Plan-Do-Review-Share-Happy (plandoresh) as strategy to develop independent learning of vocational school students

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ABSTRACT

When computers take over from routine tasks at work, some employees are involved in independent problem-solving tasks. The current learning system must encourage students to move to lower levels of thinking in order to become independent individuals. The purpose of this study was to test the validity of the Plan-Do-Review-Share-Happy (Plandoresh) strategy as an effort to develop independent learning for vocational school students. This study used a descriptive method, and the aim is to get the validity of the Plandoresh strategy steps with a random sample of 78 respondents. The results that 1.) The Plan step is valid with r count > r table of $0.849 > 0.227$; 2.) The next steps are done valid with r count > r table of 0.873; 3.) The Review step is valid with r count > r table of 0.856; 4.) The Share step is valid with r count > r table of 0.868; and 5.) The happy step is valid with r count > r table 0.929. These results indicate that the steps of the Plandores strategy are valid to be applied in an effort to develop independent learning for vocational students.

INTRODUCTION

The technology and information development rate are getting faster and influencing in all of life. Society not only relies on machines or computers to work, but internet support, artificial intelligence, and others can also increase effectiveness and efficiency. Digitalization in almost all areas of human life can change social life order; this is called the industrial era of revolution 4.0. In the middle of the community, the internet is very easy to access, like local, national, and international news, communicate, and invite others to follow their opinions by using various technologies.

When computers take over from routine tasks at work, some employees engage in independent problem-solving tasks. Family life gives new technology to get more opportunities to have entertainment connecting friends and participating in society. Vocational schools are not only preparing students for work, but teachers also have to follow the development of students and their families using technology in their daily lives. Teachers are required to provide skills about responsibility in acting by prioritizing the greater interest of society, showing ethical behavior in personal at work and in relationships between communities (soft skills).

The learning process must support students to think at a higher level to become independent individuals. There are kinds of learning models and strategies that can be applied in order to get

optimal learning outcomes for vocational school students. Strategy is one of the keys to the success of the teacher as a facilitator in applying the learning model in teaching and learning activities. Strategy in education defined as a plan, method, or series of activities designed to achieve a particular educational goal (Davis, 2020). Learning strategies can be interpreted as planning that contains series of activities designed to achieve certain educational goals. The learning strategy is a series of activities and various resources or power in learning that are structured to achieve learning goals.

The term strategy in the learning process is a teacher's effort so that students get optimal results in their learning. Kemp (1977) said that the learning strategy is a learning activity that teachers and students must do so so that learning objectives can be achieved effectively and efficiently. (Dick et al., 2015) states that a learning strategy is a set of learning materials and procedures that are used together to produce learning outcomes in students. Hutton (2017) states that strategy means a deliberate plan that results in learning. Besides that, the proposed cognitive activity will determine the strategy type: associative, elaborative, and organizational. The learning strategy is making a decision process (responsibility). The knowledge needed to fulfill the objectives is selected and restored in a coordinated manner based on education activity conditions.

Cerezo et al. (2011) said that there is self-regulation of learning strategies that are divided into two. The first is based on activities carried out by students to achieve learning objectives. Next consists of mastery and knowledge that students have about the process. It can be concluded that the learning strategy is an important component in the learning process in order to achieve maximum goals. Learning strategies appropriate to the current situation and needs must be planned systematically and lead to learning objectives.

According to Chan (2013), independent learning is learning that is initiated by students themselves. Chan (2013) defines independent learning as learning in which learners, in relation to other relevant people, can make the decisions needed to meet the learners' needs. This decision must be taken within the limits of social acceptance and with self-directed, self-motivated, learner willing. Yamin and Syahrir (2020) interpret independent learning as a concept in which, from time to time, an individual is empowered to learn on his own. Alkhateeb and Milhem (2020) identified the learning process as important in enabling individual autonomy by highlighting students' ability to transfer their learning to other contexts. If students can transfer their respective autonomy to a new context, then autonomy is not limited to a particular environment or something they have learned. Therefore, student autonomy can be positive or negative, nurtured by other classes/ environments (Hutton, 2017).

McEwan (2015) admits that the variables involved in one learning environment with an individual are very broad. The only common element is a student responsibility. If so, any definition of self-learning should make explicit or implicit reference to student responsibility to take comparative steps. Independent learners are those who can take responsibility for managing their own learning while taking an active role in achieving their academic learning goals (McEwan, 2015). Based on this opinion, it can be concluded that independent learning is an initiation process for students to understand project-oriented skills and is carried out with full awareness and high responsibility. By learning independently, students find passion in learning to achieve what is planned with maximum effort.

Project-based learning is a learning method that uses a project or activity as the media. Students explore, assess, interpret, synthesize, and information to produce various forms of learning outcomes. A learning approach gives the students the freedom to plan learning activities, carry out projects collaboratively, and finally produce the resulting work that can be presented to others (Mahendra, 2017). This learning model is very relevant if applied to vocational students. The characteristic of vocational education is project-based learning. For the application learning model to be optimal, it needs to be a good strategy. This study offers a strategy closely related to the project-based learning model, where the strategic steps include Plan-Do-Review–Share-Happy (Plandoresh), which can support the development of independent learning for vocational students.

Project-based learning refers to inquiry-based learning methods that involve students in knowledge construction by asking them to complete meaningful projects and develop real-world products (Brundiers & Wiek, 2013). Krajcik and Shin (2014) show six advantages of project-based learning, including managing questions, focus on learning objectives, participation in educational

activities, collaboration among students, use of scaffolding technology, and creation of tangible artifacts. Between all the features, making artifacts that solves authentic problems is the most important. What distinguishes project-based learning from other student-centered pedagogies is problem-based learning (Blumenfeld et al., 1991; Helle et al., 2006).

This creation process requires students to work together to find authentic problem solutions in the process of integrating knowledge, application, and construction. Instructors and community members, usually facilitators, provide feedback and support to students to assist their learning process. Several review studies have mostly focused on project-based learning in post-secondary education. Helle et al. (2006) discussed the practice of project-based learning and the impact of project-based learning on student learning. Regarding practice, the authors found that most of the studies reviewed were limited to course descriptions in terms of course scope, instructor requirements, and team size. As for impact, the review found that few studies have investigated the effect of project-based learning on student learning in terms of cognitive outcomes (e.g., knowledge) or affective outcomes (e.g., motivation).

In another study, Ralph (2016) reviewed fourteen studies that adopted project-based learning in STEM education. Based on Ralph's (2016) research results, project-based learning can improve the development of students' knowledge and skills. Students also feel that project-based learning encourages their collaboration and negotiation in the group. However, some students reported a lack of motivation for teamwork. Reis et al. (2017) reviewed studies of project-based learning in engineering education by adopting bibliometrics (e.g., keyword analysis) and classifying research methods from the studies reviewed. The classification results that have been carried out by Reis et al. (2017) in their research show that more than 70% of studies are focused on undergraduates, and case studies are the research approach that is most often adopted. In addition, several studies show that students' academic knowledge, skills, and motivation increase after project-based learning, although students also report difficulties in project-based learning.

Bell (2010) states that project-based learning promotes social learning as a student practices and becomes proficient with 21st-century communication, negotiation, and collaboration skills. Bell further elaborates those giving students precise instructions in the use of technology by demonstrating the use of various applications. When students share their work or challenges, brainstorming sessions often help them build ideas from one another for future possibilities that encourage creativity and an out-of-the-box way of thinking. Gultekin (in Bell, 2010) emphasized that students become better researchers, problem solvers, and high-level thinkers through project-based learning. Research supports that students using project-based learning perform better on standardized assessments and project tests than students in traditional direct instruction programs. They learn the application of real-world skills and analytical thinking (Gratchev & Jeng, 2018).

In the project-based learning process, students are involved in preparing questions to gather relevant information for their project. Yamin and Syahrir (2020) emphasize that students develop questions as groups and divide work among individuals or couples to answer selected questions using various sources such as the internet or guest speakers. Zhou et al. (2012) also stated that the criteria for project work were students working in groups to select topics of interest and determine the direction of their learning. They rely on insights from their peers while providing feedback to others; they may use the teacher as a resource, but generally, they create their own knowledge. In project-based learning, teachers do not only act as resource persons but also as guides and facilitators. Referring to the role of teachers in project-based learning, Shekar (2014) suggests that teachers must pay attention to the interests of their students. The teacher also helps students move in the direction they want, pointing out potential pitfalls or making suggestions without getting defensive when students prefer their own ideas. In a study conducted by Kapusuz and Can (2014), the realization of the project-based learning environment relies heavily on the skills of teachers to lead and facilitate group discussions.

In addition, Kapusuz and Can (2014) disseminates that teachers need to shift from their previous practice as ordinary teachers to a more facilitating role. In other words, the teacher focuses on questioning students' logic and beliefs, providing clues for correcting invalid student reasoning, providing resources, and keeping students on task. Thus, it cannot be denied that teachers play an important role in determining the success of project-based learning in completing project work.

The learning strategy developed in this study is the Plan-Do-Review-Share-Happy (Plandoresh) project-based learning model. The implementation of this Plandoresh strategy is expected to develop students' independence to answer the challenges of the world of work in the future. The purpose of this study was to test the validity of the steps of the Plan-Do-Review-Share-Happy (Plandoresh) strategy as an effort to develop independent learning for vocational school students.

RESEARCH METHOD

This study used a descriptive method intending to obtain the validity of the steps of the Plandoresh strategy. Samples were taken randomly by 78 vocational teachers. The questionnaire for the Plandoresh strategy steps uses a Likert scale of 1-5 and is distributed through the Google Form application in mid-October 2020. To get the validity of the Plandoresh strategy steps, the Pearson product-moment validity test was carried out. The data were processed using the SPSS 23 application, and the results of the r count were compared with r tables with a significant level of 5%. If r count > r table, then it is declared valid, and vice versa if r count < r table, it is declared invalid.

RESULT AND DISCUSSION

Result

The initial stage in Plandoresh is a plan. The stages of the plan in this research include; 1.) Setting goals; 2.) Determine the final task; 3.) Scheduling; 4.) Challenges and solutions; and 5.) Learning resources. The frequency distribution at the goal-setting stage showed that as many as 33 respondents, or 42.3% said it was good, 37 others said it was very good 47.4%, and the remaining 10.3% said the stage of setting goals was sufficient and not good. Furthermore, the stages of determining the final project, the results obtained 56.4% of respondents said it was good, and 33.3% chose very good. This means that the stages of determining the final project chosen by most respondents reached 89.7%. The next step is scheduling. The results show that a number of 47.4% of respondents chose good, and 43.6% said they were very good. The remaining 9% said it was sufficient and not good. For the challenge and solution steps, a total of 76.9% of respondents said they were good and very good, the remaining 23.1% said they were sufficient and not good.

The last stage of the plan is to determine learning resources. In this stage, the results show that 83.3% of respondents said it was good and very good, while 16.7% said it was enough and not good. The frequency distribution of the values obtained in the plan stages can be seen in Figure 1.
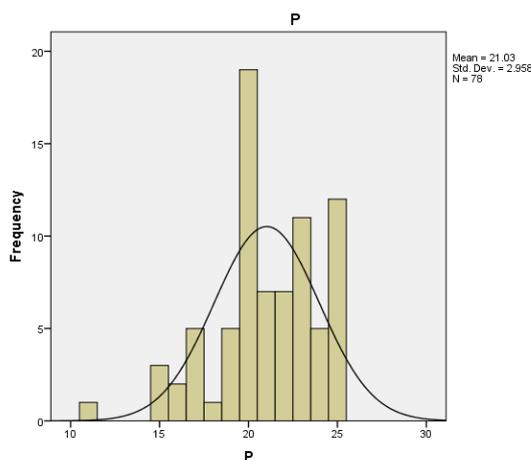

Figure 1. Frequency Distribution for the Plan Steps

The Do stage consists of; 1.) Working on the plan; 2.) Finding new information; and 3.) Save work properly. The results of this Do stage are as follows: in the planning stage of 69 respondents, 88.4% gave good and very good responses, at the stage of finding new information, 55.1% received good responses, 28.2% very good responses, and the remaining 16.7% respond fairly and not well. The next Do stage is to save the work well and get a good response by 80.8%, while the remaining 21.8% say enough and not good. The frequency distribution of the Do stage can be seen in Figure 2.
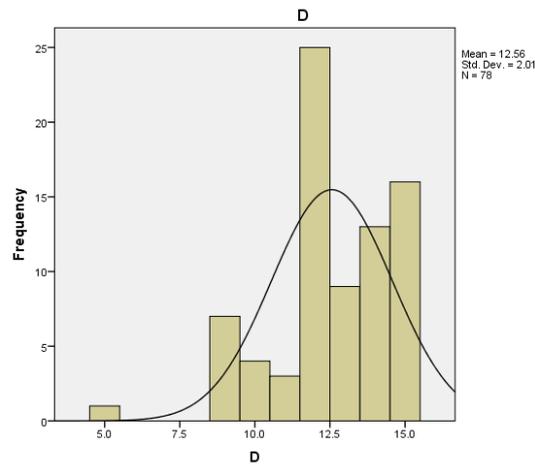
Figure 2. Frequency Distribution for the Do Steps

The Review stage consists of discussion, group work, student interaction, and listening to others. The results at the discussion stage showed that 33.3% of respondents stated that this stage was very good, 48.7% of respondents said it was good, 16.7% said it was quite good, and one respondent considered that this stage was not good. At the group work stage, the results obtained were 78.3% of respondents stated that the group work stage was good and very good, 20.5% considered it quite good, and 1.3% said it was not good.

At the student interaction stage, the results obtained as many as 79.5% of respondents said it was good and very good, the remaining 20.5% of respondents said this stage was sufficient and not good. At the stage of listening to others, the results obtained were 83.3% of respondents said it was good and very good, 15.4% of respondents said it was quite good, and 1.3% was not good. Figure 3 shows the frequency distribution of the Review stage.
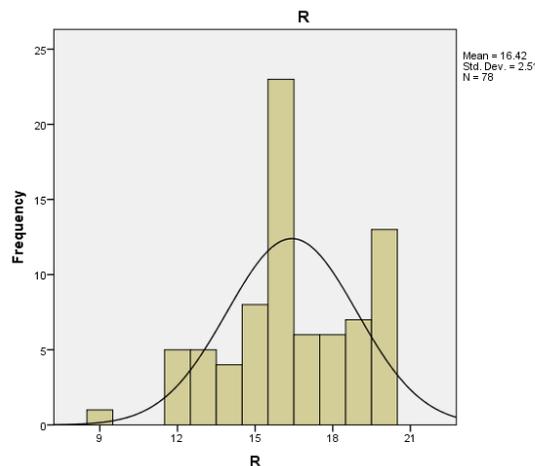
Figure 3. Frequency Distribution for the Review Steps

Share stages in this study consisted of presentations, questions, and answers, testing the work, and receiving feedback. The frequency distribution of the share stages can be seen in Figure 4. At the presentation stage, 48.7% received a good response and 33.3% very good response, the remaining 18% considered this presentation stage to be sufficient and not good. At the question and answer stage, got a good response of 42.3% and a very good response of 30.8%, the remaining 26.9% of respondents gave a fairly good response. Therefore, at this stage, it can be accepted by the respondents as a stage that can be applied in learning. At the testing stage, the work results get a good response of 50% and a very good response of 28.2%, the remaining 20.5% of respondents said it was quite good, and one respondent said it was not good or 1.3%. The stage of receiving feedback got a good response of 61.5%, and 23.1% got a very good response, the remaining 12 respondents chose this stage with sufficient and not good criteria.
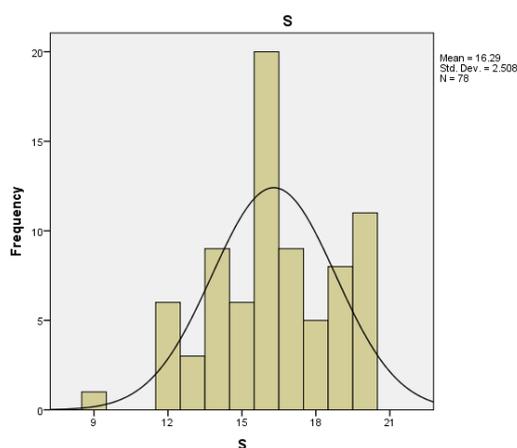

Figure 4. Frequency Distribution for the Share Steps

The Happy stage in this research consists of 1.) Continuing to improve yourself; 2.) Looking for new and better ways; and 3.) Seek improvement. In the stages of continuous improvement, you get a good response of 46.2% and a very good response of 42.3%, or an accumulation of 88.5%. The stages of looking for a new and better way get a good response of 44.9%, a very good response of 38.5%, or an accumulation of 83.4%. The stages of seeking improvement get a good response of 46.2% and a very good response of 37.2%, or an accumulation of 83.4%. The distribution of the frequency values of Happy's stages is shown in Figure 5.
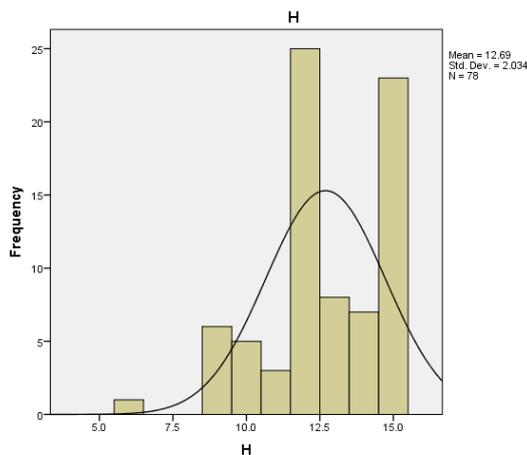

Figure 5. Frequency distribution for the Happy steps

Furthermore, the Pearson product-moment validity test was carried out to obtain the validity of the stages of the Plandoresh strategy in this study. The validity test data was processed using the SPSS 23 application, and the results of the r count were compared with the r table with a significant level of 5%. If r count > r table, then it is declared valid and vice versa. The results of the Pearson product-moment validity test show that: 1.) Plan stages are valid with r count > r table of 0.849 > 0.227; 2.) Stage Do is valid with r count > r table of 0.873; 3.) The review stage is valid with r count > r table of 0.856; 4.) Share stages are valid with r count > r table of 0.868; and 5.) Happy stages are valid with r count > r table of 0.929. Overall the results of the Pearson product-moment validity test can be seen in Table 1.

Table 1. Pearson Validity Test Results

No.	Steps	r Count	r table significant level (5%)	Criteria
	Plan			
1	Goal setting	.871	0.227	Valid
2	Determine the final project	.875	0.227	Valid
3	Scheduling	.864	0.227	Valid
4	Challenges and Solutions	.818	0.227	Valid
5	Learning Resources	.817	0.227	Valid
	Do			
6	Work on a plan	.862	0.227	Valid
7	Find new information	.897	0.227	Valid
8	Save work well	.861	0.227	Valid
	Review			
9	Discussion	.863	0.227	Valid
10	Work in group	.893	0.227	Valid
11	Student interaction	.863	0.227	Valid
12	Listen to others	.805	0.227	Valid
	Share			
13	Presentation	.881	0.227	Valid
14	Question and answer	.869	0.227	Valid
15	Test work results	.891	0.227	Valid
16	Receive feedback	.831	0.227	Valid
	Happy			
17	Continue to improve	.916	0.227	Valid
18	Looking for a new, better way	.959	0.227	Valid
19	Work for improvement	.912	0.227	Valid

Discussion

Based on the validity test results, it can be concluded that the stages of the Plandores strategy are valid to be applied in the process of teaching and learning activities. The implementation of the Plandoresh strategy in the learning process can accommodate freedom of expression and other differences to help teachers be more effective in increasing the learning independence of vocational students. The Plan stage shows that people are more likely to make important changes if they have specific, concrete goals. The Plan stage begins with setting goals, determining final assignments, scheduling, mapping challenges and solutions, and determining learning resources independently.

The Do stage, in addition to helping students think critically, can also increase independence. One of the stages in the Do stage is to work without coercion. At this stage of working without coercion, it can help students find a new information and get used to saving work properly. Freire (2018) states that individuals learn in the context of the world they live in, with real problems and situations. Freire's educational model emphasizes a higher level of thinking, the approach is often

referred to as critical ability. By working on the plan that has been prepared, students will find more new information, and the findings from this study will be stored as well as possible.

The stages of the Review strategy include the discussion stage, group work, interaction between students, and listening to other people's opinions. This review stage is a skill needed in the 21st Century era and needs to be applied in the learning process. Piirto (2011) mentions that the characteristics of 21st-century skills include: being open to seeing the experiences of oneself or others, not easily rejecting ideas that seem strange at first and believing in cooperative groups.

Research says that working together provides opportunities for students to increase their success both academically and non-academically. In addition, social skills such as taking turns, sharing, providing assistance, and receiving help from others are obtained through a collaborative process. Collaborating does not happen by itself. It requires motivation, direct instruction, and practice time so that students are accustomed to diverse environments.

When students are working together, the teacher should make sure that all group members can participate and be accepted, agree on their goals and plans for making a product, work in designated sections to complete the product, talk about their work and help each other. Chan (2014) states that independent learning is initiated by students, oriented to projects, discovery, investigation, teaching to think, learning to learn, independent learning, and lifelong learning.

Share stages include presentations, questions and answers, testing work results, and receiving feedback. The current vocational education and training system is being challenged to prepare future workers who excel in routine work and adapt to complex and changing work environments (McEwan, 2015). So the key to the Share strategy stage is communication. Vocational students are not only required to be competent in their field of expertise (hard skills), but communication skills (soft skills) really support success in the world of work.

The happy stage includes the stage of continuously improving oneself, looking for new and better ways, and always seeking improvement. Costa and Kallick (2001) say the habit of mind is knowing how to act when you don't know the answer when faced with a challenging problem. Costa and Kallick (2001) introduce 16 habits of mind used by effective thinkers, which include; discovering, thinking before acting, listening to others, flexible thinking, metacognition, thoroughness, knowing how to ask questions, applying experience to new situations, working hard, observing information, creative-imaginative-innovative, curious, accepting uncertainty, humor, justifying other people's ideas, and learn continuously.

For teachers, this Plandoresh strategy can at least provide students with provisions to face the challenges of life in the future in a comprehensive manner, both hard and soft skills. Gardner (1993) conveys the theory of various kinds of intelligence that education experts have widely adopted. Gardner's intelligence theory includes; logical, language, spatial, musical, kinesthetic, interpersonal, intrapersonal, and naturalist intelligence (Gardner, 1993). Of the eight bits of intelligence, only two are valued at school, namely logic, and language. Figure 6 shows the stages of Plandoresh's strategy to develop independent learning for vocational students in sequence.

Figure 6. Steps of the Plandoresh Strategy

CONCLUSION

In the learning system, the teacher must know about the processes that help students to become independent. The theories presented by education experts show that there are differences between individuals in achieving learning objectives. These differences can help teachers enter multiple levels of thinking and help all students learn how to think deeply about what they are learning. Based on the results of research and discussion, it can be concluded that the stages of the Plandoresh strategy are valid to be applied in learning as an effort to develop independent learning for vocational students, namely: 1.) The "Plan" consists of setting goals, determining the final project, scheduling, challenges, solving, and learning resources; 2.) "Do" includes working on plans, discovering new information, keeping work well; 3.) A "Review" includes discussion, group work, student interaction, listening to others; 4.) "Share" includes presentations, questions, answers, testing work results, receiving feedback; and 5.) "Happy" includes continuously improving oneself, looking for new and better ways, seeking improvement.

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