

## A work-based learning model with technopreneurship

**Heri Nurdiyanto**

Yogyakarta State University  
Yogyakarta, Indonesia

**ABSTRACT:** Work-based learning (WBL) is learning that integrates material into the world of work. In this study, the teaching was developed by incorporating technopreneurship education, which can become an alternative solution to the education problem in Indonesia. The research design used refers to research and development involving 145 students at SMK Muhammadiyah 3 Metro. The learning tools developed were a syllabus, lesson plan, student book, student work sheet, and learning and teaching process, while the data collection technique uses tests, documentation, observations and questionnaires. The results of these studies include learning tools developed to meet the validity criteria; the response of learners and teachers in the excellent category of learning; and individual completeness using the work-based learning (WBL) model with technopreneurial load exceeding 75%. Also, the values of technopreneurship and process skills together had a positive effect on learning achievement of 93.7%, and the experimental class learning achievement with an average of 75.72 is better than that of the control class (69.75).

**Keywords:** Work-based learning, technopreneurship, education

### INTRODUCTION

The development of learning in the organisation of vocational education should continue to be done by managers, so that the quality of graduates matches the demands of the labour market. The challenges from the work world, requiring higher work competencies as technology advances and workplace dynamics, demands that vocational education institutions be able to anticipate, and cope with, the changes by taking advantage of existing capabilities [1].

Various signals about the quality of education are the background of professional education implementation issues with a work-based learning (WBL) approach [2]. WBL is a learning approach that utilises the workplace to structure workplace experiences that contribute to the social, academic, and career development of learners, and is intended to be a supplement to learning activities.

The learning experience in the workplace is applied, refined, expanded in learning both on campus and at work. With WBL, learners develop an attitude, knowledge, skill, insight, behaviour, habits and associations from the experiences of both places, and enable learning to be associated with actual work activities and real-life work activities [3].

The quality of vocational education outcomes, both regarding process and product, is strongly influenced by the learning approach used in organising professional education. Implementation of technical knowledge cannot occur without cooperation between educational institutions with the business world and industry [4].

The nature of the theory of experiential learning, context teaching and learning, and work-based learning become highly relevant in the organisation of vocational education. The development of a professional education implementation model with various theories to improve the quality of learning outcomes is required, and in the end, this will affect the quality of learning outcomes and the quality of graduates. In the organisation of WBL-based vocational education, a strategy-tactic method is needed [5].

Recent research results conclude that the use of the work-based learning approach in education has a positive influence on achievement, motivation and the continuation of education [6]. Research and evaluation studies on WBL show a correlation between outputs and graduate outcomes with learning structures that schools and industry

provide in the workplace experience. When the destination programmes in the workplace-based curriculum are expert designed and applied with adequate staff support and properly evaluated, then the programmes will have a positive impact [7][8].

Technopreneurship is an attitude and ability to create something new and beneficial for oneself and others and being enterpreneurial is a mental attitude of one that is always active or creatively empowered, creative, artistic and understands and strives to increase income in business activities [9].

Another definition to describe technopreneurship education refers to a process that provides individuals with the ability to cope with commercial opportunities and insights, self-esteem, knowledge, and the skills to do things. Yet another suggestion is that technopreneurship education is a term of a process with specific outcomes, such as being able to come up with innovative ideas and make changes to carry out profitable activities [10]. The learners are engaged in a unified and creative process [11].

Implementing technopreneurship education within the school curriculum can create new entrepreneurs who can sustain economic growth. The more significant the role is in the growth and development of a country's economy the more it can enhance the development and progress of the nation [9]. The values of technopreneurship of learners can be seen from six indicators: independent, creative, action-oriented, risk-taking, leading and responsible [12].

## RESEARCH METHOD

The research design used refers to the development model of Thiagarajan, Semmel and Semmel [13]. In this study, the disseminated stage has not done, because this research is limited and done only within the scope of one school. This research was conducted at SMK Muhammadiyah 3 Metro during academic year 2017/2018 from September-December 2017. The subjects of this study are 145 students in class X. The data collection techniques and instruments used are as in Table 1.

Table 1: Data collection technique.

Data	Data retrieval techniques	Instrument	Retrieval time
Needs of students and teachers	Observation and interview		Before trial run
Learning device validation	Questionnaire	Sheet validation	Before trial run
Value of technopreneurship	Questionnaire	Questionnaire	After trial run
Process skills	Observation and documentation	Observation sheet	Device trial process
Student response	Questionnaire	Questionnaire	After the trial run
Student learning achievement	Test	Essay	After learning

Data analysis in this research was done by using descriptive statistics on the experimental and quantitative data. The success of this research and development is based on the validity and effectiveness of the learning tools developed. The efficacy of the improved device was obtained from the assessment of three expert teams and two colleagues and the implementation of the invention in the field.

The practicality of the learning tools designed was received from the responses of learners and teachers to the application of the device in the area. The effectiveness of the use of learning tools can be seen from:

- a) at least 75% of students are thoroughly typical in learning by looking at the value of learning achievement of learners with at least the value of 70;
- b) learning performance of students in the experimental class was better than the realisation of teaching in the control class;
- c) the technopreneurship values and process skills of learners significantly influence the teaching achievement.

## RESULT AND DISCUSSION

This research begins by defining the problems faced and the needs of learners and teachers. The results of the analysis of the needs of learners and teachers obtained through the observation and interviews are that learners need learning to be fun, which can cause learners to be active in learning and can apply the material to the world of work [10], so that learners can understand the usefulness of learning in their day-to-day life. During the design stage of the learning device, a prototype consisting of Bari's necessary steps was obtained; namely, preparation of tests, media selection, selection for initial design. When the development stage has been successfully concluded, it produced learning tools in the form of:

- a) syllabus;
- b) plan implementation learning;
- c) student books;
- d) worksheet with the result of device validation (Table 2).

The results from data collection are included in the valid criteria contained in Table 2. Table 2 indicates that developed learning must meet the requirements, so that it can be concluded that instructional tools fulfil valid criteria. Moreover, the results of the study also showed that the students in the experimental class who were better in the learning achievement exceeded 75%, in addition to the average learning achievement of the experimental class students (75.72) who outperformed the control class (69.75). This research corroborates the results of a previous study that the performance of learners using contextual appraisal is better than potential entrepreneurs in traditional teaching [14].

Table 2: Validation results.

Item validation	Average validation score					Average	Information
	1	2	3	4	5		
Syllabus	3.22	3.23	3.27	3.01	3.23	3.18	Good
Plan	3.35	3.01	3.51	3.23	3.21	3.23	Good
Student Books	3.25	2.84	3.52	3.29	3.35	3.25	Good
Worksheet	3.16	2.97	3.35	3.35	3.30	3.22	Good

The results show that learning using WBL-style has technopreneurship that emphasises the acquisition of process skills and incorporates technopreneurship value in problem solving better than learning with the conventional method that has been done so far. Mastery of competence by learners is also better when compared with competent mastery learners who use traditional learning model.

The learning including WBL technopreneurship encourages learners to learn more creatively, to work hard to solve problems by finding solutions, then to accept the challenge of designing and executing entrepreneurial activities that integrate the material into it. As stated in previous research, technopreneurship education equips learners with the skills to become self-reliant [15].

Also, the influence of process skills and technopreneurship values positively impacted on 9.37% of students' learning achievements on linear programme materials [16]. This positive influence can occur, because of the process skills that arise, as well as the emergence of positive technopreneurship values of learners, which foster their abilities' development, including their learning presentation.

On the other hand, learning using the WBL model of technopreneurship tools can mobilise learners to be active in the learning process, both in working on free issues and discussions to obtain information, and to measure the learners' skills during the learning process. In other words, process skills can train learners' minds in understanding an enterprise entity's issues and values that emerge, and can further encourage them to solve the problem at hand, which has a positive effect on the learning achievement of learners.

In line with previously conducted research, which stated that there is a definite correlation between technopreneurship education and the development of management skills, learners who receive instruction in technopreneurship education also show that they are able to regulate small-scale business after a more significant time. This means that the attitude after graduating will provide solutions to the problems in the learner's life concerning economic issues, and can potentially reduce the unemployment rate in Indonesia.

## CONCLUSIONS

The learning tool with the WBL technopreneurship model presented to the class 10 SMK Muhammadiyah 3 Metro course developed in this research has been declared valid after obtaining validation from expert teams and colleagues. It is also practically useful in learning based on real teachers and teacher responses. The results of the analysis on the effectiveness of education have demonstrated the impact of the practical indicators; namely,

- 1) learning achievement of the experimental class learners achieved 75% greater mastery;
- 2) learning achievement of the experimental class was 75.72, compared with 69.95 for the control class ;
- 3) the values of technopreneurship and participant process skills have a positive effect of 9.37% on learning achievement.

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## BIOGRAPHY



Heri Nurdiyanto is a doctoral student in vocational and technical education at Yogyakarta State University, Yogyakarta, Indonesia, actively researching the learning and work-based learning fields. He is currently researching mobile work-based learning and augmented reality to facilitate the teaching and learning processes of vocational high-school students.