

## IMPROVING THE PRODUCTIVITY OF SMK EDUCATION THROUGH COLLABORATIVE LEARNING

Denny Laleno<sup>\*</sup>, Parabelem Tinno Dolf Rompas, Rolly Oroh

### ABSTRACT

*Abstract— The writing of this article is based on the author's observation of the condition of SMK which should be able to excel with a more equitable quality of graduates to answer the needs of industry and entrepreneurship through finding more productive solutions, in the SMK learning system by tightening cooperation / mutually beneficial collaboration between SMK schools as the driving force of education, the role of cross-institutions in local government, universities and the world of work / the industrial world where the formulation of the problem raises 9 questions that are explored through survey methods with in-depth interviews and enriched by the author's observations over the past few years as an industrial practitioner in SMK.*

*Keywords: Team Work, Transparent, Trust, Integrity*

### INTRODUCTION

Education plays a very important role in sustaining the existence of a nation and even a civilization.

The quality of graduates produced from the world of education is a picture of how the development of a nation or civilization in the future. Especially in Indonesia, the demographic bonus also has the potential to become a social problem if it is not well prepared.

Quality education is usually directly proportional to the costs that will be incurred and this is a serious obstacle and requires thinking and breakthroughs.

There are so many problems faced such as practical facilities, the quality and number of teachers, the system and learning methods used.

From these problems emerge levels of graduate quality as well as levels of school financial capability.

Vocational schools are more in demand for the purpose that graduates can work immediately and even already work while still in school. This is highly expected by the industrial world and certainly supports government programs in reducing unemployment, but this dream is still constrained because the output of graduates is still far from industry expectations, and graduates also lack confidence in entrepreneurship.

There are 4 entities that are very closely related to the world of education in this case SMK

1. The school as an educational driver that carries out educational activities
2. Central and local governments that guide policy/regulation and support the funding of education activities.
3. Higher education as a study and development of knowledge that is needed in the world of education.
4. Industry / World of work as users of graduates.

The school is the driving force while the government, universities and industry/workforce are partners.

These 4 entities have the same interests and responsibilities for the quality and efficiency of the world of education so that quality and efficiency constraints will be very likely to be managed together and mutually beneficial.

Of the many problems encountered in the world of education, the author tries to group them into :

1. A place to conduct educational activities
2. Educators

3. Operational budget of educational activities
4. Number of learners
5. Educational activity support facilities
6. The most suitable education method

### **RESEARCH METHODS**

The approach used in this research is a qualitative approach with descriptive. Where data and data sources in this study were obtained from data from in-depth interviews with informants, Furthermore, from the description above, the focus of our question is how to present SMK schools that are able to overcome existing problems and become more productive by building collaborative mutualism between schools, local governments, universities and industry.

As a practical implementation to answer the above questions, let's try to concentrate on survey results in 10 SMK schools in SULUT as the main informants (Table 1) and supporting informants taken from provincial and district government officials, department leaders and lecturers of the PTM Department of FATEK UNIMA as well as managers and general and operational staff in the industry (Toyota Service Center, Daihatsu Astra, Suzuki and Mitsubishi) as well as owners of public car repair shops conducted by in-depth interviews based on nine questions that are believed to be able to answer existing problems and as a measure of the quality of a SMK school.

The interviews were conducted in stages over the period June 2024 - August 2024.

### **DISCUSSION**

Next, let's start analyzing based on the 9 questions in the problem formulation.

1. What is the condition of the practical facilities at school?

From the total equipment condition (Table 2) it can be seen that for the total average of equipment groups in 10 schools the availability has only reached 38% of the expected standard of at least 85% and of this 38% availability it turns out that 54% of the equipment is in a damaged condition and the lowest availability rate is the Advance equipment group and practical vehicles, each with only 15% availability.

This data illustrates that the existing equipment is still lacking.

2. Are the curriculum and learning methods regularly reviewed by the university?

In table 3 as a result of this interview 100% of schools have obstacles that have an impact on the quality of graduates and 80% of the obstacles are in practical equipment while 80% of schools have been able to find the root of the problem but 60% do not have a solution so there are 63% need universities to help find solutions, namely how to repair damaged equipment or modify / design equipment independently, as well as how to use the right method of equipment while from the university side itself in this case the Department of Mechanical Engineering Education UNIMA already has an MoU with several just the intensity of attendance at schools and the development of cooperation towards more profitable for both parties as well as the Manado State Polytechnic.

3. Is there a Teaching Factory (TeFa) program at school that is managed to support students' practical activities in the form of a real business?

From the interview results in Table 4, it can be seen that only 30% of schools have a master plan, which is still very few, although almost all schools (80%) are aware of the equipment and facilities of this program. 30% of schools already have the equipment while for the workshop building 60% already have 20% in planning. Road access to workshop locations is still constrained because only 50% have adequate access, while the remaining 30% are in planning. MoUs with industry partners are only 50% ready. But what should be proud of is that there are already 30% of schools that have tried to run this TeFa program, some of which have been running since July with the results of more than 20 units entering service. For schools that already have a building, road access

is possible to run this TeFa program because for work tools and other equipment can still be prepared by the industry while the school prepares its equipment so this TeFa program is very possible to run at school.

4. Can local government facilities that are no longer in use and have been written off be used by schools as practice materials?

From the results of the interview table 5. It is illustrated that in principle, unused facilities can be donated to schools for practical facilities, but for facilities in district and city governments, it is constrained because SMK is under the provincial government so there are difficulties in transferring these assets from the district / city government. So for this there needs to be new regulations or special policies from the district / city government so that the management is not too difficult, at least the simple consideration is so that the government office yard is not littered with junk vehicles while the school itself really needs practical equipment in the form of parts of the vehicle that can be assembled separately to facilitate understanding of vehicle parts or can also use the vehicle unit as a whole as a learning medium even though it is damaged in certain parts.

Meanwhile, for the assets of the provincial government, according to the general karo of the provincial government, the principal only needs to make a letter of request for revitalization activities. This is necessary considering the various challenges faced by SMK in responding to the demands of fulfilling the Indonesian workforce. These challenges not only concern various matters directly related to SMK or internal, such as facilities and infrastructure (sarpras), educators and education personnel, and curriculum, but also come from outside or external environmental factors, especially government policies and the DUDI environment which are important variables in SMK management efforts.

5. Can damaged local government facilities be repaired or maintained at school in TeFa workshops?

Still in the survey results table 5. For the maintenance of official vehicles, it is possible to service / maintain them at school, which is important under the responsibility of a credible dealer or workshop and there is a warranty and tax invoice. the advantage is the distance and time for vehicle maintenance, especially for darehas that are far from the center of the provincial capital,. Also in line with the government's efforts to adapt to change through initiatives to improve the capabilities and skills of the workforce since the education period, starting from the secondary education level.

Furthermore, to answer questions to points Six to Nine, we can find the results of interviews with several automotive industries in the following table

Can industry be co-involved in TeFa workshops when needed?

Has the industry been directly involved as a guest teacher in the practical learning process at school through a cooperation agreement?

Have students in certain grades been given opportunities for internships in the industry?

Have school graduates been accepted as workers in the industry? These are the nine questions that are expected to be answered at the end of this research.

From the results of the interview table 6. it is found that almost all workshops already have MoUs, both those that are still active and those that need to be extended. PKL students are routine every year and vary from 4 students to 25 students depending on the needs of the Workshop. It's just that not all workshops understand about Teaching Factory (TeFa). Industry can be involved in teaching in schools and 50% have taught and some have been active on average every month in the last 2 years. The industry can also work in school workshops because schools can be used as Service Points from dealer workshops or general workshops. The advantage for dealers and general workshops is that they can get closer to customers by utilizing school workshops.

## CONCLUSION

Finally, it can be concluded that it is possible to get progress in the world of education, especially vocational schools if we can collaborate in an innovation in this case the 4 entities referred to

above play a role in contributing to each other but also receiving benefits from each but those who will receive the most benefits are vocational students including to improve the quality of vocational schools and this pattern can be applied to vocational schools majoring in other than light vehicle engineering. The expected results are that starting from the district / city, vocational schools develop through a creativity approach, a capability approach by re-thinking skills, a job formation approach, and a business and / or industrial world approach.

As a suggestion, it is necessary to immediately have a regulation or joint agreement regarding the granting of official vehicles from the city district government to SMKs under the Provincial Government.

Table 1. Sample list of 10 vocational schools in North Sulawesi

Sample 10 Schools	
Regional	School Name
Manado City	SMK N 2 Manado
	SMK N 8 Manado
Tomohon City	SMK N1 Tomohon
Minut district	SMK Kr Imanuel Laikit
Minahasa Regency	SMK N3 Tondano
Minasel district	SMK N 1 Suluun Tareran
	SMK N 1 Tumpaan
Partner district	SMK N1 Touluaan
	SMK N 1 Silian Raya
Kab. Kep. Sangihe	SMK N3 Tahuna

Table 2: Total Equipment Condition

List of Equipment Group Conditions of the 10 Schools Surveyed							
Equipment Group	Available	Total	Good	Broken	Available	Good	Broken
Electrical Trainer (10 Items)	6	83	32	51	60%	39%	61%
Machine Tool (7 Items)	5	50	25	25	50%	50%	50%
Chassis Praga Tools (14 Items)	5	82	20	62	50%	24%	76%
Advance Technology (4 Items)	1.5	6	5	1	15%	83%	17%
Practice Vehicle Unit (2 Items)	2	3	1	2	15%	33%	67%
Average					38%	46%	54%

Table 3. Interview Results on Learning Process Constraints and Solutions.

Interview Results Table Learning Constraints		
Question	Conditions	
1. The school encounters obstacles in current learning	Yes	No
	100%	0%
2. These constraints impact on the quality of learning outcomes/graduate quality	Yes	No
	100%	0%
3. More sources of obstacles appear	Students	Practice Facilities

	20%	80%	
4. The school is able to find the root of the problem	Yes	Doubtful	
	80%	20%	
5. whether cooperation with relevant universities is possible to help find the root of the problem	Yes	No	already
	29%	57%	14%
6. The school already has a solution	Already	Not yet	
	40%	60%	
7. whether cooperation with related universities is possible to help find solutions	Yes	No	
	63%	38%	

Table 4. Interview results with school parties about Teaching Factory (TeFa)

Table of Interview Results of the Teaching Factory (TeFa) Program			
Activity Indicator	Readiness		
	Got	In Planning	Don't have one yet
1. The school already has a master plan for TeFa	30%	50%	20%
	Already	Not yet	
2. Schools already know and understand the equipment for TeFa	80%	20%	
	Got	While in Planning	Don't have one yet
3. The school already has enough and adequate equipment for TeFa.	30%	40%	30%
	Got	While in Planning	Don't have one yet
4. The school already has a building that can be used for TeFa (car service workshop) 4.	60%	20%	20%
	Got	While in Planning	Don't have one yet
5. Have adequate road access to the building referred to in point 4.	50%	30%	20%
	Already	Not yet	
6. The school has an MoU with an industry partner for TeFa activities.	50%	50%	
	Already	Not yet	
7. TeFa is already running/operating in schools	30%	70%	
	2 Months		
8. How long has TeFa workshop been in operation			
9. Number of Units worked in 1 month in TeFa workshop	20 Units		

Table 5: Interview results of relevant local government officials

Results of Interviews with the Head of the General Bureau of the SULUT Governor's Office and the Head of the General Division of the Minut Regency Government		
Question	Answer 1	Answer 2
1. Are there any official vehicles in the North Sulawesi Governor's office that have been damaged and are no longer used?	There is	There is
2. Whether the asset has been written down	Some have, some haven't	Some have and some have not
3. What are the benefits of keeping this vehicle	No, it takes up space and is not good to look at.	No, it takes up space and is not good to look at.
4. Can this asset be donated to SMK majoring in TKR to be used as student practice equipment?	Can	Can

5. If possible, how is the technical process of this grant	SMK (Principal) makes a request letter for official vehicles that are no longer used / damaged to be used as practical vehicles at SMK	There needs to be a transfer document from the Province
6. Can the grant process for official vehicles like this also be carried out in other agencies within the scope of the Regency City Provincial Government?	In principle, it can be done because the purpose is for student learning and for technical matters, please coordinate with the authorized officials in the relevant agencies.	It is easier within the provincial government because SMK is under the provincial government.
7. When is the best time for this grant process	As soon as possible, the principal submits a letter of request	Not yet confirmed
8. Can this official vehicle be maintained or serviced at the school workshop?	Maintenance is always directed to dealer workshops or authorized workshops.	Maintenance is always directed to dealer workshops or authorized workshops.
9. Can it be done at school by authorized dealers or workshops?	The important thing is that there is a tax invoice and there is a warranty from the dealer.	The important thing is that there is a tax invoice and there is a warranty from the dealer.

Table 6: Interview Results with Industry Parties

Table of Interview Results with Industry							
No.	Question	Answer					
		Daihatsu	Suzuki	Mitsubishi	Toyota	General Workshop1	General Workshop 2
1	Is there an MoU with an automotive/TKR vocational school?	Ever	None yet	Ever	There is	There is	There is
2	Are there any automotive high school students who routinely PKL every year and how many people on average each time they go down PKL	There is	There is	There is	There is	There is	There is
3	What is the average number of practicing students per year	14	4	8	25	6	4
4	Has the school ever informed you about TeFa (Teaching Factory to the industry)?	Not yet	Not yet	Not yet	already	Not yet	Not yet
5	Is it okay if industry is involved in teaching at school	May	May	May	can	can	can
6	Have you been invited to teach at the school	Already	Not yet	Already	Already	yet	yet

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