

Exploring Instructional Practices of Cambodian TVET Instructors

Abstract

Instructional practice plays a key role in accelerating the pace of transformative change in the institute. However, instructors' competencies in harnessing the essence of curricula and academic guidelines are hindered. The aim of the study is to identify the key themes of instructional practices of instructors who are currently lecturing typical trades at the institute from one schooling year. 87 students studying certain trades were asked to fill out the paper-based questionnaire voluntarily. The 22-item questionnaire used the Likert-type five-point scale for participants' ratings. The questionnaire reported a reliability of $\alpha=.94$. The single-factor test was conducted to check for the common method bias of the data. The results of Harman's single-factor test indicated that different scale items in this study did not load into one common factor ($N=87$), with about 40% – the total variance explained did not exceed 50%. To ensure the content validity of the questionnaire, all 22 items were adapted from the relevant literature. The quantitative method was employed with a cross-sectional study survey design to analyze data. Specifically, principal component analysis (PCA) was employed to answer a research question. After conducting the factor analysis, four factors were decided to be extracted with eigenvalues of 65.457% of the total variance explained. The results highlighted four components of instructional practices consisting of teaching methodologies, curriculum and training programmes, content knowledge, and instructional materials and equipment. The findings suggest that more professional development programmes should be considered for instructors in pedagogies and subject matters. Addressing the development needs of instructors should be encouraged.

Key Words: Teaching methodologies, instructional practice, content knowledge, and instructors.

1 Introduction

Technical and vocational education and training (TVET) plays a key role in developing the economy by investing in human capital. Each government turns its economic development plans into a TVET development plan focusing on youth development for skilling, upskilling, and reskilling. TVET fosters human resource development, enables mobility of labour, and makes a great difference to the economy (Federal Ministry for Economic Cooperation and Development 2015). For example, the Royal Government of Cambodia formulated a national technical and vocational education and training policy for 2017-2025, and an industrial development policy for the period 2015-2025, seeking to transition Cambodia from a labour-intensive economy to an industrial-driven one. It also developed a master plan for technical

education at upper secondary level 2015-2019. TVET is one of the government's strategies geared towards the achievement of sustainable development goals and the alleviation of poverty (MoEYS 2019). Furthermore, the government envisions a country with at least one general and technical high school within one province in the short term, and at least one general and technical high school within one district in the long term. This ambition was also mentioned in its rectangular strategies embedded in the economic development plan.

The fledgling system of TVET in Cambodia is within the purview of several relevant ministries, challenging TVET management to ensure quality service deliveries. The instructor, as one element of service delivery assurances, plays an integral part in enhancing the TVET system. However, there is a shortage of competent TVET instructors to deliver quality service (ADB 2019). Most of them use traditional methods such as a teacher-centred approach, lecturing to students in the classroom. This teaching methodology focuses on theory-based lecture rather than real work settings. In addition, some instructional materials and equipment are outdated and unfit for instructional purposes. The lack of suitable instructional materials and equipment also hinders students' hands-on skills acquisition. This apart, stakeholders such as the private sector and social partners, are required to invest in TVET due to public financial resources constraints (The Royal Government of Cambodia 2017).

The curriculum is not aligned with industrial needs because the development process is steered by instructors and curriculum experts without private sector involvement. Links between TVET institutes and industries are weak, their level of cooperation poor (MoEYS 2019; Ai 2015). There is a mismatch between supply and demand, exacerbated by misunderstandings and miscommunication. The TVET curriculum does not reflect real work settings, making it difficult for graduates to find decent jobs, or for employers to find qualified employees (Federal Ministry for Economic Cooperation and Development 2015). Training needs are not responsive to labour market needs (The Royal Government of Cambodia 2017). The TVET curriculum does not meet the current needs of the labour market in Cambodia (Thomas 2019). TVET institutes annually produce 2,500 TVET graduates, failing to meet labour market needs (MoEYS 2019). In addition, instructors' content knowledge is limited on account of their own lack of sufficient training during their university studies. Qualified TVET instructors with good pedagogical knowledge and industry experience are therefore limited in their endeavours to enhance the TVET system in the region (Ai 2015; Federal Ministry for Economic Cooperation and Development 2015).

Showcasing and utilizing the benefits of results, the school will plan and project its resources, activities, and efforts for further development. Instructors need regular professional programmes for their particular trade to support the development of content or pedagogical knowledge which can be applied in schools to encourage success. Instructors will modify their teaching methodologies to focus on a student-centred approach and hands-on skills. Finally, instructional quality will be attained by enhancing instructors' competencies.

Investing in human capital focusing on TVET is the foundation of skills development for youth (MoEYS 2019). The purpose of the research was to identify key themes of the practices of instructors currently teaching any particular trade. What are the key themes of instructors' teaching practices?

2 Literature Review

Instructors are the key catalyst to achieving TVET quality learning outcomes. Instructors might be equipped with a holistic approach to make this tangible. Thus, TVET instructors might be part of professional development programmes which regularly keep them abreast of new technological innovations relating to content, pedagogical, and technological knowledge (Ai 2015).

The level of TVET instructors' instructional practices accelerates quality-of-service deliveries. Ismail, Nopiah, Rasul and Leong (2017) undertook a literature review of fourteen research articles published between 2009 and 2015 to identify Malaysian TVET instructors' instructional challenges. They found that Malaysian TVET instructors needed to improve their content, pedagogical, and technological knowledge to deliver quality training courses to TVET students. Qualified TVET instructors could guarantee successful training in both theoretical and practical contexts.

TVET instructors' competency standards set a minimum level of qualifications to ensure quality service delivery. Ai (2020) undertook a qualitative study to develop competency components for technical and vocational education instructors in Cambodia with 12 TVET instructors. He identified four key themes: content knowledge, pedagogical knowledge, administrative competencies, and supporting competencies for TVET instructors. The academic qualifications of TVET instructors will help them to measure the success of students' learning outcomes after graduation.

Student performance is generally the result of cumulated learning with a variety of teachers who are specialized in different subjects (Zakharov et al. 2016). Teachers have to be cognitively and professionally competent for a competitive labour market in the region. To be technically proficient in quality instruction, teachers must possess effective instructional prerequisites. Stronge and Hindman (2006) stressed five teaching prerequisites consisting of (1) verbal competencies for communicating their knowledge to students; (2) content knowledge specializing in the subject matter; (3) academic coursework with a required credit number; (4) certification with teaching licences; and (5) teaching experience for a number of years in their teaching careers. The prerequisites vary from context to context because of different socio-economic settings.

Teachers' knowledge and experiences affect students' learning outcomes (Olfos et al. 2014). A teacher with seasoned teaching experience knows how students construct their own knowledge, acquire skills, and develop a positive disposition toward learning (Mishra & Koehler 2006). In addition, teachers can transfer knowledge, skills, and desired values into

teaching presentations and actions for students' learning on a daily basis (Shulman, 1987). Teachers' content knowledge plays a key role in enhancing teaching quality and students' learning outcomes (Zakharov et al. 2016). Without qualified teachers' effective guidance and instruction inside the classroom, learning cannot be achieved successfully (Azigwe et al. 2016).

Proficiency in the curriculum development process and instructional equipment operation related to hands-on skills is crucial for TVET instructors to capture both theoretical and practical perspectives. Pangeni (2014) noted that educational quality is evident in teachers who are proficient in content knowledge, teaching methodologies, and equipment operation. A competent teacher is required to possess knowledge of content, teaching methodologies, and curriculum development (Shulman 1987; Robertson 2008). Zbar, Marshall and Power (2007) highlighted teachers' professional standards focusing on content knowledge, teaching methodologies, and curriculum/course outline designs for student learning.

3 Methods

3.1 Participants (N=87)

Primary data was collected by distributing one type of questionnaire to students who were currently studying a trade. 87 students were asked to fill out the paper-based questionnaire through the consent form allowed by the institute's board of management. The criteria for choosing the participants were (1) students who are currently studying any vocational trade, and (2) students who are currently studying at NPIC from year 1 (C1) to year 3 (C3). The demographic information of the participants was highlighted in Table 1 and Table 2.

Table 1: **Gender Information of the Participants**

Gender	Frequency	Percentage (%)
Male	79	90.8
Female	8	9.1
Total	87	100.0

Table 2: **Academic Year of the Participants**

	Frequency	Percentage
Year, 2, C2, or grade 11	29	33.3
Year 3, C3, or grade 12	19	21.8
Year 1, C1	39	44.8

Total	87	100.0
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Notice: C2 or Year 2: Certificate level 2 or grade 11 in trades; C3 or Year 3: Certificate level 3 or grade 12; C1 or Year 1: Certificate level 1 or grade 10

3.2 Instrument Development

This research study was based on the survey design. A cross-sectional study approach was employed to analyze data at one point in time (Creswell 2012). To ensure content validity, 12 questionnaire items were extracted from Lim and Kim (2017). The other 10 items were added by two TVET experts. The Likert-type 5-point scale was employed ranging from 1 (the lowest score) to 5 (the highest score). For example, 1 was for poor, 2 for fair, 3 for good, 4 for very good, and 5 for excellent. Item 1 asked: *if you frankly evaluate the technical training in your institute, how much do you think your needs for skills and knowledge satisfy in this curriculum?* Item 2 asked: *if you evaluate the technical training in your institute frankly, how much do you think the successful completion of the programme would improve your skills and knowledge?* Item 3 asked: *if you evaluate the technical training in your institute, how much do you think the contents of the training would need to be updated to reflect the current work situation in the related company?*

3.3 Data Analysis

The questionnaire reported reliability of $\alpha=.94$ (N=87), supporting internal reliability within the scale for students. George and Mallery (2003) provided a rule of thumb that if α is more than .90, it is excellent for internal consistency for all items within the scale of the questionnaire (as cited in Gliem & Gliem 2003). Furthermore, the significance levels of Kolmogorov-Smirnov and Shapiro-Wilk's test were .12 for all 22 items ($P>.05$). This means that the data is normal for further analysis. A KMO test for the current instructional practice of lecturers yielded a score of .901, which is greater than .60. The Barlett's test of Sphericity yielded a significant level of .000, which is less than .05 ($P<.05$). Therefore, a factor analysis is appropriate for data.

In addition, a single-factor test was conducted to check for the common method bias of the data. The results of Harman's single-factor test indicated that different scale items in this study did not load into one common factor (N=87), with about 40% – the total variance explained did not exceed 50%.

4 Results

After conducting the factor analysis, four factors were extracted with eigenvalues of 65.457% of the total variance explained, as shown in Table 3. Factor 1 relates to teaching methodology, factor 2 focuses on curriculum and training programmes as a whole, factor 3

refers to teachers' content knowledge, and factor 4 encompasses instructional materials and equipment. Each factor and component can be seen in Table 4.

Table 3: **Eigenvalues of the total variance explained**

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	10.443	47.470	47.470
2	1.742	7.920	55.390
3	1.200	5.454	60.844
4	1.015	4.613	65.457

Table 4: **Rotated Component Matrix**

	Component			
	1	2	3	4
21. Does the trainer evaluate trainees' skills competency objectively?	.743			
16. Overall rating on the trainer's teaching methods.	.742			
19. Does the trainer properly evaluate the skills learned in your class?	.705			
18. Does the trainer properly evaluate the knowledge learned in your class?	.694			
17. Does the trainer set mid-term or final tests reflecting the objectives?	.572			
7. Are you able to perform a task in a company after completing each programme?		.788		
3. Is the training content up to date, reflecting current work in the related company?		.746		
4. Were your needs and characteristics considered in the programme?		.656		
12. Does the trainer demonstrate interest in content mastery and knowledge learning?		.579		
15. Does the trainer use and explain various teaching materials in direct reference to concepts, theories, and skills?		.571		
2. Would the successful completion of the programme improve your skills and knowledge?		.524		
13. Does the trainer lead by example (showing enthusiasm, encouraging participation, demonstrating respect, etc.) and			.802	
22. the overall rating of the trainer's evaluation competency.			.727	

1. Are your needs for skills and knowledge satisfied in this curriculum?			.572	
14. Does the trainer ask the trainees questions to stimulate and verify learning?			.569	
20. Does the trainer properly evaluate the questions and feedback activities in the class?			.557	
10. Do the teaching facilities and equipment help you to improve your competency?				.802
4. Were the various characteristics of the job in the company considered in the programme?				.752
11. Does the trainer demonstrate mastery of the content and knowledge of materials?				.589
9. Were learning materials and textbooks well organized to support better performance in the programme?				.573

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

5 Discussion and Conclusion

The key themes of the TVET instructors' instructional practice were identified as four components: teaching methodology, curriculum and training programmes, content knowledge, and instructional materials and equipment. The results reflect the reality of TVET teacher training programmes in Cambodia. After studying at university for some years to acquire content knowledge and hands-on skills, they might attend teaching methodology courses for one or two school years (depending on the different supervising ministries) if they want to be teachers. Results were consistent with the goal of national TVET policy 2017-2025, mentioning the development of instructors' capacities in terms of teaching methodologies, and operating materials and equipment (ADB 2018). Teachers' teaching methodologies enhance teaching quality which will be reflected in students' academic outcomes later on (Ganyaupfu 2013). In contrast, TVET instructors should possess sufficient industry experience to be authentic to the realities of work (ADB 2018). Some TVET instructors are poorly equipped with regard to industry experience (Joo 2018; Misra 2011). This might be due to TVET instructors already possessing industrial skills.

The results captured TVET students' perception of instructional practices and were consistent with research undertaken in South Korea. For example, TVET instructors might be competent in content knowledge, teaching methodologies, instructional material and equipment operation, and curriculum, textbook, and training material development (Joo 2018). This might be due to similarities in the TVET system and educational context.

The findings have some limitations. The study was male-dominated, with 78% of the participants in the research sample. A greater number of female students should be considered for further research. However, female participation in TVET courses is considerably limited

in Cambodia. Most TVET courses are geared toward male jobs (ADB 2016). The target participants were C1/grade 10, C2/grade 11, and C3/grade 12, with limited perception of TVET instructors' instructional practices. The number of participants should be enlarged, ranging from short-course students to TVET university students in order to capture a complete set of TVET perceptions toward their instructors for further research.

Based on the results, instructors themselves should consider these competencies as the professional development programme under coordination and support from the school. If these competencies can be enhanced effectively for TVET instructors, their capacities can be raised up gradually to close the skills gap. Finally, Cambodian instructors will be better equipped to support, motivate, deliver, and prepare learners to become complete citizens of a knowledge society by the year 2030 (MoEYS 2019).

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