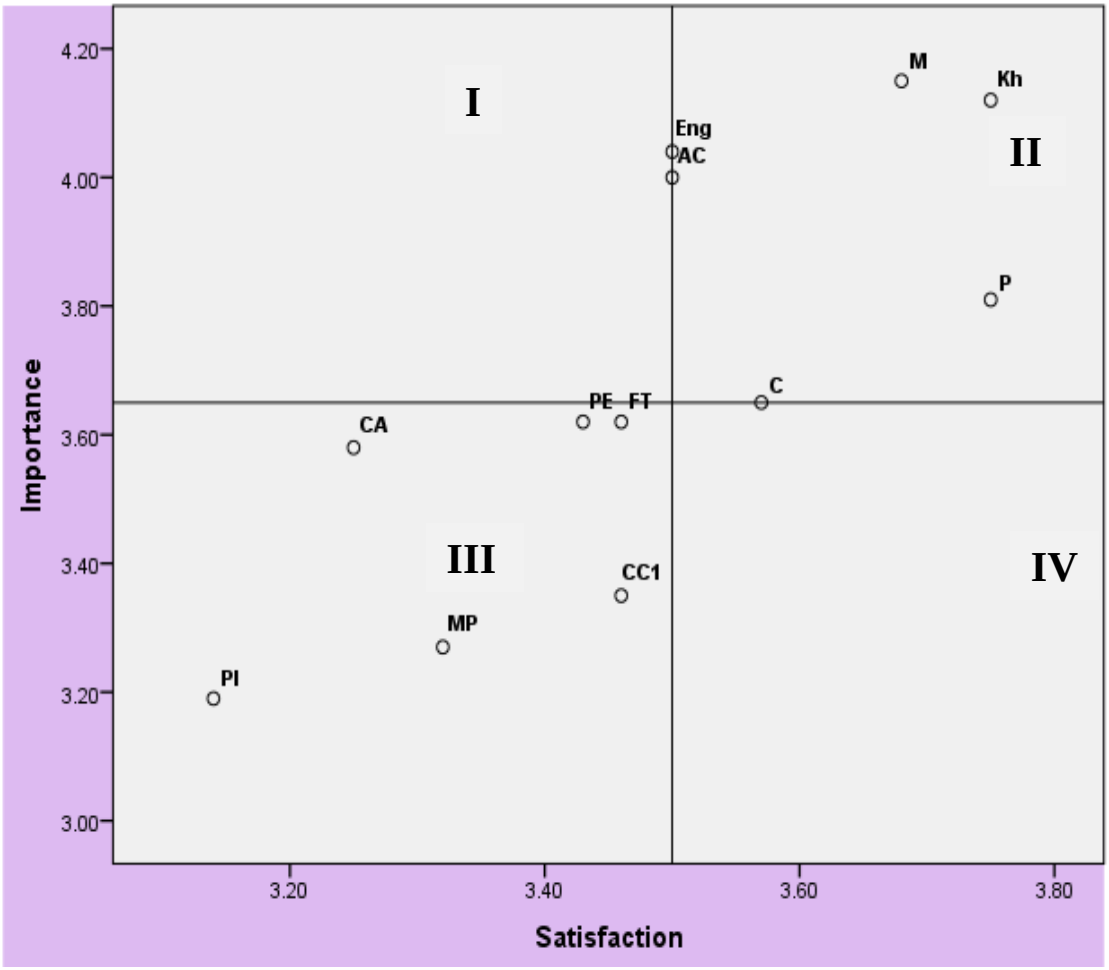
Electronics

The results were shown in the importance-performance matrix and importance-performance table. Only Kampong Chheuteal demonstration GTHS delivers this trade. 26 year-2 students filled out the paper-based questionnaire. The importance-performance rating was shown in <**Table 2**>. The 12-item scale showed a reliability of Cronbach Alpha α=.801 for importance and a reliability of Cronbach Alpha α= .697 for performance. The reliability levels were acceptable for further analysis.

<Table 2> Importance-Performance Rating for Electronics

Electronics for Year-Two Students						
Abb.	**Attribute**	**Kampong Chheuteal Demonstration GTHS**				
		N	**Satisfaction**		**Importance**	
			Mean	**SD**	**Mean**	**SD**
Kh	Khmer Language	28	3.75	0.7	4.12	0.77
Eng	English Language	28	3.5	0.92	4.04	0.72
M	Maths	28	3.68	0.72	4.15	0.83
AC	Administrative computer	28	3.5	0.92	4	0.75
C	Civics and Morality	28	3.57	0.92	3.65	0.89
PE	Physical education	28	3.43	1.14	3.62	0.85
P	Physics	28	3.75	0.93	3.81	0.94
FT	Foundation of telecommunication	28	3.46	1.32	3.62	1.44
CA	Circuit arrangement	28	3.25	1.4	3.58	1.33
MP	Mircro processor	28	3.32	1.68	3.27	1.71
CC1	Computer coding 1	28	3.46	1.55	3.35	1.57
PI	Project implementation	28	3.14	1.56	3.19	1.58

Resulting from importance-performance rating, a matrix of importance-performance was highlighted in **[Figure 2]**. There are 12 subjects requiring year-2 students to take courses in. No subjects fell into quadrant I. Three subjects, namely Maths, Khmer, and Physics fell into quadrant II. Six subjects, namely Project Implementation, Micro-processor, Computer Coding 1, Circuit Arrangement, Physical Education, and Foundation of Telecommunication fell into quadrant III. No subjects fell into quadrant IV. However, some subjects fell into the middle of two quadrants such as Administrative Computer and English (Middle of quadrant I and II), and Civics and Morality (Middle of quadrant II and IV).



[Figure 2] Importance-Performance Matrix for Electronics

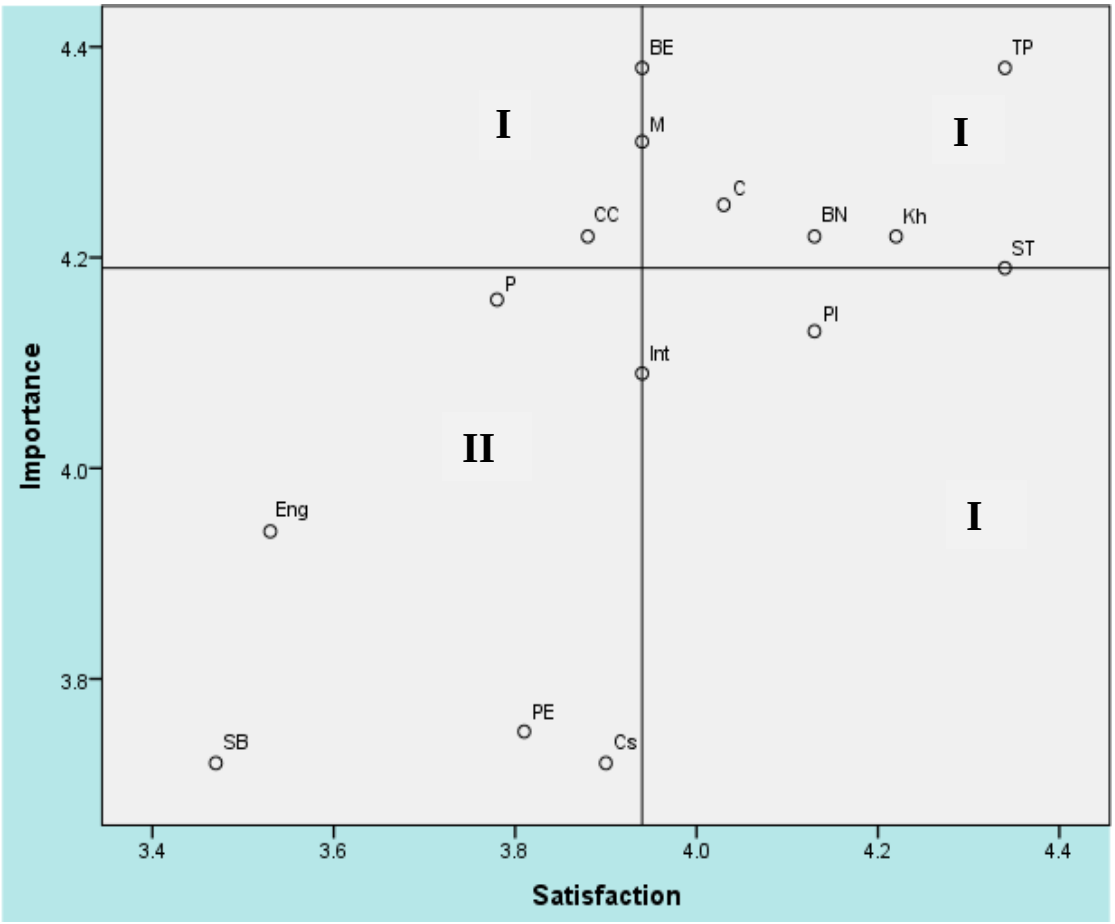
Electricity

Only Kampong Chheuteal GTHS delivers this trade. The results were shown in the importance-performance rating in <**Table 3**> and the importance-performance matrix in **[Figure 3]**. The 15-item scale showed a reliability of Cronbach Alpha α=.784 for importance and a reliability of Cronbach Alpha α = .700 for performance. The reliability levels were acceptable for further analysis.

<Table 3> Importance-Performance Rating for electricity

Electricity for Year Two Students						
Abb.	**Attribute**	**Kampong Chheuteal Demonstration GTHS**				
		N	**Satisfaction**		**Importance**	
			Mean	**SD**	**Mean**	**SD**
M	Maths	32	3.94	0.67	4.31	0.69
Kh	Khmer Language	32	4.22	0.55	4.22	0.61
Eng	English Language	32	3.53	0.98	3.94	0.88
C	Computer	32	4.03	0.78	4.25	0.67
Cs	Civics and Morality	32	3.9	0.79	3.72	0.81
PE	Physical education	32	3.81	0.97	3.75	0.8
P	Physics	32	3.78	0.91	4.16	0.72
BE	Basics of electricity	32	3.94	1.05	4.38	0.61
TP	Technical painting	32	4.34	0.65	4.38	0.61
BN	Basics of network	32	4.13	0.87	4.22	0.87
CC	Computer control	32	3.88	0.71	4.22	0.61
SB	Small-scale business	32	3.47	1.05	3.72	0.89
PI	Projection implementation	32	4.13	0.79	4.13	0.87
Int	Internship	32	3.94	0.84	4.09	0.73
ST	Study tour	32	4.34	0.87	4.19	0.86

Importance-performance matrix denotes four different quadrants separating different zones. Year-2 students are required to take courses of 15 subjects. The subject Computer Control fell into to quadrant I. Four subjects, namely Computer, Basics of Network, Khmer, and Technical Painting fell into quadrant II. Five subjects, namely Small-Scale Business, English Language, Physical Education, Civics and Morality, and Physics fell into quadrant III. One subject Project Implementation fell into quadrant IV. However, some subjects fell into the middle of two quadrants consisting of Basics of Electricity and Maths (Middle of quadrant I and II), Study Tour (Middle of quadrant II and IV), and Internship (Middle of quadrant III and IV).



[Figure 3] Importance-Performance Matrix for Electricity

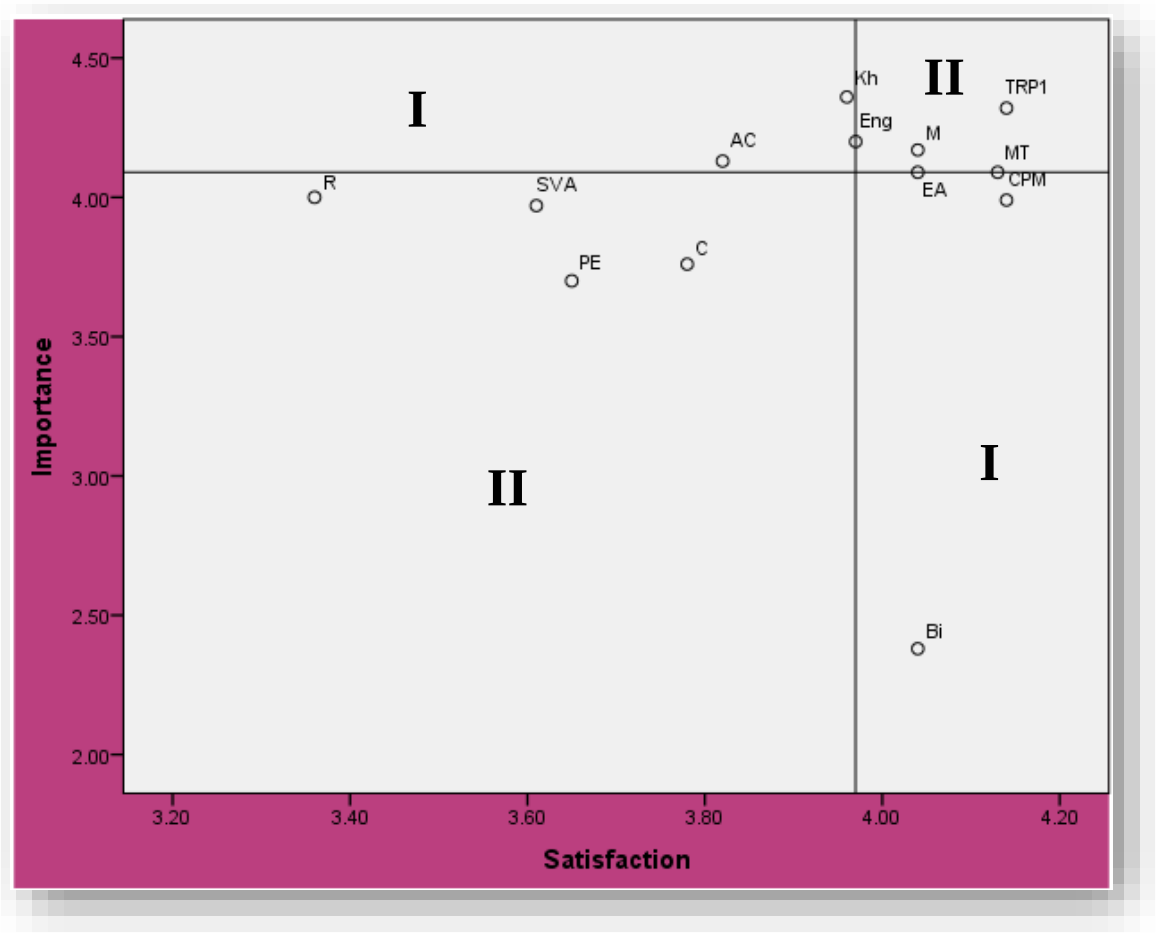
Agronomy

Total participants of 76 students from three GTHSs consisting of Community Development Institute (37 participants), Preah Sihanouk GTHS (24 participants), Saint Francois GTHS (15 participants) were assessed. The results were shown in Importance-Performance rating in <**Table 4**> and Importance-Performance Matrix in **[Figure 4]**. The 13-item scale showed a reliability of Cronbach Alpha α=.774 for importance and a reliability of Cronbach Alpha α= .723 for performance. The reliability levels were acceptable for further analysis.

<Table 4> Importance-Performance Rating for Agronomy

Year-Two Students						
Abb.	**Attribute**	**Agronomy for 3 GHTSs**				
		N	**Satisfaction**		**Importance**	
			Mean	**SD**	**Mean**	**SD**
Kh	Khmer Language	76	3.96	0.77	4.36	0.69
Eng	English Language	76	3.97	0.84	4.2	0.92
M	Maths	76	4.04	0.88	4.17	0.85
AC	Administrivia computer	76	3.82	1.12	4.13	0.9
C	Civics and Morality	76	3.78	1	3.76	0.98
PE	Physical education	76	3.65	1.13	3.7	0.91
Bi	Biology	76	4.04	0.94	2.38	1.46
CPM	Crop planting and management	76	4.14	0.77	3.99	1.01
EA	Environment and agriculture	76	4.04	0.72	4.09	0.7
MT	Modern techniques	76	4.13	0.86	4.09	0.73
TRP1	Techniques of rice planting	76	4.14	0.96	4.32	0.96
SVA	Survey and village arrangement	76	3.61	1.25	3.97	1.12
R	Research	76	3.36	1.3	4	1.15

Year-2 students are required to take courses of 13 subjects. Two subjects, namely Administrative Computer and Khmer Language fell into quadrant I. Two subjects, namely Maths and Techniques of Rice Planting fell into quadrant II. Four subjects, namely Research, Physical Education, Civics and Morality, and Survey and Village Arrangement fell into quadrant III. Two subjects, namely Biology and Clop Planting and Management fell into quadrant IV. However, some subjects fell into the middle of two quadrants consisting of English Language (Middle of quadrant I and II), and Environment and Agriculture, and Modern Techniques (Middle of quadrant II and IV).



[Figure 4] Importance-Performance Matrix for Agronomy

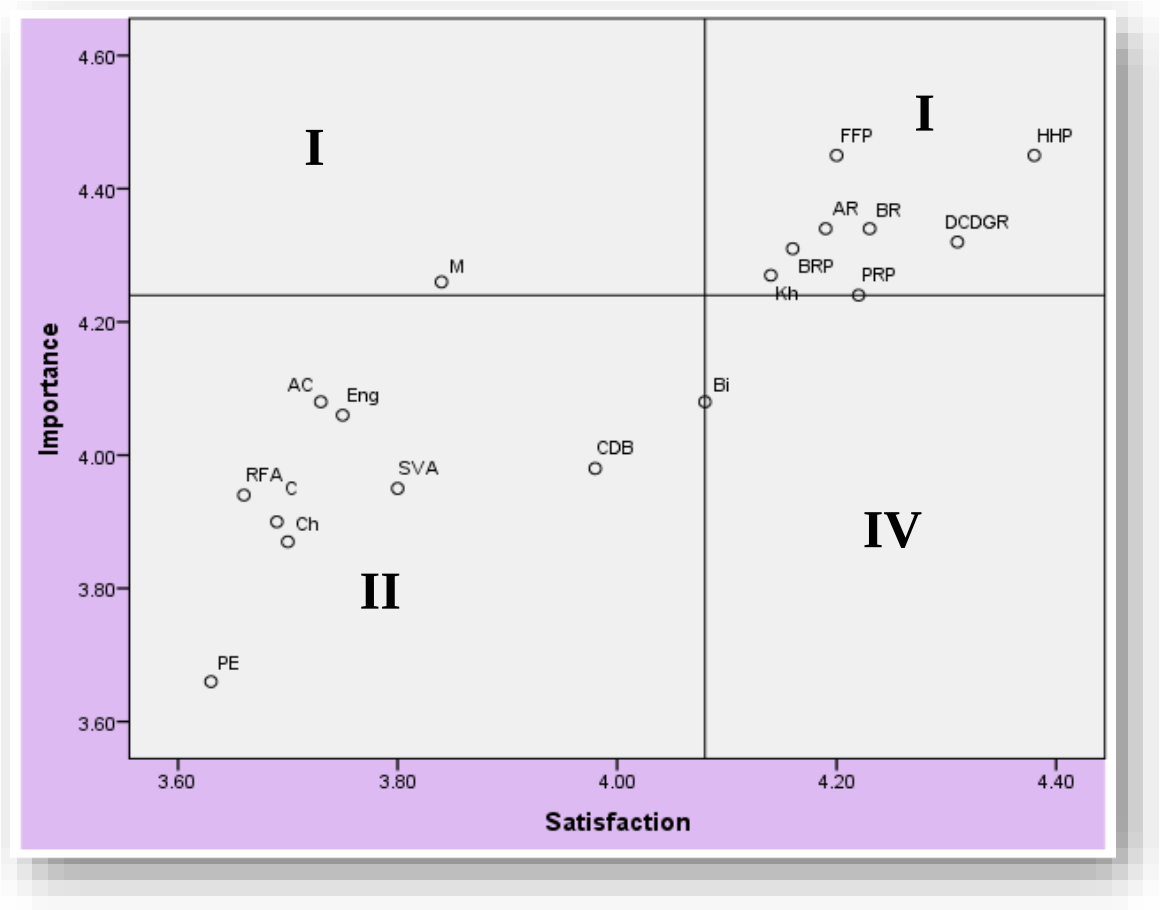
Animal Husbandry

Four GTHSs were assessed with 62 total participants for data collection. The 18-item scale showed a reliability of Cronbach Alpha α=.808 for importance and a reliability of Cronbach Alpha α= .752for performance. The reliability levels were acceptable for further analysis because the Cronbach Alpha is greater than .700. The results were shown in the importance-performance rating in <**Table 5**> and importance-performance matrix in **[Figure 5]**.

<Table 5> Importance-Performance Rating for Animal Husbandry

Year Two						
Preah Bat Samdach Preah Borom Neat Norodom Sihamoni and Kampong Chheuteal Demonstration GTHS						
Abb.	**Attribute**	**N**	**Satisfaction**		**Importance**	
			Mean	**SD**	**Mean**	**SD**
M	Maths	62	3.84	0.67	4.26	0.81
Kh	Khmer language	62	4.14	0.66	4.27	0.89
Eng	English language	62	3.75	0.94	4.06	0.9
AC	Administrative computer	62	3.73	0.95	4.08	0.96
C	Civics and morality	62	3.69	0.92	3.9	0.88
PE	Physical education	62	3.63	1.12	3.66	1.16
Ch	Chemistry	62	3.7	0.63	3.87	0.86
Bi	Biology	62	4.08	0.76	4.08	0.86
HHP	Hatching and hatch preparation	62	4.38	0.7	4.45	0.62
FFP	Food and food production	62	4.2	0.86	4.45	0.78
BRP	Bird raising plan	62	4.16	0.76	4.31	0.67
BR	Bird raising	62	4.23	0.75	4.34	0.7
PRP	Pig raising plan	62	4.22	0.68	4.24	0.69
DCDGR	Domestic chicken, duck and goose raising	62	4.31	0.73	4.32	0.62
AR	Animal reproduction	62	4.19	0.81	4.34	0.63
CDB	Cattle dairy breeding	62	3.98	0.97	3.98	0.97
SVA	Survey and village arrangement	62	3.8	1.16	3.95	1.27
RFA	Research of farmers' activities	62	3.66	1.16	3.94	1.24

Among 18 subjects, Maths fell into quadrant I. Seven subjects fell into quadrant II consisting of food and food production; hatching and hatch preparation; animal reproduction; bird raising; domestic chicken, duck and goose raising; bird raising plan; and Khmer language. There are eight subjects the fell into quadrant III, namely administrative computer, English language, survey and village arrangement, cattle dairy breeding, research of farmers' activities, Chemistry, Civics and morality, and Physical education. Finally, two subjects fell into the middle of two quadrant II, III, and IV, namely pig raising plan and Biology.



[Figure 5] Importance-Performance Matrix for Agronomy

Accounting and Management

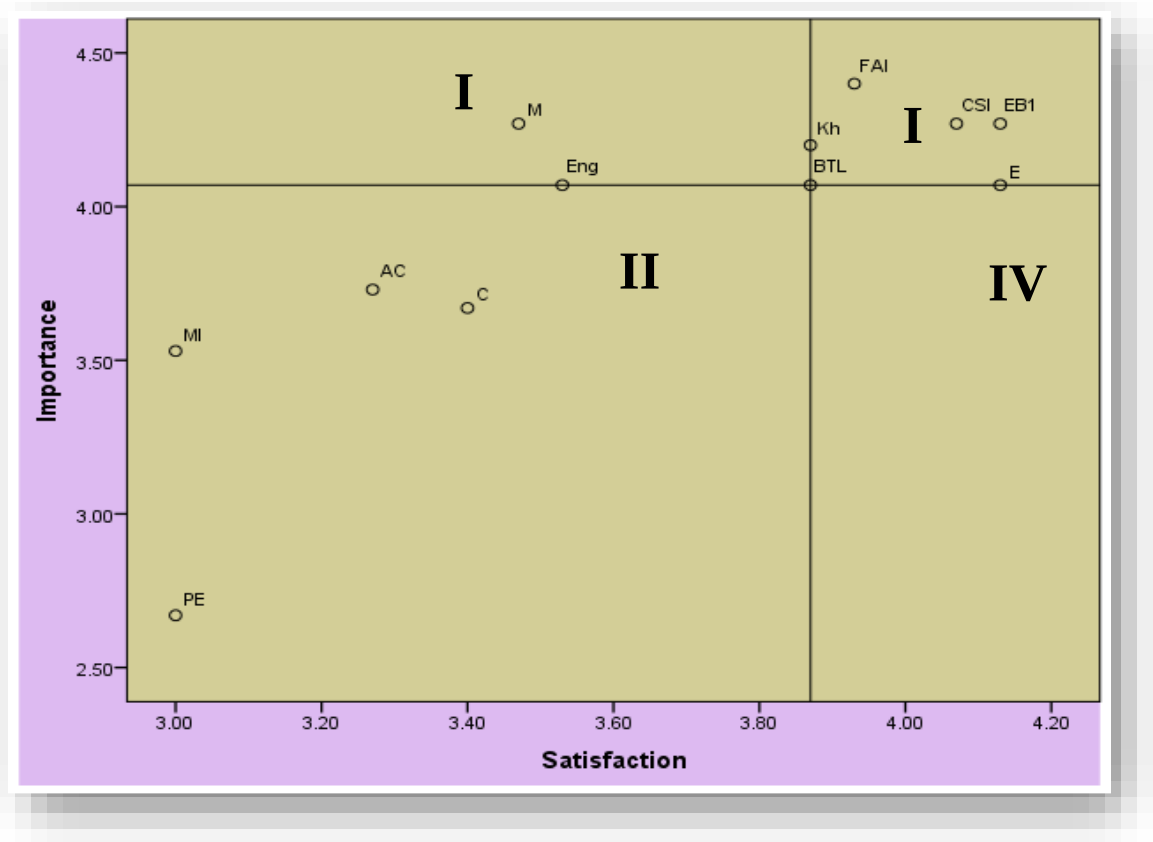
One GTHS named community development institute consisting of 15 year-two students filled out the questionnaire. Students are required to study 12 subjects comprised of general subjects and vocational subjects.

The results were shown in importance-performance rating in **<Table 6>** and importance-performance matrix in **[Figure 6]**. The 12-item scale shown a reliability of Cronbach Alpha α=.700 for importance and a reliability of Cronbach Alpha α= .782 for performance. The Cronbach Alpha of more than .700 is acceptable for internal consistency for all items within the scale (George & Mallery, 2003; Joseph &Rosemary, 2003).

<Table 6> Importance-Performance Rating for Accounting and Management

Abb.	Attribute	Community Development Institute				
		N	Satisfaction		Importance	
			Mean	SD	Mean	SD
Kh	Khmer Language	15	3.87	0.83	4.2	0.56
Eng	English Language	15	3.53	1.13	4.07	0.88
M	Maths	15	3.47	0.99	4.27	0.7
AC	Administrative Computer	15	3.27	1.03	3.73	0.96
C	Civics and Morality	15	3.4	0.74	3.67	1.11
PE	Physical education	15	3	1.2	2.67	1.18
E	Economics	15	4.13	0.64	4.07	0.59
FAI	Financial accounting implementation	15	3.93	0.88	4.4	0.74
BTL	Basics of tax law	15	3.87	0.74	4.07	0.46
MI	Management implementation	15	3	0.93	3.53	0.92
CSI	Computer skill implementation	15	4.07	0.7	4.27	0.46
EB1	English for business 1	15	4.13	0.64	4.27	0.8

Among 12 subjects, Maths fell into quadrant I. Three subjects, namely Financial Accounting Implementation, Computer Skill Implementation, and English for Business 1 fell into quadrant II. Four subjects, namely Physical Education, Management Implementation, Civics and Morality, and Administrative Computer fell into quadrant III. However, four subjects fell into the middle of two quadrants, namely English Language (Middle of quadrant I and III), Khmer Language (Middle of quadrant I and II), Economics (Middle of quadrant II and IV), and Basics of Tax Law (Middle of four quadrants).



[Figure 6] Importance-Performance Matrix for Accounting and Management

Discussion and Conclusion

To assess the curriculum implementation effectiveness, some typical subjects were identified by falling into different quadrants among the four quadrants for each trade. For example, for electronics, three subjects, namely Maths, Khmer language, and Physics work well that should be intensified in light of year-2 students' perception. The general subject cluster helps support the graduates in seeking jobs (Kolawole & Ogungbade, 2021). The students might have foundational knowledge and skills for these subjects. Six subjects, namely Project Implementation, Micro-processor, Computer Coding 1, Circuit Arrangement, Physical Education, and Foundation of Telecommunication need to be re-considered for modification and correction. Required resources should be allocated out. For electricity, the subject Computer Control can be considered for resource intensification otherwise it might be a problem. Four subjects namely Computer, Basics of Network, Khmer language, and Technical Painting work well. They are fine and should continue to be implemented. Five subjects, namely Small-Scale Business, English Language, Physical Education, Civics and Morality, and

Physics should be remarkably considered for modification and correction. One subject, Project Implementation, should be re-considered. This subject might be difficult and complicated for students.

For animal husbandry, Maths needs attention, meaning that year-2 students are not good at it. They should have extra classes part-time. Seven subjects consisting of food and food production; hatching and hatch preparation; animal reproduction; bird raising; domestic chicken, duck and goose raising; bird raising plan; and Khmer language work well, meaning that they might have more time in practice in reality at school or at home. There are eight subjects, namely administrative computer, English language, survey and village arrangement, cattle dairy breeding, research of farmers' activities, Chemistry, Civics and Morality, and Physical education that need modification and correction. These subjects might be difficult and don't capture students' interests. For agronomy, two subjects, namely Administrative Computer and Khmer Language need attention to be considered. More resources should be allocated for these subjects. Two subjects, namely Maths and Techniques of Rice Planting work well in light of students' perception and interests. Four subjects, namely Research, Physical Education, Civics and Morality, and Survey and Village Arrangement need modification and correction. These might be due to complexity. Two subjects, namely Biology and Crop Planting and Management need modification. Resources should be moved out. The contents of these subject might not be relevant to the trade.

For Accounting and Management, Maths, they need more attention for resource mobilization. Maths teachers should pay more attention on this subject. Three subjects, namely Financial Accounting Implementation, Computer Skill Implementation, and English for Business 1 work well. This might be due to students' foundational background on these subjects, or teachers might teach well. Four subjects, namely Physical Education, Management Implementation, Civics and Morality, and Administrative Computer need modification and correction. It is consistent with Ai (2015) that vocational students in Malaysia are required to study Malay language, English language, Mathematics, and Islamic, Civics and Morality, and History.

The study has some limitations to be considered. There was only one male participant rating the questionnaire for accounting and management trade. 28 participants rated the questionnaire from one GTHS for electronics trade. There were 32 participants rating

the questionnaire from only one GTHS. The future research should be undertaken to enlarge the number of participants with more GTHS and more trades.

Resulting from the findings, the TVET curriculum developers should revise the existing curriculum to capture students' interests to reduce dropout rates. Technical education teachers should apply a variety of teaching methods to engage students in learning such as inquiry-based learning, project-based learning, concept-based learning, etc. Teachers should design lesson plans putting emphasis on critical thinking and problem solving with multidisciplinary learning activities (Tongchai, Wichaidit, & Koocharoenpisal, 2019). Problem-based learning encourages students' teamwork skills in inquiring new concepts (Kandaiah & Dollah, 2019). Finally, school management should guide and monitor teachers' teaching to ensure that they are on the right direction instructionally.

TVET curriculum implementation can be achieved fruitfully with stakeholder involvements such as students, teachers, school management, industries, government, and community. Exceptionally, teachers' tremendous contributions and efforts can be a catalyst used to achieve the curriculum objectives and syllabus (Ai, 2019). Curriculum developers, industry representatives, academic education teachers for general education subject clusters and vocational education teachers for vocational subject clusters might sit together to revise the curriculum following this study's results. If consensus can be reached among them, an integrated and standardized curriculum with holistic approach will be developed to close the demand and supply needs.

Acknowledgements

We, SEAMEO TED, would like to express our profound thanks and gratitude to the Ministry of Education, Youth and Sport, Cambodia for assigning us to conduct a research study on "Assessing the Curriculum Implementation Effectiveness at General and Technical High Schools in Cambodia''. We would also like to thank general and technical high school principals, teachers and students for their hospitality, kindness, openness, help, cooperation and their active involvement in facilitating, assisting and helping us fill out the questionnaires during data collection. Without the support of these people, our research would not have been possible.

References

ADB. (2016). *Policy priorities for a more responsive technical and vocational education and training system in Cambodia* [ADB briefs]. Manila, Philippines: Asian Development Bank.

ADB. (2020). *Education, skill training, and lifelong learning in the era of technological revolution* [ADB economics working paper series]. Manila, Philippines: Asian Development Bank.

Ai, S. (2015). *A comparative study on the TVET curriculum at upper secondary level of Cambodia and other 4 Asian countries* [Master's thesis]. Cheonan, South Korea: Korea University of Technology and Education.

Ai, S. (2019). *Exploring the competency components for technical and vocational education teachers in Cambodia through a qualitive approach* [Doctoral dissertation]. Cheonan, South Korea: Korea University of Technology and Education.

Afolabi, S. O. (2014). Quality of accounting graduates: A survey of employers in Nigeria. *IOSR Journal of Business and Management*, *16*(11), 29-42.

Creswell, J. W. (2012). *Educational research: Planning, conducting and evaluating quantitative and qualitative research* (4th ed.). Boston: Pearson.

Deng, J., & Pierskalla, C. D. (2018). Linking importance–performance analysis, satisfaction, and loyalty: a study of savannah, GA. *Sustainability*, *10*(3), 704.

Roofe, C., & Ferguson, T. (2018). Technical and vocational education and training curricula at the lower secondary level in Jamaica: A preliminary exploration of education for sustainable development content. *Discourse and Communication for Sustainable Education*, *9*(2), 93-110.

George, D., & Mallery, P. (2003). SPSS for windows step by step: A simple guide and reference 11.0 update (4th ed.). Boston: Allyn & Bacon.

Joseph, A. G. & Rosemary, R. G. (2003). Calculating, interpreting, and reporting Cronbach's 56 Alpha reliability coefficient for Likert-type scales. Presented at the Midwest Research-to Practice Conference in Adult, Continuing and Community Education, The Ohio State University, OH, Octocber 8-10, 2003

Kandaiah, T., & Dollah, M. (2019). Problem-based learning as an aid to teamwork in

mathematics problem solving among pre-university students. *Journal of Science and Mathematics Education in Southeast Asia*, *42*.172-192.

Kolawole, A. D., & Ogungbade, O. I. (2021). Academic curriculum and employability of accounting graduates in Nigeria. *Journal of Business and Management*, *23*(1), 30-36. Retrieved from https://www.iosrjournals.org/iosr-jbm/papers/Vol23 issue1 /Series-1/E2301013036.pdf.

MoEYS. (2015). *The curriculum on technical education at upper secondary level*. Phnom Penh, Cambodia: Ministry of Education, Youth, and Sport.

MoEYS. (2019). *Cambodia's education 2030 roadmap: Sustainable development-goal 4*. Phnom Penh, Cambodia: Ministry of Education, Youth and Sport.

Panth, B., & Maclean, R. (2020). *Anticipating and Preparing for Emerging Skills and Jobs: Key Issues, Concerns, and Prospects* (p. 351). Springer Nature.

Ruiz, L. D., Radtke, M. D., & Scherr, R. E. (2021). Development and Pilot Testing of a Food Literacy Curriculum for High School-Aged Adolescents. *Nutrients*, *13*(5), 1532.

SEAMEO VOCTECH. (2020). *TVET country profile Singapore*. Retrieved from Singapore TVET Profile.pdf

Tongchai, A., Wichaidit, P. R., & Koocharoenpisal, N. (2019). A Professional development program to enhance thinking and problem-solving skills for Thai science, mathematics and technology (SMT) teachers. *Journal of Science and Mathematics Education in Southeast Asia*, *42*.1-25.

Unit, E. P. (2009). *Strategy paper 9: Transforming technical and vocational education and training to meet industry demand.* Retrieved from https://www.epu.gov.my/sites/default/files/2021-05/Strategy%20Paper%2009.pdf

Walker, D. F. (2003). *Fundamentals of curriculum: Passion and professionalism*. New Jersey: Lawrence Erlbaum Associates.

White, J. A., Hagedorn, R. L., Waterland, N. L., Barr, M. L., Famodu, O. A., Root, A. E., ... & Olfert, M. D. (2018). Development of iGrow: a curriculum for youth/adult dyads to increase gardening skills, culinary competence, and family meal time for youths and their adult caregivers. *International journal of environmental research and public health*, *15*(7), 1401.