



Education management in Thai Vocational Education in the Coronavirus Disease 2019 (COVID-19) pandemic

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Abstract

This article exhibits the processes of Vocational Education management in Thailand during COVID-19 pandemic situation as the new ways of Vocational Education management that emphasizes both the academic knowledge and professional skills in the Active Learning Model, which conveys to Competency-Based Learning management with the flexible learning model based on the situation through digital technology to ensure that the management of Vocational Education encounters the regulative curriculum standards.

According to the interview Chief Executives, the Office of the Vocational Education Commission (OVEC), Principals, Teachers, and Vocational Education personnel, the researchers examined by collecting data to analyze with Context Analysis, which divided into 5 issues as follows: 1) The Contributing factor, OVEC has implemented three contributions, the preparation of learners and educational institutions, supporting the expenses to alleviate the burden of parents, and preparation of learning management manuals in COVID-19 pandemic situations. 2) The Developing Learners factor, to develop the learners during school closure in COVID-19 situation and avoid loss of productivity & learning curves by emphasize on linguistic communications and digital literacy skills likewise the development for learners through the website (www.ครูพร้อม.com) 3) The Developing Teachers, especially in technology by encouraging teachers to create online units/lessons and develops the satellite remote lessons (DLTV) for a large group of students, meanwhile, teachers are eligible for developing and learning skills. 4) The Teaching and Learning Management factor, to determine in the various learning management for distributing to all teachers with appropriate contents, and situations in each areas. According to learning management, which require teachers to reanalyze the contents that must know and should know. For the contents that must know, needs to remote the teaching through Technology systems or Online platforms. The contents that should know, prepare, or provide teaching materials for self-learning to student. For practical training part, divides the students into small groups for practice and training by the Block Course method, provides a Live demonstration of teaching or provide online virtual training. The part of professional competency training in the workplace, which called “Dual Vocational Education”, the educational institutions must coordinate with 3 parties: the workplace, parents, and students. In case one of those did not accept, the educational institutions must prepare a place to simulate an internship such as inside educational institution or etc. The teacher will evaluate the subject and profession assessment through online channels. For the practical training part, there must be an appropriate process or write the sequences of procedures instead. 5) The extracurricular activities, to organize the activities that improving the quality’s life of learners and expand to family, and community whereat the teacher will evaluate the results according to the activities outcomes for students.

Keyword : COVID-19 situation, Online Learning management, Vocational Education (Thailand)

1. Introduction of Vocational Education in the pandemic situation of Coronavirus Disease 2019

Education is an important process in developing the quality of people. The ability to adapt to change in the age of globalization, management of education in the present era has opened opportunities

for learners to learn more. This is seen from the National Education Act 1999, the definition of education in Section 4 is a learning process for the prosperity of individuals and society through the knowledge and training continually, culture creativity, sustains academic progress, and creation of knowledge arising from environment, society, learning, and factors that support people to learn throughout their lives. In this regard, educational institutions can manage formal, non-formal, and informal education. The goal is to develop Thai people to be well human beings that are perfect in body, mind, intelligence, morality, ethics, culture, and able to live with others. It has also established guidelines for educational management that should be appropriated to the economic, social, political, and cultural needs of the country that contribute to the progress of Thai society. Education is a process that will help to improve the quality life of Thai people by desirable guidelines. (Ministry of Education, Department of Academic 1999:1) The National Education Plan 2017-2036 emphasized on education as the main mechanism for national development by setting a framework for the goals and directions of the country's educational management, which aims to distribute education for all Thai people access to the opportunities in quality education; to develop an efficient educational management system. Developing manpower reaches to the demands of Labor Market and develop country. The focus is on the challenges that are dynamics of the 21st Century, in terms of external pressures, such as changes in the global economic and social context. As a result of the rapid replacing in Digital Technology that affects the economic and social systems of the country, regions, and the world, which achieve the United Nations Sustainable Development Goals (SDGs 2030). Thailand has ratified, including the impact of the ASEAN Community and the need for skilled manpower in the 21st Century that the world encounters challenges and aims to develop the country towards economics and social developments in the Era 4.0

The National Education Act 1999 (1999 :6) divided education into 2 levels: the basic level; and tertiary level in the management of Vocational Education. It stated in article 20 that "Management of Vocational Education Training be organized in public educational institutions, private school, establishment, or cooperation with the educational establishment. This shall be in accordance with the Law on Vocational Education and related laws." Currently, the Vocational Education Act B.E. 2551 (2009: 3) is the main law in vocational education management by giving the meaning of vocational education that It is an educational process to produce and develop manpower in the field of professional skill level, technical level, and technology level. Vocational training must be a professional education management with the National Economic and Social Development Plan to produce and develop manpower in the field of professional level, skill level, technical level, and technology level as well as to raise the level of vocational education to a higher level to meet the needs of the labor market by applying universal theoretical knowledge and Thai wisdom to develop the educated people to have knowledge, practical, ability, and capable to lead a career as a practitioner or self-employed which manage education in 3 forms: formal education; informal education, and bilateral education.

Office of Vocational Education Commission (OVEC), it is the main agency that provides education and vocational training in 11 subjects, namely Industry, Agriculture, Commerce, Home economics, Fine arts, Fishery, Tourism Industry, Information and communication Technology, and textile technology. The courses are in various levels as follows: Vocational Certificate, Higher Vocational Certificate, and Bachelor's Degree of Operations Technology, with the objective of producing the knowledgeable manpower proficiency in vocational skills, morality, discipline, attitude, personality, and, appropriate intelligence can be used in a career that meets the needs of the labor market with the economic and social conditions both at the local level and national level by giving students the opportunity to choose the system and learning method that is seamless according to their potential, interests, and opportunities. The promoted cooperation in education management and curricula development among institutions, agencies, organizations, and both national and local community (Department of Vocational Education, 2003: 1) At present, the Office of the Vocational Education Commission has a variety of educational management formats, such as regular education management (in the classroom), bilateral system (cooperating with enterprises), management of the transfers of knowledge and experience, etc.

In the current world situation is affecting the broader educational management model. Educational institutions must adapt to new learning management styles, new teaching and learning management then students are able to have competences as specified by the curriculum. Therefore, new teaching and learning management style are the keys to provide students with desirable attribution

according to goals. In which teachers are the key roles in the development of teaching and learning for learners and people who are interested in learning, have creative ideas teaching management model. It is important to manage learning that students can understand the subject clearly, make an effective learning development. As a result, learners have desirable characteristics according to the standards of the curriculum and in accordance with the assessment criteria of the Office of Educational Standards and Quality Assessment.

In the pandemic situation of the COVID-19, which challenges to the Vocational Education management that requires teaching and learning that combines both theory and practice, especially in teaching practice to achieve quality knowledge, standard professional competences to achieve the goals of the Office of Vocational Education Commission. However, in the pandemic of COVID-19, educational institutions must adapt the new learning management styles to be used in teaching and learning management, so the students have competence as specified by the curriculum. Most of focusing on the distance learning management through electronic systems that learners can access in all areas because the remote teaching management via electronic systems is suitable for the pandemic situation of the COVID-19. It is in line with the National Education Development Plan that wants Thai society to be online learning society and allows educational institutions to proceed in life-long learning management. However, Vocational Education management is an education that focuses on providing students with professional competence, knowledge, skill, and desirable characteristics, which the models of teaching and learning in a distance via online system can develop learners in the knowledge. The only skills that must be practiced until proficient, so it can continue to use and solve problems in real situations. The Office of Vocational Education Commission has set guidelines for modifying the educational management model and evaluating according to the curriculum to be appropriate for the pandemic situation of the COVID-19 for educational institutions under the Office of Vocational Education Commission. In order of educational institutions to adapt to the management of distance learning through electronic systems or teaching styles in various ways in accordance with the guidelines set by the Ministry of Education for appropriateness and quality which creates a new world of learning and is the beginning of turning the crisis into an opportunity for reform and a catalyst for the development of vocational education into "Digital vocational education" that must create a variety of learning styles create a system for developing vocational education for sustainable development of the country.

2. Guidelines for the management of Vocational Education in the pandemic situation of the Coronavirus Disease 2019

Office of Vocational Education Commission has set guidelines for vocational learning management in the pandemic situation of COVID-19 of educational institutions under the Office of Vocational Education Commission Due to the epidemic of COVID-19, educational institutions located in the area where the Center for pandemic administration announced measures to prevent educational institutions from conducting classroom or regular teaching in educational institutions¹. Educational institutions must require teachers to adjust their teaching methods from the normal format. It is an online teaching and learning management in the form of teaching live (Live) through the platform (Platform) quality online learning management. Design learning activities aimed at achieving course objectives that are comparable to those taught in the classroom. Assign and receive tasks through electronic systems without attending class but the teaching and learning of Vocational Education focuses the learners to practice on their own through the process of learning management of teachers to make students become proficient, so it can be used and solved in real situations. Therefore, it is a challenge to manage Vocational Education in accordance with the situation, but still maintain the quality of learners and graduates to be the country's important manpower.

As the guidelines for Vocational Education management in the situation of the COVID-19 epidemic, the authors interviewed the top executives of the Office of the Vocational Education Commission, school administrators, teachers, and vocational education personnel are using the data collected for a context analysis, it was found that the management of vocational education in the situation of the epidemic of COVID-19 divided the plans to handle with pandemic situations as follows:

¹ Office of the Vocational Education Commission, The COVID-19 Learning management Guidelines, Ministry of Education, 2021

- 2.1 Supporting factors
- 2.2 Learner Development
- 2.3 Teacher Development
- 2.4 Teaching and learning management
- 2.5 Extracurricular activities

2.1 Supporting factors

Due to the pandemic situation of Coronavirus Disease 2019, there is still a tendency to spread continuously and expand in many areas across the country, affecting educational management at all levels, so the management of education in the epidemic situation does not affect the people involved much for the Office of Vocational Education Commission. Therefore, the guidelines for the management of Vocational Education in the situation of Coronavirus Disease 2019 in terms of factors are as follows:

2.1.1 Preparation of educational institutions

Educational institutions that provide Vocational Education through the online learning channels, an educational environment must be provided, to be ready for teaching and learning with the related equipment in the field of study, teaching materials both offline, online, and various scientific sources, etc., The learners are acquire knowledge, skills and attributes that correspond to the objectives of the course preparation of the educational institutes are as follows:

- 1) Prepare equipment for the management of distance vocational education
- 2) Establish a teaching media production center to manage and remote the learning through electronic platforms.
- 3) Prepare a sufficient internet technology system for the management of distance learning through electronic systems.
- 4) Arrange other sources of lecturers that are appropriate in accordance with the context of remote teaching and learning through online platforms.

2.1.2 Preparation of learners

Office of Vocational Education Commission has set for the preparation of educational institutions behavior of students, and personnel in educational institutions before the beginning of the semester to reduce the chances of infection and prevent the infection. Creating the safety for everyone by having 3 groups: 1) self-assessment form for vocational institutions, 2) self-assessment form for students, and 3) self-assessment form for administrators, teachers, personnel, and involved people in the college. The academia of preparation before the beginning the semester, to be monitored and prevented the spread of Coronavirus Disease 2019, which uses the assessment criteria from the practical manual for educational institutions in the prevention of the COVID 19, the Department of Health, Ministry of Public Health additionally in the areas related to vocational schools, such as laboratory management or internships; and report the results of the self-assessment to the provincial vocational office Provincial Education Office and provide a report on the results of the assessment notify the agency Provincial Vocational Education Commission to collect information and report to the Office of Vocational Education Commission.

In addition, the Office of the Vocational Education Commission conducted a survey on the readiness of learners and vocational schools for online learning materials to help and support learners to get in online learning. According to the survey², 97% of learners have a smartphone and only 3% do not have a smartphone. Learners who are not equipped with both smartphones and no internet access, Office of Vocational Education Commission requires educational institutions to deliver books, textbooks, assign tasks by preparing knowledge certificates. Worksheets and quizzes are to be delivered to home.

2.1.3 Supporting expenses to alleviate the burden of parents

Office of the Vocational Education Commission has determined that educational institutions under both the public and private sectors are, to provide a waiver of tuition fees and a reduction in unnecessary expenses in collecting student registration fees in order to reduce the burden of parents' expenses, such as expenses related to orientation, organizing morals and ethics training

² Bureau of Vocational Education Standards and Qualification, Office of the Vocational Education Commission, Ministry of Education, 6 June 2021

activities, and other activities with a large number of groups that cannot be done then refrain from collecting expenses for those activities. It will be able to reduce some expenses to some extent for online teaching management. The Office of the Vocational Education Commission has supported monthly internet fees for students for a period of 2 months in the amount of 79 baht per month, including paying compensation for each student of 2,000 baht, according to the measures set by the Minister of Education.

2.1.4 Preparation of learning management manuals in epidemic situations

The Office of Vocational Education Commission has prepared to support the opening of the semester. It has prepared a learning management manual of the Office of the Vocational Education Commission for educational institutions in the situation of the 2010 Coronavirus Infectious Disease 2019 and has established measures to prevent the spread of COVID-19 in the event of pandemic to prepare for the opening of the semester by requiring all vocational schools to practice according to the manual of the Department of Health, Ministry of Health by organizing premises, classrooms, laboratories, internships, libraries, conference rooms, sports fields, canteens, etc. In accordance with environmental health practices must have good ventilation in the room, avoid using air conditioners, which if necessary, It must be ventilated every 1 hour and cleaned regularly, to have a distance or manage time lapses in small group training clean the work area and materials and equipment at the end of use, provide alcohol or hand washing point in the laboratory students are screened by students. Only students who have passed the screening can enter the laboratory. Students are strictly required to wear a mask/face shield and gloves while working.³

2.2 Learner Development

2.2.1 Development of learners during school closures with pandemic and during the semester break The Office of Vocational Education Commission has promoted skills in various fields for the development of learners so that they do not lack learning curves. Emphasis is placed on 3 important skills, namely 1) English skills, using the Echo VE application to improve speaking, listening, reading and pronunciation skills 2) Chinese language skills that brings 100,000 accounts of Tang Chinese Education & Technology Ltd.'s online Chinese courses for students to use for free without having to 3 months free of charge, including a proficiency test using the Tang Class application and 3) Digital Literacy, which the trainees will receive a certificate upon passing. training in each skill

2.2.2 Developing learners through the website (www.คปทพร้อม.com) to create learning in an epidemic situation where normal teaching and learning cannot be managed. There are 4 types of courses which are

- 1) Learning in online classroom via YouTube Live, according to Google's curriculum
- 2) Online learning through digital literacy materials, cyber literacy course,
- 3) Online learning skills development course. English at the Beginner level and
- 4) Online learning through 11 careers teaching materials.

2.3 The roles of teachers and teacher development

2.3.1 Instructors in remote teaching management via electronic systems

2.3.1.1 The role of the teacher

Teachers are the developers of lesson content to produce text books, develop electronic courses, develop worksheets for learning practical content in educational institutions, and develop other teaching activities, as well as organize do the test and evaluate the extracurricular activities and other activities as specified by the curriculum including contacting students to answer questions and comment or sharing knowledge with learners through communication tools within the system such as Chat, Web board, etc., in order to improve the quality of learners in managing distance learning through electronic systems.

2.3.1.2 Teacher preparation

1) Analyze the course curriculum to be used as a quality teaching document suitable for learners in the management of distance learning through electronic systems

³ Office of the Vocational Education Commission, The COVID-19 Learning management Manual, Ministry of Education, 2021

2) Bring the content to develop into electronic lessons and electronic media that is effective and suitable for learners in the management of distance learning through electronic systems

3) Prepare worksheets based on quality practical content according to the learning-based model. in accordance with the course and condition of the user's needs

4) Organize various extra-curricular activities for suitable learners. This corresponds to the context in the management of distance learning through electronic systems.

5) Provide quality measuring and evaluation tools. In the requirements of the curriculum and suitable for learners in the management of distance learning through electronic systems.

2.3.2 Teacher Development

2.3.2.1 Teacher development in the use of technology

Office of Vocational Education Commission Teachers are encouraged to create online lessons, teaching materials, teaching techniques and assessments that are appropriate to manage online learning by developing teachers using technology. The roles of teachers are divided into 3 groups, namely 1) Excellent Teacher group 2) Mentor Teacher group and 3) Network Teacher group totaling 100,000 people in the development of teaching distance teaching via satellite (DLTV) by developing from a vocational certificate program. (Vocational Certificate) and Higher Vocational Certificate Program (High Vocational Certificate) in the core competency category. and vocational categories in subjects with many students, totaling 200 subjects

2.3.2.2 Teacher development through website (www.ครูพร้อม.com)

It is the development of teachers to create learning in pandemic situation where normal teaching and learning cannot be managed. This can create voluntary readiness of teachers. There are 3 types of learning: 1) online classroom learning via YouTube Live according to Google's curriculum; 2) online learning through digital literacy teaching materials. Application to enhance productivity with Microsoft Form and Planner and 3) Online Learning Intermediate English Skill Development Course.

2.4 Teaching and learning management

2.4.1 Learning management model in the pandemic of COVID-19

Office of Vocational Education Commission designs the educational institutions to consider teaching and learning in various formats that are appropriate for the context of educational institution and all area, considering the public health measures in the instruction manual for educational institutions in preventing the spread of the COVID-19 from the Department of Health, Ministry of Public Health and must comply with preventive practices.⁴ The pandemic of COVID-19 during college starts, need to prepare 6 items are 1) screening 2) wearing masks 3) washing hands 4) social distancing 5) cleaning 6) reducing congestion.

For the learning management model in the pandemic of the novel COVID-19, the Office of Vocational Education Commission has defined three formats: 1) Online, 2) On-Demand, and 3) Classroom or On-site teaching and learning. (On-Site), which the Office of Vocational Education Commission has surveyed the guidelines for learning management of educational institutions. It was found that 62 percent⁵ of vocational schools, both public and private, would like to have a blended learning arrangement both online and on-site, except for educational institutions located in high-risk areas still learning 100% online, which is blended learning. Educational institutions may manage learning that uses a variety of learning styles, whether it is learning that takes place in the classroom. The combination of learning outside the classroom where teachers and students do not face each other or using a variety of learning resources, both online and on-site formats, which are aimed at student learning as importance.

Institution to have appropriate Social Distancing, the educational institutions can choose a format. The teaching and learning arrangements as appropriate are as follows: 1) Switching classes for students and students using the alternate school days 2) Switching classes for students and

⁴ Office of the Vocational Education Commission, The COVID-19 Learning management Manual, Ministry of Education, 2021

⁵ Bureau of Vocational Education Standards and Qualification, Office of the Vocational Education Commission, Ministry of Education, 6 June 2021

students using the alternate days for odd days 3) Switching classes for students and students. alternating days to study, 5 days off, 9 days off 4) alternating student's study periods, daily study style 5) alternating groups of students are divided into 2 groups of students in the classroom. 6) Other forms or methods.

2.4.2 Teaching and learning management

2.4.2.1 Theoretical learning management

The teacher must analyze the theoretical content into 2 groups: content must be known, and content should be known. The content that "must know" allows teachers to manage remote teaching through electronic systems. Through the online system (Online) and content that "should know", teachers provide suitable teaching materials (On Demand) for learners to study on their own as follows:

1) Tele-teaching management via electronic system through the online system (Online) is the management of teaching in the form of teaching live (Live) through the platform (Platform) quality online learning management. Design learning activities aimed at achieving course objectives that are comparable to those taught in the classroom. Assign and receive tasks through electronic systems Without having to attend classes, the electronic distance learning system consists of the following activities:

- Learning academic content from electronic documents (e-books) with content analysis according to the specified curriculum for teaching and learning.

- Learning theoretical content from electronic courses with presentations of academic content in the form of Multimedia that consists of letters, images, sounds and animations, making the lessons attractive and interesting.

- Learning activities to develop and promote learning through communication tools within the system such as homework (Assignment), taking a test (pretest / posttest) and the project for students to evaluate their own learning. This activity allows the students to share their opinions, exchange knowledge, ask questions relating to an academic content between teachers and students or learners themselves through communication tools that are available in the system such as Chat Room or Web board.

- Check and assess the students' learning progress according to the schedule. Submit work and reporting attendance statistics in electronic media according to specified proportion.

- Measurement and evaluation of the theory Teachers will conduct unit tests and conduct the end of semester tests with standardized exams (Final Examination) electronically such as Google Form or Kahoot.

2) Remote teaching and learning management via electronic system through self-learning, teaching is organized in a way that teachers record pre-recorded teaching (On Demand) presented through quality online media. Learners can come and study anywhere, anytime with content, learning media and appropriate assessments for learners' self-learning together with communication channels through social media between teachers and students.

2.4.2.2 Hands-on learning management

1) Learning practical content by attending the practice in the school (Classroom Learning), where teachers in the course consider competence and important practical content and must be used in the workplace to students in module form focus on problem solving setting the situation case studies and teaching as a learning base with continuous learning (Block Course) according to the specified number of hours as well as dividing the learners into small groups in accordance with the number of equipment and equipment in the laboratory. and according to the specified learning management plan as well as complying with the Coronavirus Disease Situation Management Center's Order 2019, measures prescribed by the COVID-19 Situation Administration Committee in each area. According to social distancing measures or teachers may arrange teaching by demonstration. In the form of live teaching (Live) or virtual simulation (Simulation) online for learners' self-learning (On Demand) and there is a communication channel through social media between the teacher and the learner.

2) Practical evaluation, teachers will conduct an assessment during learning the practical content. or at the end of the practice in each learning base according to the competencies that are important and must be used in the workplace. In the theory session, the teacher analyzes the theoretical content into 2 groups: content that must be known; and content that should be known the content that you need to know is to manage remote teaching via electronic systems in a live form via

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graph TD
    A[หลักสูตร.....  
รายวิชา.....  
คำอธิบายรายวิชา.....] --> B[วิเคราะห์คำอธิบายรายวิชา  
ภาคทฤษฎี  
ภาคปฏิบัติ]
    B --> C[ภาคทฤษฎี]
    B --> D[ภาคปฏิบัติ]
    C --> E[ความรู้]
    C --> F[ทักษะ]
    D --> G[ความรู้]
    D --> F
    E --> H[เนื้อหา.....  
Content.....]
    F --> I[เนื้อหา.....  
Content.....]
    H --> J[การสอนแบบแอด  
(On Demand)]
    I --> K[การสอนแบบสด  
(Live)]
    J --> L[เนื้อหา]
    J --> M[วิธีการสอน]
    J --> N[สื่อการสอน]
    J --> O[การวัดประเมินผล]
    K --> P[เนื้อหา]
    K --> Q[วิธีการสอน]
    K --> R[สื่อการสอน]
    K --> S[การวัดประเมินผล]
    L --> T[-e-Book]
    M --> U[-วีดีโอ]
    N --> V[-สื่อป้านอนอีเล็คทรอนิกส์]
    O --> W[-เครื่องมือวัดผลออนไลน์]
    P --> X[ส่งผ่าน Chat]
    Q --> Y[Video Conference]
    R --> Z[Share Desktop  
PowerPoint]
    S --> AA[Kahoot  
Google Form]
    T --> AB[ตัดสินผลการเรียน]
    U --> AB
    V --> AB
    W --> AB
    X --> AB
    Y --> AB
    Z --> AB
    AA --> AB
    
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2.4.4 Professional competency experience training in the workplaces in the form of educational management in the bilateral system that encounter learners to have competence to meet the needs of the establishment but learning in the workplace has risks of contracting COVID-19. In case that educational institutions,⁶ have sent students to attend vocational training in the workplace and in

⁶ Office of the Vocational Education Commission, The COVID-19 Learning management Manual, Ministry of Education, 2021

the provinces declared a risk area or a controlled area or whose work characteristics are at risk of contracting COVID-19, the Office of the Vocational Education Commission requires educational institutions to closely coordinate with establishments, students, and parents. If the establishment insists on strong preventive measures; and students, parents agree to continue their vocational training and continue their education as voluntarily. The consent of students, parents and establishments as well as assigning relevant persons to supervise, monitor and evaluate results in an appropriate format. If students and parents wish to return to their domicile strictly follow the measures of the Ministry of Public Health and to provide educational institutions to provide vocational training in the province instead in the case that the educational institution has not yet received the students, the students receive vocational training in the workplace, causing the educational institutions to delay sending students enter vocational training until the pandemic situation of COVID-19 is relieved and the teacher advises carrying out a list of establishments and lists of students who postpone vocational training in the workplace individually and provide a summary of the hours of past on-site vocational training. To summarize and present the management to proceed further and allow the management to continuously monitor and follow up in all channels in order to find a solution to the problem in a timely manner, follow the manual for educational institutions to prevent the spread of the novel COVID-19, Department of Health, Ministry of Public Health by adjusting to the administrators, teachers, personnel, and people involved in Vocational College

In addition, OVEC has prepared a plan to adjust the management guidelines for flexibility and in accordance with the context of the area and responding to the needs of manpower of various industries by setting up 15 bilateral vocational centers in the area throughout the country to plan cooperation, create a manpower database facilitation and welfare of bilateral vocational learners in various areas to be an intermediary in the connection vocational institutions, establishment and Office of Vocational Education Commission to coordinate development of manpower by divided into 4 divisions as follows:

1) Administrative Department conducts a survey on the needs to accept for internships and vocational training of enterprises in responsibility, monitoring, evaluating, and reporting results.

2) Bilateral Academic Development Department will prepare internship development plan and training teachers.

3) Bilateral Cooperation Promotion Department, it will promote, support, and create the understanding of the bilateral Vocational Education management process for enterprises in their responsible areas.

4) Health and Safety Department will take care and prepare students to raise awareness and understanding of internship safety and vocational training in educational institutions workplace

2.4.5 Assessment of coursework in theory, the assessment will be conducted online. The practical part is assessed at the end in each learning based on the key competencies required to perform in workplaces or evaluating the written responses in a sequence of procedures solution by setting the situation. The teacher considers that the contents affect the quality and standards of the learners. The extending time for decision making by bring content for teaching or integrating project-based interdisciplinary learning management with other courses. In case, the evaluation period may be extended from one semester to one academic year instead.

2.4.6 Professional Standards Assessment Of those who will graduate from the Diploma Year 3 and Diploma Year 2 in theory, use the online assessment. As for the practical part, the committee shall proceed as appropriate. They may ask for permission from the provincial testing committee for the on-site examination.

2.5 Extracurricular activities

The guidelines for organizing extracurricular activities in the pandemic of COVID-19, students unable to study in the classroom, laboratory in educational institutions as usual. Therefore, educational institutions require to develop or set up extra-curricular activities. In the Scout, extraordinary course 1-2 professional organization activities 1 - 4 Activities to promote moral and ethics or activities organized by educational institutions or establishments. Referring to the Vocational Certificate Program (Vocational Certificate) and Diploma Program (High Vocational Certificate), the educational institutions shall be organized in the manner of improving the quality life of learners in accordance with the project activities to the main activity plan of the Organization of Association of Future Thai

Professional Office Of Vocational Education Commission (AFT.OVEC) under the patronage of Somdej Phra Kanitthathirat, Department of Her Royal Highness Princess Maha Chakri Sirindhorn as follows:

2.5.1 Future Farmers Organization of Thailand under the Royal Patronage of Her Royal Highness Princess Maha Chakri Sirindhorn The main activities of professional clubs are carried out in 5 areas as follows:

- 1) Professional development
- 2) Business promotion and savings
- 3) Enhancing leadership behaviors
- 4) Life skill development
- 5) Development of community relations

2.5.2 AFT.OVEC, Goal 1 Activities to develop members to be “good and happy people”

1) Plan to enhance personality and social responsibility students do activities such as online meetings, members of the Association of Future Thai Professional Office of Vocational Education Commission, the election of the President of the AFT.OVEC, the selection of the President of the professional club online, the selection of leader of the online, volunteering, or helping people who are in hardship in the community. Then, report to the teacher advisor to collect the collection for further assessment of the extra-curricular activities.

2) Health Enhancement plan sports and recreations the students can engage in activities such as exercise, singing karaoke or on social media such as TikTok, playing music, and report to the teacher advisor for collection and for further assessment of the extra-curricular activities.

3) Moral and Ethics Development Plan Students can do activities such as saving household accounts and saving money, donating blood, donating funds for the purchase of medical equipment and supplies, donating items, doing housework, taking care of parents and parents. Then, report to teachers or advisor to collect the further assessment of the extra-curricular activities.

4) Religious, Art, Culture Promotion Plan, students do activities such as participating in online religious activities through government agencies' websites, signing blessings online on important national days such as the Buddhist Lent Day, participating the religious ceremonies, participating, and making merit on various occasions and reporting the teacher or advisor for collecting for further assessment of extra-curricular activities.

5) Promotion of Nature and Environment Conservation Plan, students can do activities such as planting and caring for trees inside the house, cleaning houses, and separating household waste to add value. Then, report to the teachers or advisors to collect the assessment of the extra-curricular activities.

Goal 2: Smart and happy people.

1) Professional Standards and Ethics Development Plan Students can participate in activities such as online learning, online training, video recording of their assignments, taking a career standard test from a certification authority. Then, report to the teacher advisor to collect the collection for further assessment of extra-curricular activities.

2) Development Plan to promote student creativity Students can do activities such as making inventions from leftovers, thinking of innovations to solve problems in the Covid-19 situation, making workpieces/projects, making alcohol hand sanitizer. Distribute the community and report to the teacher advisor for collection for further assessment of extra-curricular activities.

3) The integrated learning promotion plan, students can do activities such as selling products online, attending online, entrepreneurship training courses, online learning, teaching homework, guiding Use online learning programs for others, suggesting online channels to sell products. Then, reports to teacher or advisor to collect further assessment of extra-curricular activities.

4) Academic Knowledge and Abilities Development Plan Students can do activities such as part-time reading, learning through social media such as YouTube, participating in academic activities of online educational agencies. Then report to the teacher advisor to collect the collection for further assessment of extra-curricular activities.

5) Student Development Plan Students to meet international standards, students can do activities such as online foreign language training courses, attending international webinars. Then, report to teacher to collect the further assessment of the extra-curricular activities.

In addition, the educational institution can organize other activities or activities that the educational institution determines. This must be an activity that learners can easily perform and benefit

themselves, their families, communities, and society. During the study, it can be calculated as the number of hours to be used for evaluating extra-curricular activities according to the Vocational Certificate Program and High Vocational Certificate Program. Further requirements for military student activities will be in accordance with the requirements of the Ministry of Defense.

3. Examples of teaching and learning management in the pandemic of the COVID-19 of vocational institutions

3.1 Guidelines for online teaching and learning management of Chanthaburi Technical College, Animation Program course and an Introductory Program development course on mobile devices. It is divided into 2 theoretical sessions and 2 practical sessions. There are guidelines for teaching and learning management as follows:

1) Analyze the learners and content. The instructors surveyed the availability of equipment found that the various tools of learners to use in online learning are Desktop Computer, Notebook, Tablet, Smartphone, and internet signal. The results of the survey of the readiness of students shown that was not ready. Approximately 40 percent of the students have only smartphones and internet connection. The teachers analyze contents to modify the contents in practice by choosing software that students can use on both computers and smartphones, for example while creating animation programs. In the case of teaching in a normal classroom. It uses Adobe Flash software which must be installed on the computer, but when changing teaching in an online format the instructors need to modify and find software that is close to being able to create in the form of Animation. It is a feature of using software on the cloud that students can access without having to install the program and support on computers and smartphones.

2) Selection of online teaching tools, the instructors use online teaching methods by two forms of communication and learning interaction systems: 1) time-coordinated interactions or instantaneous (Synchronous Learning), such as Google Meet, Microsoft Teams 2) Asynchronous interactions Asynchronous Learning: Google Classroom, Microsoft Teams, Padlet, Flipgrid, and others.

3) Online teaching style Flipped Classroom is a teaching and learning management by having students study their knowledge via the Internet out of the classroom. For outside of classroom, teachers create an online classroom, Microsoft Teams /Google Classroom, which is a collection of learning resources to students and studied videos created by teachers on YouTube and Edpuzzle (interactive videos can insert questions while studying video clips to check understanding. It can also check whether students have learned from the video clips created by the teacher or not.)

Step	Class activity details	Examples
Introduction to the lesson	<ul style="list-style-type: none"> - Name check activity - Motivate students with quiz games in the learning contents in the past to link to the next lesson. 	<ul style="list-style-type: none"> - Microsoft Teams, Google Meet, Microsoft Excel - Random Name Picker, open plate game (Bammboozle) - Mentimeter
Learning activities (Theory)	<ul style="list-style-type: none"> - Live lectures on important topics that are main concept - The Learners share the learning activities/brainstorming/or work together. - Assign tasks / make worksheets - Check for understanding of the content /View academic progress with learning games 	<ul style="list-style-type: none"> - Microsoft Teams, Google Meet - Google Jamboard, Padlet, Google doc, Mentimeter - Google Classroom, Microsoft Teams, LiveWorksheet - Quizizz, Blooket, Gamilab, Wordwall and, etc.

Step	Class activity details	Example
The learning activities (Theory)	<ul style="list-style-type: none"> - Teaching, explaining and demonstrating live by sharing screen, learners are able practice, the teachers will check students periodically. In case, the learners are stuck with problem, they will be allowed to share screen, the teacher will help guide. In addition, the capabilities of Microsoft Teams tools allow teachers to remotely access student machines, which helps to solve problems in the practice of learners as in a normal classroom - Assign tasks / work pieces - Check the understanding of the content /Monitor academic progress with learning games. 	<ul style="list-style-type: none"> - Microsoft Teams, Google Meet, Zoom - Microsoft Teams /Google Classroom - Quizizz, Blooket, Gamilab, Wordwall and so on.
Summary of learning results	<ul style="list-style-type: none"> - Teachers and learners together summarize lesson or presenting students' work by using Share Screen 	<ul style="list-style-type: none"> - Microsoft Teams, Google Meet Coggle create mind map online)
Evaluation	<ul style="list-style-type: none"> - Online test is designed for each person's test, which is not the same. There is a timer for testing and use the ability of the tool to prevent fraud during the exams 	<ul style="list-style-type: none"> - Google Form and add on Form Timer / AutoProctor

3.2 Guidelines for online teaching and learning management for Aircraft Mechanics, Thalang Technical College Phuket Province

A learning management model that will enable students to achieve their objectives during the COVID-19 situation, Thalang Technical College operates in the form of Online teaching styles, and On Demand. The block course ends in each module and according to the Civil Aviation Authority of Thailand, which Thalang Technical College certified by the Civil Aviation Authority of Thailand to be a training institute for ground technicians. Therefore, teaching and learning management must comply with international standards by managing online teaching styles that are convenient for both learners and instructors. The learners stay at home and study effectively from teaching materials provided by teachers. It is safe for both learners-teachers to have no touch in the use of teaching materials that are not shared and classified as individual. The classroom atmosphere may be used at home or in any convenient place where the academic department can access any situations.

Teaching staffs are an expert from establishment with practical experience in working with aircraft. The instructors teaching in the field of aircraft mechanics must be certified by the Civil Aviation Authority of Thailand (CAAT). The qualifications of theoretical and practical instructors through the training the trainer course must have knowledge, which related to the AMEL-B1.1 module curriculum. Teachers in the practical module must have a license (Rating types), which have at least 3 years of working experience in Aircraft Maintenance Systems. The measurement and evaluation must have an assessment result for each module, which is not less than 75% with a total theoretical class hour and in total that is not less than 2,572 hours of practice, divided into 1,224 hours of theory, 1,348 hours of practice. For practical work, 648 hours of practice in a workshop, and an internship establishment at the Civil Aviation Authority of Thailand (CAAT). Certification of 700 hours in accordance with international standards. The theory teacher and practical teachers are unable to be an Assessor in the modules that teach or train. The college graduates who The Civil Aviation Authority of Thailand has been certified as a training institute for ground technicians, High Vocational (High Vocational Certificate) in Aeronautical Mechanic from educational institutions, and received a certificate from the Civil Aviation Authority of Thailand (CAAT)

3.3 Guidelines for online teaching and learning in hotel courses of Phang Nga Technical College, Phang Nga Province

Studying in the hotel program students require a positive attitude towards service. It includes the basic and specific skills required in the hospitality industry. The general knowledge related to every part of the hotel. All of teachers will need to reformulate the teaching style entirely in order to retain the characteristics and essentials in the students' future careers. Therefore, all new teaching and learning management styles will be divided into theoretical contents where teachers use Microsoft Teams as their main communication channel and study online the highlight of using Microsoft Teams enable to get group discussion and practices. Teachers and students can chat right away in the chat. If there is a group activity, teachers can use breakout room and can save teaching video and materials files without expiration date. In case of some students who have some difficulty with the equipment to study online, they can watch back from government offices nearby student's home that teachers have contacted to and allow students to use computers to study online.

In online teaching, there are activities that encourage students to participate. It can be games, watching videos or news. The various situations are discussed before entering the course material. The teacher used to write down the Mind Map summary and then start to enter the contents by describing the content. for learners to take note of important content first. The online lesson must be concise and accurate. Then, start more activities with students such as Kahoot games, Quizizz to encourage students to be alert and test what you have learned or use www.menti.com to ask for opinions, polls or to allow students to view online materials related to content such as Pinterest, YouTube, Instagram, etc.

The next part will be the practical contents which is the most important and challenging part for teachers. Because learners have the limitations in terms of equipment and skills to use properly. Therefore, teachers need to develop a good teaching and learning management. The hotel management teacher will have a video recording of every important skill for all students such as flower arranging skills, Food and Beverage service skills in restaurants or skills for check-in, check-out using a ready-made program, etc., and all skills will be shared with students via the One Drive system that will be able to connect to Microsoft Teams immediately. In addition, the video recording of all skills, the teachers are also required to use a demonstration teaching style during class for learners to see skills or potential errors and has been explained and corrected by the teacher. In some content that has been practiced, teachers will invite speakers who also be demonstrations at the time, such as making coffee to serve guests by the head of the Food and Beverage Department or Barista, etc., and in some demonstrations, the teacher will allow the students to prepare the equipment or substitute virtual materials related to learning to be used in practice as well for students to get used to and can visualize the preliminary work or even giving work or homework. Then, students experience and send it as a picture or video.

Finally, these are both educational institutions and teachers. It is believed that students will be able to understand the content. and create more motivation to study in unusual situations without affecting academic performance and lack of skills during the absence of college including attitude The lives of children studying during the epidemic are all important factors that affect the education of students. Therefore, the schoolteachers of all departments. Therefore, it is necessary to have a countermeasure plan that requires adjustments, testing and monitoring of teaching and always learning styles and life under the COVID-19 situation.

3.4 Guidelines for online teaching and learning in Home Economic for Hotel Management of Uttaradit Vocational College, Uttaradit Province



3.5 Guidelines for online industrial technician learning management, The Office of Vocational Education Commission and the departments have created a learning management model as a guideline for educational institutions to use in teaching and learning management of the Industrial Technician branch. The online teaching and learning management model of the Industrial Technician branch consists of 6 steps as follows:

Step 1 Bring it to the lesson. Check-in activities, check-in, prepare before taking into the lesson or inquire about the learning content of past lessons or from what has been assigned to personal research to link to the next lesson

Step 2 Lecture of Theory Live lectures online play video tutorials recorded by the teacher or alternately playing both video and online lectures.

Step 3 Learning Activities It is a skill training activity doing exercises Research activities from the problem searching for information or solving problems. At this stage, online forms may be mixed with offline. by opening a channel for discussion, Q&A or online small group discussion activities.

Step 4 Testing Take an online test with not everyone's test design being the same. by using an application that supports a particular test.

Step 5 Concluding the lesson Teachers and learners together summarize lessons or present students' work by using share screens of learners assigned in the learning activity steps.

Step 6 Self-research giving problems or questions including short video clips in the online world to link to the next unit

Instructors will evaluate the results according to 6 steps to be used in the decision making of grades, which learning management with this model. It can be used to practice professional-related skills in the form of teaching with virtual simulations, demonstrations, and experiments both online and with various programs. The teacher may experiment with the learners to see the preliminary results including coding or mock design in various programs relating to specific profession.

In addition, from interviews with institutions administrators and vocational teachers who teach in professional fields found that most teachers have methods of teaching and learning by recording their teaching videos and distributing to students via Cloud Storage with Google Drive, Microsoft OneDrive, Microsoft Stream, Live teaching via the video conferencing with Microsoft Teams or Google Meet. Teachers create and run online classrooms. (E-classroom) with Microsoft Teams or Google Classroom

and distributed teaching materials, discussions, board creation, Q&A, assignments, or assignments, homework, quiz creation. and ratings, etc.

4. Summary of guidelines for the management of appropriate vocational education in the epidemic situation of the Coronavirus Disease 2019

Creating a learning style based on challenges This pandemic of COVID-19 will bring significant changes to the educational industry in Thailand and international as well as many sectors that will need to accelerate adaptation to cope with future events. For the education sector of vocational education, this crisis is an opportunity to change the educational models on the challenge of producing personnel to meet various quality standards. Teachers' learning management during this period must adhere to principles and adaptation. Thus, this crisis into an opportunity as follows:

4.1 Teaching that will have both academic and professional life subjects in the era of the COVID-19 pandemic. Referring from the highlight of vocational education management that focuses on academics, professions, and students are in Active Learning this crisis, and good starting point. This allows flexible learning of the structure studying time, the variety of learning styles and choice of learning styles. This will enable teachers to design learning units that are appropriate and promote individual learning importantly, teachers can intervene in life subjects. Importantly, it also helps instilling learners to learn under the uncertainty of the pandemic situation of the COVID-19 by using the aforementioned situations to integrate and adjust teaching methods. Blended learning on mindfulness, patience, self-reliance efforts to understand each other and compassion for each other understand the world in many dimensions is the principle that should be practiced overcoming the crisis. There are skills that students can use to solve problems when faced with unexpected situations (Resilient) in the future of the 21st Century world that is full of problems and emerging threats such as climate change, PM2.5 problems, air pollution, etc.

4.2 Learning community and family bases, this crisis is an opportunity to create a model of community and home base learning management, which consists of teachers from schools, parents or communities, civil society work together to develop learning and everyone acts as a teacher for their children, children, learners anywhere, anytime, is a connection between school and parents or the relationship of teaching methods can provide children with learning using the community as a base by using the identity of the community as a learning problem or project preparation and use family organizations to instill in parent's participation in the assessment of learning outcomes; learning competencies are essential to communicate with parents about their changing roles.

4.3 New normal learning design in changing situations, teachers must prepare before teaching the New Normal. One method is designing a learning unit that will lead to competency-based learning management after the pandemic crisis ends. For example, starting by grouping indicators into learning units that will the learning plan is flexible according to the situation can be linked throughout the semester including the use of various media to participate in teaching and learning to create both one-way and two-way learning. For example, live online lectures, video media or clips are one-way communication. Therefore, teaching methods should be adapted to suit the learning style and learners, such as using online games, activities, and real-world practice or excursions search for knowledge through various tools in an online format for developing self-learning skills, which is an essential skill for living in the future.

4.4 Raising the level of assessment for development (Formative Assessment) when learners unable to go to school normally. Teachers and students will have less interaction with each other. As a result, teachers are unable to fully monitor the student's development. It may not be able to recognize students' problems in a timely manner, especially knowledge of language and calculations, which may have a negative effect on long-term learning. Therefore, the development assessment cannot be reduced or abandoned. The assessment for learning of children to allow teachers to know the learning process of learners, which will be able to give feedback to review for students and adjust the learning plan according to the situations and assessment that results in the learning. Students reflect on their own learning process, which will keep learners accountable and ability of learning. Including, when learners understand by themselves, it will be an opportunity to plan their own learning together with parents and teachers (Phusima Pinyosinwat, 2020, cited in Somphon Chuthong, 2020.) Vocational education in the era. digital Management of teaching and learning vocational education.

In conclusion, since academic year of 2020 onward, Teaching Management in the pandemic of Covid-19 situation, Vocational Institutions have implemented learning management as New Normal learnings, which indicated that the Vocational Education has partially modified the teaching and learning management models. Referring to the results of collecting the data from 16 Vocation Colleges, which divided learning management in COVID-19 to 3 periods for 3 semesters as follows:

1st Semester in year 2020 found that educational institutions, teachers, and learners lacked the readiness for learning management in online platforms, as it was unexpected situations to handle. Consequently, the outcomes of learners have low standard for professional skills and competency skills, likewise learners are not familiar and unsatisfied with online learning. Therefore, the Office of Vocational Education Commission has determined an urgent policy by supporting teachers to have knowledge and skills in teaching methods by implemented online training such as Microsoft Teams and Google Meet and distributed to teachers under the unpredicted situations. The researchers also survey of the learners' readiness to provide the assistances and supports in online learning.

2nd Semester in year 2020 with new waves of COVID-19 found that educational institutions and teachers are comfortable to manage the online teaching because teachers get trainings and self-learning continuously. Moreover, most teachers seek new forms of learning management, which are appropriate for the courses in order to increase the skills and core competence of the learners and encourage the learning motivation to students therewith the Office of Vocational Education Commission has established a model for measuring and evaluating both theory and practice, which are resilient with the topics of teaching and learning in each area and the assessment of online materials

1st Semester in year 2021, the Covid-19 situation still unresolve while the educational institutions and teachers are familiar with online programs. However, teachers have to emphasize and integrate the knowledge into 3 dimensions, as follows: 1) Contents knowledge, teachers analyze the course curriculum to determine the content that must be known, which teachers will focus on teaching students and "should be known" teachers will encourage students to learn in various channels or deliver the involved materials. 2) Pedagogical knowledge, for online teaching, teachers and students access on online platform, so teachers need to have a variety of interesting techniques and methods to convey the contents to learners in order to achieve the learning outcomes. The online teaching and learning management emphasize on student center with comfortable learning environment, and good interaction between teachers and learners or learners with learners. 3) Technology knowledge, teachers are able to use technology platforms that appropriate for creating the interactions independently and apply the learning management model according to the professional fields, majors and levels of learners.

This challenge in the pandemic of COVID-19 is to change the way of vocational education management to be a new way of education in Thailand. The management of vocational education must focus on both academic knowledge and professional skills in the Active Learning Model, which will lead to a competency-based learning management model that has flexible learning management styles according to the situation through digital technology for effective and efficient vocational education management course goals.

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Interviewee:

Chachoengsao Vocational College
 Chiang Rai Vocational College
 Phuket Vocational College
 Surat Thani Vocational College
 Uttaradit Vocational College
 Chanthaburi Technical College
 Phang-nga Technical College
 Prachinburi Technical College
 Samutprakarn Technical College
 Surat Thani Technical College
 Thalang Technical College
 Lamphun College of Agriculture and Technology
 Phangnga College of Agriculture and Technology
 Sa Kaeo College of Agriculture and Technology
 Bangkok Tourism College
 Nakhon Si Thammarat Polytechnic College
 Pasang Industrial and Community Education College