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Practices in Vocational Teaching Method to Improve the Quality of Teaching

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Abstract: The purpose of this study is to identify the teaching method practices in automotive course focused on practical task. The quantitative data were gathered using collection used researcher-made questionnaire based on the teaching elements in practical research. The random sampling technique and purposive sampling were used in selecting 283 students and 63 teachers from automotive course as respondents. The findings of the research shown that teachers exhibited showed their preference in using the demonstration and questioning technique during set induction session. Teachers prefer group monitoring and problem solving during while teaching and re-explaining and report writing in the post-teaching session. Based on all investigated factors, this research produced the combination of elements in teaching skills and vocational skill could be used as the method in the automotive practical research. This study has concluded that vocational teaching method in automotive practical research to be applied in teaching for an improvement to the current practices. Thus, teachers are proposed to use this method to gain student's knowledge in automotive and also will assist teachers to deliver skills for the current and future workforce.

Key words: Vocational teaching method, vocational pedagogy, teaching practices, skills, automotive

INTRODUCTION

Learning is something of which have an understanding and participated. In practical work, students have to participate fully so that the tasks given will be completed. The effectiveness of automotive programs encourages students to be productive, innovative and enterprising. This involves generating ideas and taking action as well as developing competencies that satisfy social demands, wants and opportunity and extend human capabilities. Students learn about training materials, technical information and systems and technology practice by which they are known. They consider the resources, teaching and training methods, equipment and techniques that are relevant to the context in which they are working. Students examine the context of a task or learning activity to solve problems and relate what is known to what might be done.Students will often view learning as something done to them by teachers rather than as something they do for themselves. Learning is memorizing. Learning is about getting it into your head. Brown (2004) indicates learning is acquiring facts or procedures that are to be used. It's about learning something so that you can do it again when you're asked to, like in an exam.Learning is making sense. Learning is about trying to understand things so you can see what's going on. You've got to be able to explain things, not just remember them. Learning enables you to perceive the world differently. This has also been termed personally meaningful learning.

Students learn with varying degrees of success, through reading, memorizing, thinking, writing, note taking in lectures, observing, listening to and talking with others and by doing things. They may learn in structured situations such as lectures, courses or learning packages; in informal situations such as browsing through books or on the Net and through casual conversations with peers. However, these above descriptions of how students learn do not explainhow students learn, nor do they account for why students learn. For answers to these questions one has to turn to various perspectives and theories of learning. These may be placed on a continuum with behaviorism at one end and radical humanistic approaches at the other. In between are Gestalt psychology, cognitive psychology, studies of student learning and constructivist, reflective and humanist theories. As one moves along the continuum, the theories become less positivistic, less concerned with control and prediction and more ostensibly concerned with social values.

Teaching method in vocational education: The instructors in the vocational colleges and indeed many TVET institutions are equipped with the traditional teaching methods including lecture methods, discussion methods, case studies, programmed instructions, role play, demonstration, experiments and educational field trips among others. In lecturing there is too little scope for negotiation and construction of meaning. Using this

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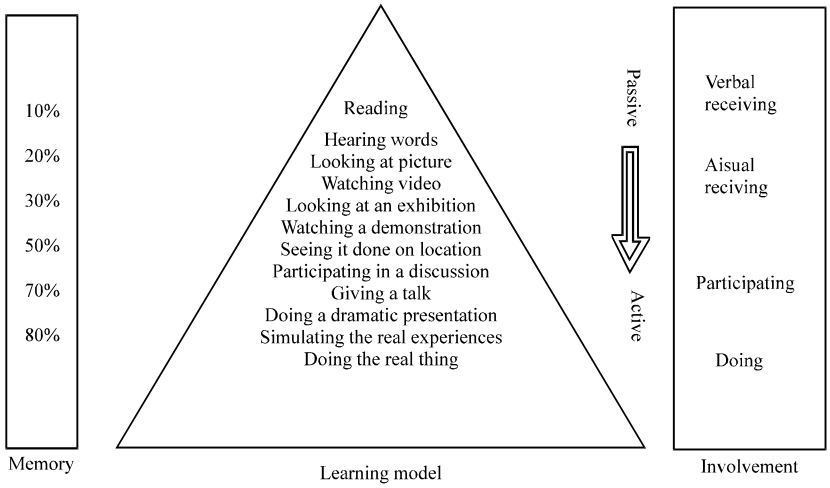

Fig. 1: Learning model and VET student preferences

method encourages students to be passive rather than active participants in the teaching and learning process. The method is teacher centered and does not help develop important skills such as communication skills, interpersonal skills, persuasive skills, creativity skills, problem solving skills and all other skills that would make them better citizens. The method ignores two very important domains of learning including psychomotor and affective domains. This complicates the "walls" already created by the students due to low self-esteem, brought about by negative reinforcements from teachers and parents.Learning by doing is characteristically the way in which vocational pedagogy is described but such a simplistic understanding obscures the fact that there is no one definitive notion of vocational pedagogy, just as there is no one idealized notion of a TVET teacher. In simple form, the basis of TVET teaching can be schematized as the interrelation between three foundational dimensions:

- Formal subject or technical knowledge
- Pedagogic expertise
- Practical workplace experience

There is various justification of pedagogic knowledge base of TVET teaching. For instructors level, the knowledge is lacking of theoretical knowledge and expertise. A range of entry teaching qualifications are described by the sources cited above, ranging from postgraduate teaching qualifications and associate degrees to various levels of certificates and diplomas. There is a tendency, especially in certain Anglophone countries, to base mandatory teaching entry requirements on low-level, standards-based qualifications in order to attract industry experts to Vocational Education and Training (VET) teaching.

Vocational students characteristic of learning can be illustrated and define in Fig 1 shows a Dale (1969)'s cone of experience proposed by Dale (1960)s is a model related into learning process. The classifications of learning in VET were based on information-processing theory and were conceptual automotive vehicleized to include five learned capabilities: cognitive strategies, verbal information, attitudes, intellectual skills and motor skills. This classification system is related to the work that learning must emphasize the significance of psychomotor domain learning in addition to Bloom's affective and cognitive domains (Mohamad, 2013). Sharda and colleagues stated that psychomotor levels of learning include perception, simulation, confirmation, production and mastery of skills that were previously learnt.

Other suggestion from researcher is integrate teaching practice with scientific inquiry. Inquiry-based learning based on Gardner proposed the three stage of learning cycle and reforming by Lawson (1995) finally evolved five stages of learning. Inquiry is a procedure that proposed questions about natural world and understanding thing deeply. Figure 2 shows revised inquiry-based learning by Lawson (1965). Student-centered is inquiry-focus on process skills and concept of learning at the same time. Student will apply their critical thinking, knowledge, scientific reasoning to develop their activity.

The elements of vocational learning are based on knowledge, skills and problem solving ; teacher have to focus on their teaching. A teacher's knowledge is influenced by their student's interest in learning. Shulman (1987) categorized teacher knowledge in VET into seven categories; pedagogical knowledge, curriculum

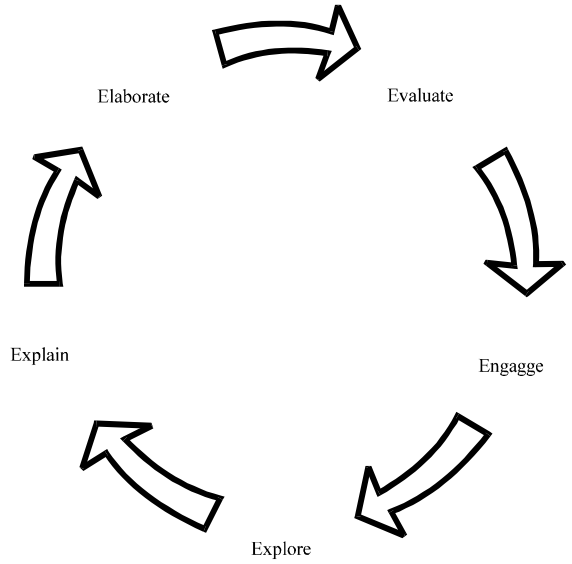

Fig. 2 : Inquiry-based learning

knowledge, pedagogical content knowledge, knowledge of learners, knowledge of educational contexts and knowledge of educational ends. Building on the previous work completed by Shulman (1987) proposed twelve knowledge bases and explains how to integrate them with teaching ability. This approach is based on pedagogical knowledge.

The National Skills Development Act 2006 (Act 652) defined skills as the research based and industry oriented activities are aim to provide the knowledge, skills and attitudes required for effective and efficient performance of a task or job. Their definition includes refresher courses, further, updating and specialized job-related training. Vocational skills are those that allow a person to master a particular subject or procedure that is applicable to a career. Vocational skills are also known as content skills; some people develop vocational skills in high school, learning a particular trade in a vocational school.

The problem solving approach to teaching and learning has evolved from the theories of John Dewey. Dewey's theories have been used in vocational education as a way to relate classroom learning to real-life situations or problems. Reluctance to deviate from traditional teaching methods and to learn and incorporate new teaching philosophies and practices is a major obstacle to the adoption of problem solving approaches in teaching. Garon (1996) found that cooperating student agriculture teachers used a problem solving approach to teaching <20% of the time. Classroom teachers participating in the study spent most of their time on maintaining the interest of their students and student teachers focused primarily on seeking information to resolve the problem. Many advantages, however are present for students who can constructively problem solve.

MATERIALS AND METHODS

Research objectives:

- To identify what the student's preferences in learning automotive practical research are based on introduction, body and task conclusion
- To investigate what teacher's preferences conducting automotive practical research are based on teaching introduction, body and task conclusio
- To identify the relationship between teaching preferences in automotive practical research

Research based on survey design with quantitative approach and conducted to teachers and students to identify what are the preferences conducting teaching and learning sessions in the workshop. About 283 students from automotive course and 63 instructors answered to the questionnaires. To make the objectives of the research relevant this model was modified to serve the purpose of the research. Competency concept proposed by the Ministry of Education required teachers and students on how APW was conducted. Competency is integrated demonstration of a cluster of related knowledge, skills and attitudes that are observable and measurable, necessary to perform a job independently at a prescribed proficiency level.

RESULTS AND DISCUSSION

Student's preferences in learning automotive practical work are based on introduction, body and task conclusion: Table 1 shows what students prefer to learn when teachers start the practical class. The highest score, 4.67 is demonstration method followed by sketching diagrams with an explanation before they do the task with a mean of 4.11. However, students do not prefer using the module (3.10) and video (3.15) while the teacher begins the topic for practical task. Table 1 calculates the data of teaching introduction for. Results show that students also prefer demonstration method, the highest mean score of 4.57 followed by sketching at 4.13, questioning technique at 3.86 and the lowest score of 2.98 for using the teaching module.

In introduction session, students chose demonstration method to see how and if the equipment works properly for when the section of practical is

Table 1: Introduction (N = 283)

	Electric diesel		Automotive vehicle	
Items	Mean	SD	Mean	SD
Sketching	4.11	0.478	4.13	0.470
Demonstration	4.67	0.604	4.57	0.209
Hands out	3.01	0.526	3.07	0.436
Video	3.15	0.674	3.05	0.688
Questioning technique	3.97	0.548	3.86	0.518
Use the module	3.10	0.285	2.98	0.305

conducted by group. Simpson who proposed that if done during the introduction session, the teacher will be able to see if learners are able to do the task. Gary also points out that when the student's interest is linked with demonstration, the task will be done effectively. This method is followed by question and answer session and also with the teacher sketching the function or procedure on the white board. It will start the student-teacher interaction in learning process.

Table 2 shows the results of what student preferences are when the topic or the task deals with Electric Diesel in body parts of teaching APW. Analysis indicates that the method that students prefer is for the teacher to explain the task in small groups with a high mean of (4.12) followed by using module at 3.92 and problem solving at 3.88. Students don't prefer using the teacher guide with a mean of 2.76. Table 2 displays the results of methods that students prefer in automotive vehicle diesel in body parts of teaching APW. Students also like the teacher to explain the task in small groups as shown in a score of 4.16. The other student preferences are using the module and problem solving approach. Students do not prefer having the teacher guide them during teaching sessions with a mean score of 2.73.

In body session Simpson proposed that teachers avoid taking short cuts when demonstrating how to do the task, research to standards which are realistic for learners to achieve but also acceptable to the workplace and check learners understanding by asking questions. In teaching during body session students agreed that they are more confident when the teacher is in their group to make sure that they do the right procedure. They also prefer using the module as a guide to solve the problem given.

Table 3 proved what the student's need. Students also prefer the teacher to ask them questions with a mean of 4.13 and to make lab reports with a mean of 4.09. Students also prefer the teachers to end the practical class session with a re-explanation of the task given. Results show that students agree with this method with a mean of 4.54 followed by questioning technique at 4.23 and report writing at 4.12. The lowest mean is quiz at 3.65. At the end of the class the teacher will draw conclusions

Table 2: During teaching session (N = 283)

	Electric diesel		Automotive vehicle	
Items	Mean	SD	Mean	SD
Doing together with teachers	3.70	0.695	3.77	0.604
Tracing the diagram	3.63	0.542	3.66	0.634
Teachers explain in small groups	4.12	0.431	4.16	0.362
Discussion among friend in group	3.77	0.697	3.79	0.777
Questioning technique	3.56	0.769	3.59	0.586
Following a teacher's guide	2.76	0.690	2.73	0.777
Using the module	3.92	0.782	3.89	0.717
Sketching	3.72	0.824	3.72	0.874
Problem solving	3.88	0.821	3.88	0.770

Table 3: Conclusion in task given (N = 283)

	Electric diesel		Automotive vehicle	
Items	Mean	SD	Mean	SD
Teacher re-explain quiz	4.36	0.457	4.54	0.435
Short conclusion/summary	3.78	0.563	3.65	0.609
Questioning	3.89	0.554	3.76	0.404
Technique	4.13	0.624	4.23	0.688
Report writing	4.09	0.506	4.12	0.433
Comparing among group work	3.56	0.675	3.86	0.711

Table 4: Teaching introduction in APW (N = 63)

	Percentage		
Methods	Not agree	Not sure	Agree
Sketching	1.6	19.0	84.1
Demonstration	0.0	4.5	95.5
Questioning technique	4.8	13.8	81.4
Video	31.7	4.9	63.4
Hands out	28.6	4.7	66.7
Use the module	12.7	3.2	79.4

as to what students have done and complete the task given. A few methods were identified and based on the result for ELECTRIC DIesel, students liking the teacher to re-explain the entire task given and to make conclusions has a mean of 4.36.

At the end of the teaching session when teachers conclude the task students prefer that the teacher gives an explanation, Q and A and report writing. According to Gary the re-explanation is needed because it will revise the main point of the teaching session and it will remind learners how and when they will get an opportunity to practice doing the task. It is equivalent with Dar Chin Rau who are of the opinion that one of the designs of teaching activities in teaching approach of vocational curricular proposed that group discussions be conducted and that groups share any information that they have found.

Teacher's preferences conducting automotive practical work are based on teaching introduction, during teaching session and task conclusion: Table 4 shows the data of teacher's preferences on how to start

the introduction session in APW. The highest percentage (95.5%) as shown in Table 4 indicates that demonstration is the main method that teachers use. Followed by sketching (84.1%), questioning (81.4%), use the module 79.4%, hands out score is 66.7% and video is 63.4%.

Demonstration was chosen because the advantage of using demonstration in teaching are that it utilizes several senses and students can see, hear and possibly experience an actual event, stimulate interest, present ideas and concept more clearly, provide direct experiences and reinforce learning. Demonstration is a teaching method which can be used with both large and small groups. Demonstrations become more effective when verbalization accompanies them.

Table 5 shows the data teacher's preferences during the teaching session (body). For most teachers, a monitoring approach with small groups is an effective method when teaching APW (79.4%) followed by using the module at 84.1% and problem solving approach at 76.2%. The smallest number is that of doing without teacher's guide (4.8%). Teachers are almost in agreement with the three methods when teaching the body of APW.

During teaching session in APW: In teaching body session teachers prefer small group monitoring, problem solving approach and using the AED and AV modules. The definition of small group is a collection of individuals who influence each other (Galina, 1998). Small group is a basic component of cooperative learning so in APW usually students are divided in a few small groups with three to five members in each group. They will do the task in group. Teacher will monitor and observe and also act as facilitator during the teaching session. Students will corporate to complete the task and will also develop various skills and teachers guide more effectively in small groups rather than a large group in one class.

Table 6 presents the methods that teachers use at the end of the teaching session. 90.4% teachers agree that they re-explain the tasks that have been given and how to solve the problem. 84.1% prefer report writing to ensure that students understand what they are doing. A similar number of teachers prefer students to prepare a report while the lowest items preferred by teachers are quizzes and comparing among group work with 42.9 and 39.7%, respectively.

During the conclusion session, teachers chose to explain again (re-explain) asked students write a report and summarize the task. This is a normal approach in teaching and learning where teachers will explain the entire topic that has been taught so that they will know whether students understand or not. Teachers also asked students to prepare a report about the practical task and to give them a summary of the topic.

Table 5: During teaching session in APW

	Percentage		
Methods	Not agree	Not sure	Agree
Doing together with teachers	39.7	11.1	49.2
Tracing the diagram	36.5	17.5	46.0
Teachers monitor in group	15.9	4.7	79.4
Discussion among friend in group	54.0	11.1	34.9
Questioning technique	76.2	1.6	22.2
Doing without teachers guide	95.2	0.0	4.8
Use the module	12.7	3.2	84.1
Sketching	47.6	20.7	31.7
Problem solving approach	17.5	6.3	76.2

Table 6: Conclusion in APW

	Percentage		
Methods	Not agree	Not sure	Agree
Teacher re-explain	6.4	3.2	90.4
Quiz	54.0	3.1	42.9
Questioning technique	7.9	19.1	73.0
Report writing	3.2	12.7	84.1
Short conclusion/summary	15.9	4.0	80.1
Comparing among group work	31.7	28.6	39.7

Table 7: Introduction: relationship between demonstration with questioning technique and sketching

Tests	Demonstration	Questioning technique	Sketching
Demonstration			
Pearson correlations	1	0.848**	-0.569**
Sig. (2-tailed)		0.000	0.001
N	63	63	63
Questioning technique			
Pearson correlations	0.848**	1	0 .477**
Sig. (2-tailed)	0.000	0	0.009
N	63	63	63
Sketching			
Pearson correlations	-0.569**	-0.477**	1
Sig. (2-tailed)	0.001	0.009	1
N	63	63	63

**Correlation significant at the 0.01 level (2-tailed); r = 0.85 shows strongly positive correlation between demonstration and questions technique r = 0.48; shows weak negative correlation between questions technique and sketching; r = 0.56 shows medium negative correlation between demonstration and sketching

Relationship among the highest three types of teaching methods: The data analyzed the relationship between three methods when starting teaching or when giving students a practical task. Table 7 illustrates the mean score between six methods of teaching introduction in APW. Correlations were analyzed to identify the relationship among three teacher prefers methods to teach the introduction of APW. The analysis presented in Table 8 shows that teachers prefer to use the demonstration with questioning technique with a correlation value of r = 0.85 which is a strongly positive correlation.

Table 8: During teaching session: relationship between small group monitoring, problem solution and module guide

Variables	Small group monitoring	Problem solution	Module guide
Small group monitoring			
Pearson correlations	1	0.729*	0.379**
Sig. (2-tailed)		0.000	0.001
N	63	63	63
Questioning technique			
Pearson correlations	0.729*	1	0.477*
Sig. (2-tailed)	0.019		0.029
N	63	63	63
Module guide	-0.379**	-0.477*	
Pearson correlations	1		
Sig. (2-tailed)	0.000	0.019	
N	63	300	63

**Correlation significant at the 0.01 level (2-tailed); r = 0.73 shows strongly positive correlation between small group monitoring and problem solution; r = 0.38 shows weak negative correlation between small group and module guide; r = 0.48 shows weak negative correlation between module guide and problem solution

Table 9: Conclusion: relationship between quiz, questioning technique and task summary

Variables	Teacher re-explain	Report writing	Summarize the task
Teacher re-explain			
Pearson correlations	1	0.729**	0.634**
Sig. (2-tailed)		0.000	0.001
N	63	63	63
Report writing			
Pearson correlations	0.729**	1	0.637**
Sig. (2-tailed)	0.000	0	0.009
N	63	300	63
Summarize the task			
Pearson correlations	0.634**	0.637**	1
Sig. (2-tailed)	0.001	0.009	0
N	63	63	63

**Correlation significant at the 0.01 level (2-tailed); r = 0.73 positive strong correlation between teacher re-explain and report writing; r = 0.64 medium positive correlation between teacher re-explain and summarize the task; r = 0.63 medium positive correlation summarize the task and report writing

There are three methods that teachers prefer to use while teaching APW. They like to monitor in small groups, use the learning module and teach students how to solve the problem. Table 8 presents the data to identify, during teaching activities (body) in automotive practical work, the relationship between the small group monitoring problem solution and the module guide. It shows that teachers prefer to use monitoring in small groups and problem solving approach as the value r = 0.73 strongly indicates a positive correlation. The closer the correlation is to 1.0, the stronger the relationship between variables.

Based on mean interpretation, three approaches were the most favored methods that teachers use to teach conclusion in APW. Inter correlations test was used to identify the relationship. Table 9 presents the correlation analysis to identify the relationship between teacher re-explain and report writingwhen teaching the conclusion in automotive practical work. The result shows a positive, strong correlation between teacher re-explain and report writing with a value of r = 0.73.

CONCLUSION

Teachers did not use one single approach in their teaching to make students pay more attention or motivate the in the beginning of teaching session. Teachers will use various methods to make teaching more effective (Ahmad *et al*., 2012). The previous discussion explained what methods teachers used in each teaching session in APW. For introduction teachers prefer to use demonstration, sketching on whiteboard and questioning technique. These three methods are related to each other and it is this strong relation that makes teachers use them in their teaching. From the research analysis teachers preferred using demonstration with questioning technique during introduction session. Teachers demonstrated with written procedure followed by oral questioning techniques. Enough emphasis cannot be placed on the important of questioning in any teaching situation. The ability to direct thought-through questioning is recognized as one of the most valid proofs of teaching skill. It will encourage students to take more responsibility for their own learning and enable students to bring their own experiences to new a learning situation.

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