

# Dual Vocational Education Model for Diploma Program in Aviation of Khon Kaen Industrial and Community Education College

Adul Pimthong<sup>1</sup>, Pha Aksornsua<sup>1</sup> & Chaiyuth Sirisuthi<sup>1</sup>

<sup>1</sup> Faculty of Education, Northeastern University, Thailand

Correspondence: Chaiyuth Sirisuthi, Faculty of Education, Northeastern University, Thailand. E-mail: [chaiyuth.sir@neu.ac.th](mailto:chaiyuth.sir@neu.ac.th)

Received: April 15, 2022

Accepted: June 6, 2022

Online Published: September 26, 2022

doi:10.5539/ies.v15n5p78

URL: <https://doi.org/10.5539/ies.v15n5p78>

## Abstract

The research attempted to study the readiness and need for the Dual Vocational Education Model for the Diploma Program in Aviation of Khon Kaen Industrial and Community Education College and to create, experiment, and assess the program. The research was conducted from 2014 to 2018 with 60 teachers teaching in the college and 16 in the workplaces and 16 students. The model comprised curriculum, teaching and learning management, teaching personnel development for holding a license, and cooperation with domestic and foreign enterprises. It was found that the appropriateness and feasibility of the model are at the highest level. The opinion of teachers and workplace participants is at a high level. Of all 16 graduates of the program, 14 are employed and 4 take further study. The program is of success and rewarding.

**Keywords:** dual vocational education model, diploma program in aviation, Khon Kaen industrial, community education college

## 1. Introduction

According to the Office of Vocational Education Commission, the teaching and learning management of educational institutes normally remains as usual in the classroom and has many problematic issues which are not conducive to learners to think, act, and solve problems and truly realize what to learn and also lack of skills. The teaching process which aims at memory using out-of-date instruments and industrial machinery make student miss the opportunity to gain further knowledge, and lack interaction with friends, community, organization, and environment. This type of practice of teacher centers focuses on learning in educational institutions with teachers acting as educators. Learners are responsible for studying and working under the limited framework of the classroom depriving learners of the opportunity to develop their own learning potential to keep up with current technology changes, (Office of the National Education Council, 2006). Dual Vocational Education Management is an education arrangement under a cooperation agreement between educational institutions and enterprises in the matter of curriculum management, vocational training, evaluation and follow-up supervision, where learners spend part of their time studying in educational institutions and vocational training in educational institutions. The Office of Vocational Education Commission(2009) started the teaching of the Diploma Program in 2014, Premium Vocational Courses in Aviation in 6 locations responsible for teaching management in all 4 regions in the central region, namely Don Mueang Technical College, Bangkok and Samut Prakan Technical College, Samut Prakan Province, the eastern area is Sattahip Technical College, Chonburi Province, the northeastern region is Ubon Ratchathani Technical College, Ubon Ratchathani Province, and Khon Kaen Industrial and Community Education College, Khon Kaen Province, the southern area is Thalang Technical College, Phuket Province. In order to fulfill the government policy which, compile a large demand for labor, titling Thailand a hub for the aviation industry. In addition, there are 9 universities nationwide that have the objective of aircraft maintenance to have knowledge at the certificate level, namely Rajamangala University of Technology Krunghthep, Rajamangala University of Technology Isan, Rajamangala University of Technology Lanna, Rajamangala University of Technology Srivijaya, Rajamangala University of Technology Thanyaburi, Nakhon Phanom University, and there are also private universities which teach about aviation business and numbers of aviation schools have also been opened.

According to the meeting of the Board of Directors for teaching diploma program in aviation and the meeting of the joint public and private subcommittees, professional aviation groups to support the work of the joint

public-private-government committee have encountered a number of problems and obstacles in the past, namely, the infrastructure and availability of materials and training facilities are different, teacher-training administrators have changed. Occasionally, the development of intermittent disciplinary training, aviation consciousness, and safety are different. Students lack the skills and expertise, needed by the entrepreneur or the employers. Teachers and trainers are inadequate and of a different standard, and some stiles have no license of international standards. There are not enough training centers and the assessments do not meet international standards. The budget and time for continuous development are critical. Because of these problems, the Thai government is unable to make good progress and meet the setup goals regarding the potential work of an international standard that affects the economic growth and development of Thailand 4.0, accordingly.

The Office of Vocational Education Commission (2009) has approved the 2014 Diploma Program in Aviation since the academic year 2015 and then approved the Higher Vocational Certificate Program in 2016. Khon Kaen Industrial and Community Education College realize the importance of developing technical manpower in response to be able to the demands of the national labor market; therefore, the college initiated and offered courses in the field of aviation in dual systems aligning with the diploma program in the first semester of the academic year 2017, with the belief that the programs can best meet the needs of vocational personnel in the field of aviation through cooperation between Khon Kaen Industrial and Community Education College and the University of Shandong Jiaotong, the People's Republic of China. Of course, Khon Kaen Industrial and Community Education College have no Dual Vocational Education management model in aviation, and there are very few and not quite precise research studies to guide clear no definitive research study to determine the appropriate model for the development of Dual Vocational Education for Diploma Program in aviation. Therefore, the researcher is interested in research on the topic "Dual Vocational Education Model for Diploma Program in Aviation, Khon Kaen Industrial and Community Education College to be used as a model for raising the quality of Dual Vocational Education management by cooperating with educational institutions or enterprises both domestic and international to be of the quality of international standards of the European Union Aviation Safety Agency (EASA).

## **2. Research Objectives**

- 1) To study the readiness, needs, and guidelines for the Dual Vocational Education Management for the Diploma program at Khon Kaen Industrial and Community Education College.
- 2) To create the Dual Vocational Education Model for the Diploma program
- 3) To experiment with the model
- 4) To evaluate the model

## **3. Research Methodology**

Step I: studying the readiness and the need of the program.

Population and the sample groups:

The population comprises 60 Dual Vocational teachers in the academic year 2016, and 418 3<sup>rd</sup> Dual Vocational students in the academic year 2016. The sample group was determined by the sample size according to the Krejcie and Morgan table (1970) at the 95% confidence level, and a simple random sampling was done in the academic year 2016 consisting of 52 teachers and 196 3<sup>rd</sup> year Dual Vocational students in all disciplines of industrial technicians.

The research instruments used for data collection were a questionnaire asking teachers in Dual Vocational Education at Khon Kaen Industrial and Community Education College, and a questionnaire on the condition of the need for studying in the Dual Vocational Education for Diploma program in Aviation.

Step II: Creating the model

Drafting of the Dual Vocational Education Model for Diploma Program in Aviation of Khon Kaen Industrial and Community Education College through focus group discussion by 20 people who participated in the focus group discussion was obtained by means of purposive sampling on the basis of at least 10 years of experience in organizing Dual Vocational Education and in organizing Dual Vocational Education in Aviation consisting of 5 qualified persons, 10 administrators of educational institutes under the Office of Vocational Education Commission, and 5 workplace administrators. The tool used for the focus group was a draft of the group discussion form.

Assessing the appropriateness and feasibility of the Dual Vocational Education Model by 5 experts that were purposively selected on the criteria of at least 10 years of experience in Dual Vocational Education, 10

administrators of educational institutions under the Office of Vocational Education Commission, and 5 administrators of the workplace that accept students to practice in the workplaces assessing through a questionnaire.

The research tool used for data collection was the assessment form for the Appropriateness and feasibility of the Dual Vocational Education Model for the Diploma Program in Aviation of Khon Kaen Industrial and Community Education College.

Step III: The experiment of the model.

There were 5 core activities with 5 sample groups, as follows:

- 1) The activity on Curriculum Development to be aligned with International Standards of the European Union Aviation Safety Agency (EASA). The selected group consisted of 60 teachers of the Dual Vocational Education system in the academic year 2017.
- 2) The teaching of the Dual Vocational Education system in the academic year 2017 consisted of 60 teachers.
- 3) The activity on developing teaching personnel to have licenses. The sample group of 60 teachers in the Dual Vocational Education system in the academic year 2017.
- 4) The activity on cooperation with domestic enterprises and overseas, the sample group consisted of 23 teachers in the workplace in the academic year 2017.
- 5) Management activity comprised 3 sub-activities
  - a) Student selection system, dormitory care, evaluation, and supervision of students. The samples were 60 teachers working in Dual Vocational Education in the academic year 2017.
  - b) English language development, the sample group is 16 students in The Dual Vocational Education system at the diploma level (vocational certificate) in the field of aircraft mechanics in the academic year 2017.
  - c) Chinese language development group took 16 students engaged in the Dual Vocational Education system for Diploma Program in Aviation in the academic year 2017.

Data collection tools were: 1) Teacher satisfaction assessment form for those teachers who participated in curricula development activities to be in tune with international standards, 2) An achievement report form for the participants in curriculum development activities according to be international standards, 3) Teacher satisfaction assessment form for those teachers, who participated in teaching management activities in 2017, 4) Report on the achievement form for participants in teaching management activities, 5) An assessment form for the satisfaction of teachers who participated in teaching personnel development activities to have a license in the Dual Vocational Education system of the academic year 2017, 6) A form of achievement report of participants in teaching Personnel development activities, 7) Evaluation form for the satisfaction of teachers who participated in cooperation activities with domestic and foreign enterprises overseas in the workplace in the academic year 2017, 8) Report form on the achievement of participants in cooperation activities with domestic and foreign enterprises, 9) Assessment form for teachers' satisfaction of Dual Vocational Education System in the academic year 2017, for the ones who participated in administrative activities (1) Student selection system, dormitory care, evaluation, and student supervision, 10) Report on the achievement of participants in administrative activities (1) Student selection system, dormitory care, evaluation, and student supervision, 11) The satisfaction assessment form of Dual Vocational Education System students in the academic year 2017 who participated in management activities (2) English Language Development, 12) Report on the achievement of management activities participants (2) English Language Development, 13) Satisfaction assessment form of Dual Vocational Education System students in the academic year 2017 participating in Management Activities (3) Chinese Language Development, 14) Form of achievement report of administrative activities participants management (3) Chinese Language Development.

Step IV: Evaluating the use of the Dual Vocational Education Model

The sampling group uses the Dual Vocational Education Model as follows: 1) The comments on the model by the sample group included 52 teachers of the Dual Vocational Education, the academic year 2017, 2) Satisfaction of the teachers in the workplace, the sample group are 10 teachers in the workplace of the academic year 2017, 3) The academic achievement of 16 students, 4) The cooperation of 33 enterprises after the implementation of the model, 5) The employment and further education of 16 graduates.

Data Collection Tools were: 1) Feedback form, 2) The satisfaction questionnaire of teachers in the workplace, 3) Student achievement report form, 4) Workplace cooperation report form after applying the model, 5) Employment

and Continuing Education Survey Form

#### 4. Research Results

In relation to the study of readiness, requirements, and guidelines for the Dual Vocational Education Model for the Diploma Program in Aviation of Khon Kaen Industrial and Community Education College, the findings were as follows:

- 1) As for conditions for the readiness of the Dual Vocational Education Management for Diploma in Aviation of Khon Kaen Industrial and Community Education College in the academic year 2016. It was at the highest level ( $\bar{X} = 4.56$ ,  $SD = 1.03$ ).
- 2) The requirement of teachers in the Dual Vocational Education Management in the academic year 2016 is at the highest level. ( $\bar{X} = 4.65$ ,  $SD = 1.03$ ). The need for further education in the Dual Vocational Education Model for Diploma in Aviation of Khon Kaen Industrial and Community Education College for 3rd-year students in all disciplines of industrial technicians in the academic year, 2016 is at a high level ( $\bar{X} = 4.47$ ,  $SD = 1.03$ ).
- 3) With regard to guidelines for the management of the model suggested by 5 experts found that 1) In line with policy, principles, and objectives, the Diploma Program in Aviation is a new and relevant program that helps graduates to have jobs of high demand in workplaces both in Thailand and abroad.

With regard to quality up-raising of the Dual Vocational Education Model for Diploma in Aviation, there must be significance to develop in the areas of curriculum development, teaching management development, personnel development, building facility, and equipment development, the cooperation agreement between educational institutions and enterprises both in the country and abroad, language development for students, expanding students to the practicum of careers in foreign enterprises, emphasis on discipline training, safety consciousness, teaching development. 3) Regarding the components of the Dual Vocational Education Model for Diploma in Aviation of Khon Kaen Industrial and Community Education College, the model consists of 5 components: 1) Curriculum development to be alignment with international standards of the European Union Aviation Safety Agency (EASA) 2) Teaching and learning management 3) Development of teaching personnel to have the required license 4) Cooperation with domestic and foreign enterprises 5) Management system for student selection, supervision in student dormitories, language development in English and Chinese.

As for the creation of the Dual Vocational Education Model for the Diploma Program in Aviation of Khon Kaen Industrial and Community Education College, the model consists of 5 components: 1. curriculum development aligned with international standards of the European Union Aviation Safety Agency (EASA), 2. teaching and learning management, 3. development of teaching personnel to have licenses, 4. cooperation with domestic and foreign enterprises, 5. administrative aspects comprising: 1) student selection system, dormitory care, evaluation, and student supervision 2) English language development and 3) Chinese language development. A total of 7 action activities using the systematic management principle known as the (Deming Cycle: PDCA) were operated in steps: 1) Plan 2) Do 3) Check and 4) Act. To prepare activity plan and activity manual. As for the results of an assessment of the appropriateness of the according to the opinions of qualified educational institute administrators, and enterprise administrators the suitability is at the highest level. ( $\bar{X} = 4.45$ ,  $SD = 0.68$ ), The results of the feasibility assessment of the model according to the opinions of the administrators of the educational institutes and enterprise administrators, the feasibility is at the highest level. ( $\bar{X} = 4.59$ ,  $SD = 0.79$ )

Experimenting with the model of components with 7 activities, all participants started operation on Apr. 2017-Jun. 2018. They were implemented in accordance with the activity's manual and the experimental plan. The evaluation is as follows:

The level of performance of each model activity is at the highest level ( $\bar{X} = 4.60$ ,  $SD = 1.00$ ), the each and individual aspect achievement increases at 63.45% of all aspects, the achievements are as follows:

- 1) Curriculum development according to the International Standards of the European Union Aviation Safety Agency (EASA). The level of practice is at a high level ( $\bar{X} = 4.38$ ,  $SD = 1.03$ , and the achievement increased by 49.93%.
- 2) The teaching and learning management at the practical level is at the highest level ( $\bar{X} = 4.58$ ,  $SD = 1.03$ ), with the achievement increased by 47.08 percent.
- 3) Development of teaching personnel to have a license in the practice is at the highest level ( $\bar{X} = 4.64$ ,  $SD = 1.01$ ), with the achievement increased by 95.83 percent.
- 4) Cooperation with domestic and international enterprises at the level of practice is at the highest level ( $\bar{X} =$

4.63, SD = 1.01), with the achievement increased by 32.18 percent.

- 5) The administration aspect comprises a student selection system, dormitory care, evaluation results: student supervision is at the highest level of practice ( $\bar{X} = 4.67$ , SD = 1.01), with an achievement increase of 57.50%.
- 6) English language development is at the highest level of practice ( $\bar{X} = 4.63$ , SD = 0.95), and the achievement increased by 64.29%.
- 7) Chinese development is also at the highest level ( $\bar{X} = 4.64$ , SD = 0.97), with the achievement increased by 97.32%.

Evaluation of the Usage of the Model:

- 1) The results of the assessment of opinions toward the Model in the academic year 2018 are at the most agreeable level ( $\bar{X} = 4.65$ , SD = 0.96).
- 2) The results of the satisfaction assessment of teachers in a workplace that accepts students to train in foreign enterprises are at the highest level ( $\bar{X} = 4.61$ , SD = 0.96).
- 3) The achievement of students in the program has an average grade of 3.76 which is a very good level.
- 4) The cooperation of enterprises participating in the program is 33 places in number during the year 2017-2018.
- 5) Employment and further education of graduates out of all 16 graduates, 12 employed and 4 take further study.

## 5. Discussion

### 5.1 To Study the Readiness and Needs for the Management of the Dual Vocational Education Model

With regard to the conditions of readiness for the management of the program, according to the opinions of teachers of the dual system in the academic year 2016, in general, is at the highest level. Moreover, teachers have confidence in policy on the characteristics building of learners, teachers, and teaching personnel in the Dual Vocational Education Model, as well as the educational institutions, have an efficient dual education system with good cooperation from the organizations and parents. The findings are consistent with the research of Srirakul (2007) who stated that organizations understand their roles and duties in vocational training of Dual Vocational students.

As for the need for further education of all 3rd year dual vocational students in the academic year 2016, the need is at a high level, consistent with the research of Siripridi (2014) who stated that in the field of educational institution planning, there should be a survey on the need for students to take vocational training from different agencies. To screen students before going out for vocational training in coordinating educational institutions, there should be a promotion of coordination between the workplace and parents to create an understanding of vocational training and coordination in various fields.

Guidelines in the management of the program consist of 3 issues and 5 components: 1) Curriculum development according to international standards (EASA); 2) Teaching and learning management; 3) Development of teaching personnel to have licenses; 4) Cooperation with domestic and international enterprises; 5) Management aspects comprise student selection system, dormitory supervision, evaluation, student supervision, and development of English and Chinese language. The findings are in line with the research by Chaijongkit (2008) concerning the role of the private sector, business, and enterprises with education, organization of cooperation in education, and vocational training in the form or nature of cooperation with educational institutions to develop personnel in their own agencies, coordination, and guidelines. Practice in supervision and follow-up on the arrangement of information systems, sending teachers to attend training and internships in the workplace, seminars to exchange ideas between administrators of educational institutions and organizations, and budget for management.

### 5.2 Creation of the Model

The model created has 5 components: 1) Curriculum development according to international standards of the European Union Aviation Safety Agency (EASA) 2) teaching and learning management 3) development of teaching personnel to have licenses 4) cooperation with domestic and foreign enterprises 5) management consists of (1) student selection system, care in the dormitory, the evaluation, and student supervision, (2) English language development and (3) Chinese language development. All 7 activities were implemented by applying the principles of cyclical management: (PDCA) 1) P is planning, 2) D is an action, 3) C is check, and 4) A is an action to make appropriate action plans and activity manuals. The research results are consistent with the

research of Ruamchumrat (2015) researching on the development of a Dual Vocational Education management model in vocational colleges under the Office of Industrial and Community Education Commission indicating that the model consisted of 5 components: participation in the management of Industrial and Community Education; Dual education system, decentralized administration and teaching management, personnel development to ensure quality and keep up with changes in technology, curriculum management according to professional standards and meet the needs of the labor market and educational administration. According to the principles of good governance for evaluating the development of a Dual Vocational Education management model in vocational colleges under the Office of Industrial and Community Education Commission, it was found that all components were correct, appropriate, feasible, applicable, useful, and consistent with the research of Srikhamnuan (2017) which concluded that the level of factors affecting the management of Dual Vocational Education Model for Diploma Program in Aviation was curriculum and teaching management factors, student factors, facility factors, organization factor, community factor, administrative factor, and teacher factor, etc., and is consistent with the concept of Keeves, (1988), which states that the model element consists of 1) The principle of a model. The model is characterized as a conceptual overview, aims or goals of the model, methodology, process of the model, and evaluation of the model. The finding is also in conformity with the study of the Secretary of National. Office of the Education Council (2006) concludes that there are two key components of the model: 1) Model Objectives 2) Mechanisms of the model are the key components of the model's functioning to achieve the objectives with the context as a condition of the emergence, persistence, and collapse of the model created.

The results of the assessment of the appropriateness of the model: According to the opinions of qualified educational institute administrators, and overall enterprise administrators, the appropriateness is at the highest level and the feasibility is at the highest level. This research is consistent with the research done by Chuenchee (2007) who conducted research on the model of continuing education management in private higher education institutions by conducting research in 4 steps as follows: 1) Analysis and synthesis of continuing education model for private higher education institutions 2) Using the data from the study to analyze and synthesize for developing a framework for a model in continuing education management of private higher education institutions, 3) a feasibility study by a group of educational experts, and 4) an examination of the effectiveness and appropriateness of a continuing education management model. The assessment results of the model were created in terms of suitability and feasibility; it was found that the results are at a high level.

### *5.3 Experimentation of the Model*

The model was implemented successfully in all 5 components with 7 activities. All participants have assessed their level of performance in all 7 activities. In all the performance of each component is at the highest level and the achievement of the participants in each aspect is higher in all aspects, presumably, because the College has been implementing systematic development of the potential of teachers and educational personnel according to the model of the Dual Vocational Education. Model for Diploma Program in Aviation, through a quality cycle of management services (PDCA). An appropriate audit and operations enable administrators, teachers, and educational personnel of Khon Kaen Industrial and Community Education College to implement the model in an appropriate manner that brings the implementation of the model to success and achieve the highest level of practice. The findings are consistent with Getzels et al. (1968) who contend that a good and useful model should have the following attributes: 1) It is a model with a sound structural relationship; 2) Models should be able to identify or point to the rational mechanisms of the matter studied, and 3) Models should lead to a test or trial. The results of the model assessment are consistent with the research of Songprasert (2011) who conducted research on the development of a model of academic administration based on the principle of teamwork in basic education institutions. Practice guidelines are suitable for the roles of academic leaders, personnel, and relevant people who have knowledge and understanding of the principles and procedures of teamwork and are able to implement the activities according to the steps accordingly and substantially concretely. The results of the evaluation of the model by the users after the experiment found that the developed model was feasible and appropriate at the highest level.

### *5.4 Evaluation of the Uses of the Model*

As for the results of the assessment of opinions towards the Model, it was found that the opinions of teachers in the dual system in the academic year 2018 are at the most agreeable level. This shows the Dual Vocational Education Model created is clear. There is a system based on quality-of-service lifecycle management, which consists of planning, implementing, checking, and acting appropriately. The results of practices are in congruence with the concept of Hofmann (2014) who found that supporting teachers and trainees in the management of Industrial and Community Education in Switzerland need: an approach to professional

commitment and professional development.

The results of the satisfaction assessment of the trainers in the workplace accepting students of the Diploma Program in Aviation, in all, the Khon Kaen Industrial and Community Education College students had attended occupational training in foreign enterprises at the highest level, probably because the students who received vocational training in the workplace had been very well prepared in terms of academic Chinese language skills in Communication and English for learning are consistent with the research results of Temkaew (2017) who concluded that real-world learning is a teaching technique that focuses on learners creating knowledge by themselves? By integrating knowledge and skills from the content learned in the classroom with real-life actions to create a systematic thought process by using investigative, analytical, synthetic, self-assessed, and self-determined work achievement goals. The result of this study is also in congruence with the interview results, from academics that learning techniques based on real-life conditions can lead to organizing activities, techniques, and methods that result in learners learning well-roundedness, practicing systematic thinking based on the principles of rational thinking. Being good thinks do and leading a happy life in the real world. As techniques that teachers can employ for learners to have learning outcomes based on the concept of real-world learning, consisting of project-based learning techniques, techniques simulation-based learning techniques, problem-based learning techniques, question-based learning techniques, self-study learning techniques, creative learning techniques, and SSCS learning techniques must be employed. The study is also responding to the research of Khiaosiri (2017) on the model of internship management at the workplace for students of the Diploma Program in Aviation, Civil Aviation Institute. Students of the Diploma Program in Aviation, Civil Aviation Institute consist of four components: 1) the educational institute's internship process consists of pre-apprenticeship preparation and operation; 2) educational supervision and counseling that comprise management skills, technical skills, and interpersonal skills. 3) Students' personality with basic knowledge, professional knowledge, and five personalities. 4) Apprenticeship appraisals consisted of the process aspect of apprenticeship appraisal and the process of reviewing the apprenticeship results. Based on the developed assessment model, it was found that the model developed was the most appropriate.

The academic achievement 16 students have an average grade point of 3.76 a very good level. Khon Kaen Industrial and Community Education College have taken good care and preparation of the students since the beginning of their studies. The college has a management process, student selection system, dormitory care, evaluation and student supervision, and English language preparation for teaching and learning. Preparing the Chinese language for communication in an enterprise in China where Khon Kaen Industrial and Community Education College signed a cooperation agreement with Shandong Jiaodong University, People's Republic of China. The study is consistent with the research done by Himarat (2012) who conducted research on evaluating the Diploma Program in Aviation, Certificate Program in the Department of Aeronautical Instruments Technician, Civil Aviation Institute. The study indicated that the student productivity assessment was at a very appropriate level which is consistent with Temkaew's (2017) concept that after the learners have finished learning in the specified course, the learners gave their opinions on the use of techniques for learning real-world knowledge, learners work together to develop academic knowledge, show the process of analytical and creative thinking, work performance, have teamwork skills. They are responsible for the duties assigned by peers and teachers. In addition, learners have creativity in presenting their work as well.

Cooperation of enterprises in the program: in the academic year of 2017-2018, 33 workplaces joined. It is of great delight that the enterprises demonstrate confidence in the Dual Vocational Education Model for the Diploma Program of Khon Kaen Industrial and Community Education College, especially in Aviation, which is a branch of high-demand subjects. The study is consistent with the research of Seangthumrong (1999). Studying problems in the Dual Vocational Education Model for Diploma Program in Aviation industrial areas in educational institutions under the Department of Industrial and Community Education. He contended that the most problematic issues are to have the colleges select interns to be trained in the workplace, measurement and evaluation, and recruitment at the end of the course respectively. The dual system is consistence with Chaijongkit (2008) who stated that organizations provided cooperation in education and vocational training in the form or nature of collaborating with educational institutions to develop personnel in their own agencies and accepting students. Students take internships in various organizations, depending mainly on the availability and willingness of private businesses and enterprises.

Employment and further education of the graduates of the Diploma Program in Aviation, Khon Kaen Industrial and Community Education College, Class 1. Out of 16 graduates, 12 were employed, and 4 continued study. The quality of graduates in the first batch of Khon Kaen Industrial and Community Education College is obvious. The college has undertaken systematic learning, planning for curriculum development in accordance with the

needs of enterprises, and vocational training in foreign enterprises. There is also support from The People's Republic of China and there is a native teacher teaching English and Chinese that makes and in demand the graduates fully qualified and well-equipped for a job in demand the workplace which is consistence with Petchrieng (2017). His research examines the employment status of the Civil Aviation Institute graduates in the 2015 academic year, as well as the factors related to the employment and unemployment of graduates His research, found that 97,069% of the graduates of the Diploma Program in Aviation have jobs. Those who graduated in Aviation Technology 87.03% employed, graduates in Aviation Technology Program in Aviation Management (Continued) 94.74% employed, graduates of Diploma in Aerospace Technology 60.76%, graduates of Diploma Program Department of Aircraft Maintenance Technician for the academic year 2015, 85.94% employed.

## 6. Conclusion

In sum, the management of the Dual Vocational Education for Diploma Program in Aviation of Khon Kaen Industrial and Community College is based on mutual cooperation and partnership between the college and the enterprises or workplace to produce fully equipped graduates in direct responsiveness to the market workplaces. The management for efficiency and effectiveness should comprise the following components: 1) Developing a curriculum to align with universal standard (EASA) comprising 1 activity. 2) Teaching and learning comprise 1 activity. 3) Developing teaching personnel to have teaching licenses taking 1 activity. 4) Mutual cooperation and participation, domestically and abroad require 1 activity. 5) Management comprises 3 activities: (5.1) recruitment and selection of students, taking care of dormitories, monitoring, and evaluating and supervising students. (5.2) Chinese language development, and (5.3) English language development. Recommendation for application (implementation) of the model: The college should seriously study the model to fully understand all details in order to apply the model effectively and appropriately fitted with the context. On top of that, the college has to have a good connection and profound collaboration with a workplace in the country and abroad to ascertain sustainability.

## References

- Chuenchee, C. (2007). *Continuing Education Management Model in Private Higher Education Institutions* (Doctoral Thesis in Adult Education, Srinakharinwirot University).
- Getzels, J. W., Lipham, J. M., & Campbell, R. F. (1968). *Educational administration as a social process: Theory, research, practice*. Harpercollins College Division.
- Himarat, A. (2012). Assessment of In Aviation Certificate Program in the Department of Aeronautical Instrumentation Technician, Civil Aviation Training Center. *Journal of Industrial Studies*, 6(2), 81-87.
- Hofmann, C. (2014). Support Form Teachers and Trainers in Industrial and Community Education and Training: The Pathways to Career Aspirations and Further Career Development. *International Journal for Research in Industrial and Community Education and Training*, 1(1). <https://doi.org/10.13152/IJRVET.1.1.5>
- Jaijongkit, B. (2008). *The Role of the Private Sector, Business, and Enterprise in Education*. Bangkok: Office of the National Industrial and Community Education Commission.
- Keeves, P. J. (1988). *Educational research, Methodology, and Measurement: An international handbook*. Oxford: Pergamon Press.
- Khiaosiri, S. (2017). *A Study of the Problems of the Dual Industrial and Community Education Model for Diploma Program in Aviation in Different Industry Types in Educational Institutions Under the Department of Industrial and Community Education* (Master of Industrial Education in Industrial and Community Education Administration. Thesis, Graduate School, King Mongkut's Institute of Technology Ladkrabang, Bangkok).
- Krejcie, R. V., & Morgan, D. W. (1970). Determining Simple Size for Research Activities. *Educational and Psychological Measurement*, 30(3), 607-610. <https://doi.org/10.1177/001316447003000308>
- Office of the National Education Council. (2006). *Study and Synthesis of Educational Institution Administration Model, Development of Educational Institution Committee and Network of School Administrators, Class 1, Bangkok*.
- Petchrieng, C. (2017). *Employment Situation of Civil Aviation Training Institute Graduates, the Academic year 2015*. Bangkok Aviation Service Department.
- Ruamchumrat, J. (2015). *Development of a Model of Industrial and Community Education management in Dual system in Vocational Colleges under the Office of Industrial and Community Education Commission*



- (Doctorate Thesis in Administration for Educational Development, Kanchanaburi Rajabhat University).
- Saengnak, W. (2012). *Development of a Model of Resource Mobilization for Educational Administration under the Office of Primary Education Service Areas in the Northern Region* (Doctor of Philosophy in Educational Administration, The Graduate School of Siam University).
- Seangthumrong, S. (1999). *A study of Implementation Dual Vocational Training Problems for Industrial Students Department of Vocational Education* (Master of Industrial Education (Vocational Administration) Thesis, Graduate School, King Mongkut's Institute of Technology Ladkrabang, Bangkok).
- Siripridi, Y. (2014). *Dual Industrial and Community Education Management System in Educational Institutions Under Industrial and Community Education, Udon Thani Province* (Master of Education Thesis in Educational Administration, Faculty of Education, Santiphon College).
- Songprasert, P. (2011). *Development of the Academic Administration Model based on the Principle of Teamwork in Basic Educational Institutes, Naresuan University*.
- Srikhamnuan, B. (2017). Factors Affecting Success in Dual Vocational Education Management System of Educational Institutions in Lampang Province under the Office of Industrial and Community Education Commission. *Silpakorn University Journal*, 10(2).
- Sritraku, W. (2007). *Opinions of Enterprises Participating in the Dual Industrial and Community Education Model for Diploma Program in Aviation in Automotive Mechanics with the Northeastern Technical College* (Engineering Thesis in Engine, King Mongkut's Institute of Technology Ladkrabang, Bangkok).
- Temkaew, W. (2017). *Real-world learning, Aeronautical Technology Program*. Academic Services Division, Bangkok.

### Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).