

Revised Selected Papers

Accademia Musicale Studio Musica  
Michele Della Ventura, *editor*

2020

Proceedings of the  
International Conference on  
**New Music Concepts  
Inspired Education and  
New Computer Science Generation**

Vol. 7



# **Accademia Musicale Studio Musica**

International Conference on New Music Concepts  
Inspired Education and  
New Computer Science Generation

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Vol. 7

Accademia Musicale Studio Musica  
Michele Della Ventura  
Editor

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## Preface

This volume of proceedings from the conference provides an opportunity for readers to engage with a selection of refereed papers that were presented during the International Conference on New Music Concepts, Inspired Education and New Computer Science Generation. The reader will sample here reports of research on topics ranging from a diverse set of disciplines, including mathematical models in music, computer science, learning and conceptual change; teaching strategies, e-learning and innovative learning, neuroscience, engineering and machine learning.

This conference intended to provide a platform for those researchers in music, education, computer science and educational technology to share experiences of effectively applying cutting-edge technologies to learning and to further spark brightening prospects. It is hoped that the findings of each work presented at the conference have enlightened relevant researchers or education practitioners to create more effective learning environments.

This year we received 57 papers from 19 countries worldwide. After a rigorous review process, 24 papers were accepted for presentation or poster display at the conference, yielding an acceptance rate of 42%. All the submissions were reviewed on the basis of their significance, novelty, technical quality, and practical impact.

The Conference featured three keynote speakers: Prof. **Giuditta Alessandrini** (Università degli Studi Roma TRE, Italy), Prof. **Renee Timmers** (The University of Sheffield, UK) and Prof. **Axel Roebel** (IRCAM Paris, France).

I would like to thank the Organizing Committee for their efforts and time spent to ensure the success of the conference. I would also like to express my gratitude to the program Committee members for their timely and helpful reviews. Last but not least, I would like to thank all the authors for their contribution in maintaining a high-quality conference and I hope in your continued support in playing a significant role in the Innovative Technologies and Learning community in the future.

March 2020

Michele Della Ventura



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**Learning Tools  
Learning Technologies  
Learning Practicies**

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# How to Teach Problematic Students in Indonesian Vocational High Schools: Empirical Studies in West Java Province

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**Abstract.** The majority of schools, at any level, have students deemed problematic, including in vocational schools. Generally, the labeling of problematic students based on their behavior and academic ability or student achievement. Whatever factors cause students to become problematic, the teacher is still obliged to teach each student according to the established curriculum. However, when teachers only focus on providing material without involving problematic student characters in the learning process, learning achievement of problematic students will not improve and will even lead to new problems, especially related to the quality of human resources. Therefore, it is essential to dig information about how to teach students with problems. Based on classroom action research for two academic years (2014/2015 and 2015/2016) in Kandanghaur District vocational school students in grade II of West Java Province, revealed six ways of teaching students with problematic issues that are strongly related to psychological and communication factors.

**Keywords.** Problematic student, Indonesian vocational high school, vocational teacher, teaching method

## 1 Introduction

Educators variously define vocational education, and there is no standard definition. In general, vocational education is education that provides material and training for students to learn theory and practicum a competency that students are interested in and needed by the world of work so that graduates can work or are entrepreneurs. The Indonesian education system has determined that Vocational High Schools (*Sekolah Menengah Kejuruan* (SMK)) are part of the national education system whose educational goal is to produce skilled workers who have the ability to meet the demands of the Business World or Industrial World (*Dunia Usaha atau Dunia Industri* (DUDI)), and are able to develop their potential in adopting and adapt to the development of science, technology, and art [1].

Requirements to be a student in a vocational school is to have graduated from junior

high school (*Sekolah Menengah Pertama* (SMP)), where students are around 15 or 16 years old, or a maximum of 21 years old when registering [2], however, the writer has never found a new student at the age of over 17 years. Adolescents defined by the United Nations (UN) as those between the ages of 10 and 19 [3]. Ref [3] also states that at the age of late adolescence (15-19 years old) students are vulnerable to have mental health or behavioral problems. Moreover, at the age of adolescence, this is a potential that can be utilized by parents and educators to maximize the learning process and training in schools, especially in vocational schools. However, the majority of SMP graduates and the community still consider vocational schools to be of low quality and only for the lower classes [4, 5]. One of the reasons the author heard from parents was that SMK graduates would only be low-level employees in the company or an operator of a machine in a factory and it was difficult to become a manager. Furthermore, the reason most junior high school graduates, who have low learning achievement, choose a vocational school for the next stage of education is because their learning achievement scores do not qualify for general high school (*Sekolah Menengah Atas* (SMA)). Thus, the paradigm emerged that a child with low learning achievement must go to a vocational school [4].

In addition to the condition of students with low learning achievement, economic conditions are also another feature of vocational school students [4]. Students from economically weak families dominate vocational schools. Low family economic conditions are closely related to the low learning achievement of children [3, 6]. The many limitations in providing learning resources or learning facilities are one of the factors that cause children to face various difficulties in understanding and mastering school material [5], [7]. A child may have faced this condition since he or she was in elementary school and junior high school, which then continued until he or she entered vocational school.

The assumption that vocational schools are schools for children with low learning achievement and come from low-income families has spread widely in the community even among educators [4]. Based on the author's experience, this lousy paradigm not only occurs in Indonesia but also in other countries, including countries that have been considered as developed countries such as Japan and Australia. The poor image of vocational schools in West Java Province is worsened by the existence of statistical information which states that the percentage of unemployed graduates of SMKs in West Java province ranks highest, at 12.22%, where public school (SMA) graduates are only 8.02% [8]. The ratio of unemployment between vocational schools and public schools as above, where the number of unemployed graduates of vocational schools is higher than that of general school graduates, has been going on for a long time and has a relatively similar comparison trend.

The information above is indeed an irony of the condition of SMKs in West Java Province. Moreover, the background of poor vocational students is very likely to create low quality prospective workers in West Java. However, these conditions are still very open to being addressed and directed so as not to become worse. Educators in vocational schools are strongly encouraged to understand the character of their students in carrying out learning and training so that the process of transferring knowledge and abilities can

be more effective and efficient [9]. Therefore, through this paper, the writer as a teacher in one of the vocational schools in the province of West Java would like to share experiences of teaching students with problems of vocational school based on their character.

## **2 SMK Students Conditions**

In general, the academic and economic conditions of students who apply for study in SMK have similar conditions. This based on the author's observations at school and information obtained from vocational subject teachers in various vocational schools in several cities in West Java. The first and second conditions have been mentioned and explained above; namely, students have low learning achievement, and they come from families with weak economic levels. The third condition is that students who enter vocational schools are students who have been rejected by other schools, either vocational schools (which is considered a good SMK) or public schools (SMA).

Two reasons for rejection are because the academic scores of students are lower than the requirements, and the quota of new students in the proposed school has been met. Based on the recognition of some first-grade vocational students whom the author interviewed during the learning process explained that the rejection they experienced, slightly decreased their enthusiasm for learning. Moreover, when he found out that his best friend from middle school had been accepted and was able to attend the first school he applied for, while he was rejected and had to find another school.

The fourth condition is that quite a lot of new vocational school students choose the wrong majors in vocational schools. This phenomenon occurs due to several reasons, including the encouragement of friends who persuade to enter a particular major without seeking information in advance about the major to which he is applying. Another reason is because of the parents' insistence. Parents sometimes give advice or even force their children to enter specific majors in vocational schools after receiving information that graduates of these majors have good prospects, or because they see other people's children who have successfully worked after studying in the majors.

The fifth condition is closely related to the fourth condition, where new students do not know about the majors they are applying. Usually, students with this condition apply to vocational schools only because of the proximity to the place of residence. The other cause is because new students are "tricked" or "forced" by the vocational school itself to enter a particular department. When the new student quota for a major in a vocational school has been fulfilled, often the admissions committee at the vocational school offers new students who apply to choose other majors in the school.

Offers given to prospective new students are accompanied by an explanation that in other majors have a lot in common with the initial majors that new students apply for, so new students can stay in the same vocational school without the need to find another school that has a course that is in line with the student's initial plan. For example, new students apply for multimedia majors, but because the quota for multimedia majors is full, the school offers animation majors. In fact, vocational subjects in those two majors are different.

### **3 Common Problems in SMK**

Based on the SMK conditions described above, we can know that there will be many problems that arise in the process of learning and training in vocational schools (SMK). The problem that most easily observed is low student interest or motivation to learn. Students who do not have an interest in the majors that are entered, naturally have relatively low enthusiasm for learning in every subject presented by the teacher, both theory and practice. This situation greatly affected the learning achievement of students in vocational schools, which in turn produced vocational school graduates who had lower competencies than expected. Furthermore, students like this often make trouble or break school rules.

Based on the author's experience, the violations that often occur are students are often late coming to school, sleep in class when learning takes place, do not do homework, do not pay attention to the teacher when the teacher explains the material, fighting with friends, stealing belongings from friends or school property, leaving school before class ends, even smoking or getting drunk at school. The teachers call students with this condition with problematic students.

The most severe effects will be seen after students graduate from the vocational school. On the one hand, when students apply to the industrial world, they will be tough to get a job because often the industry asks job applicants to prove or show their abilities or competencies in the job being applied. On the other hand, when students want to become entrepreneurs, they do not yet have the skills to be able to produce goods or services that are worth selling (have economic value) and can be offered to the public or potential customers. If students do not choose to work after graduation but continue their education, they cannot continue their studies to a higher level of education due to their low academic ability and weak family economy. Even, people who already have good educational qualifications do not necessarily have job certainty let alone low-qualified school graduates [10]. Problematic students have the potential to be hampered by conditions of their low ability, which in turn will create people who are not in school (college), and not working or unemployed.

### **4 Question**

Based on the simple explanation above about the conditions and problems that commonly occur in vocational schools, the school administrator, especially the teaching staff (teachers and instructors), have other challenges in teaching. Not only does it make students know, understand, and be able to do something, but it also makes students who do not want to learn become willing to learn and can be used as capital to deal with various life problems to become successful people [11]. Therefore, the question to be answered with this classroom action research is how to teach problematic students in vocational school (SMK) based on their character and condition.

## 5 Methodology and Limitations

This research is a case study-based classroom action research that aims to explore appropriate teaching methods for students with problems in Indonesian vocational school (SMK). Interviews and observations during the learning process, both when the writer teaches and when students learn with other teachers, are the means used to gather information. The students' midterm and end of semester test scores were also analyzed to see their learning outcomes as a documentation study and to compare with student test results in previous years.

Students selected in the study were grade II students (class XI) of the Fishing Vessel Engineering Department (Teknika Kapal Penangkap Ikan (TKPI)) at SMK Negeri 1 Kandanghaur, Indramayu Regency, West Java Province, Indonesia. In 2015 there were 29 students in class XI TKPI, while in 2016 there were 26 students. The process of taking information is done when the teaching and learning process of vocational subjects, commonly referred to as productive subjects, both when learning theory in the classroom or practicum in-school workshops.

The author chose TKPI class XI for this study does not mean that all students in the class are problematic students, but there were only a few students who have problems. The class was chosen because the writer is one of the vocational subject teachers for the class. Besides that, the writer has been the head of the TKPI department for four years. Thus, the writer can be unimpeded to interact with students and explore the information needed.

## 6 Findings

Educators in the classroom carry out various methods of teaching so students can understand and master the material presented. Teachers often teach by combining many ways following the subject matter and conditions of students while in class, from just lectures, discussions, debriefing, games, etc. Here are some ways that the author found is a suitable way to teach problematic students in vocational schools with their conditions and character.

### 6.1 Theory or Practice First?

Almost all productive subjects have time allocation for learning theory and practicum. The most common method used by teachers at SMK Negeri 1 Kandanghaur is to teach students with the theory first in the classroom then take them to the workshop for practicum and do a job under the theories that have been given. This method is quite useful but has several weaknesses.

The first weakness is that students tend to try to remember the material or theory with the same redaction as the teacher or handbook and repeat it for retention (*rote learning*) [12], [13]. When students do practical work in the workshop, they are very vulnerable

to forget the material that has been delivered in the classroom, especially if the practicum is done on a different day. Finally, the teacher must repeat the material that has been given to students in the workshop when students should be able to directly practicum. Moreover, the condition of students being taught, especially problematic students, have low learning achievement or weak academic ability. Thus, the time allocated for that subject is not maximized for the learning process, and this is the second weakness.

Based on the trials conducted, the author tries to do learning with practicum first in the workshop, then in the theory classroom. The method is to demonstrate in advance the abilities that will be learned by students in these subjects in the school workshop. During this process, the teacher also explains the material that must be understood by students, such as mentioning and explaining the name of the parts of the machine and its functions, how to operate, how to handle or repair, etc. After that, the teacher allows students to do what the teacher has shown themselves.

When students try to do what the teacher has demonstrated, the teacher has the opportunity to do ask-and-answer with students. In this process, students will explain with their sentences, not the same sentence as the teacher's sentence or handbook. Because students explain that while doing, students will tend to remember and understand the material to create meaningful learning easily [12], [13]. After all students do the practicum, the teacher asks students to write the material that they have learned in their sentence style, and it can be done in a workshop or a theoretical classroom while giving students the opportunity if there is material to be asked. The process of recording this material will strengthen students' memories and understanding of the material they have learned.

The author considers that how to learn a vocational material with a practicum in advance is more effective than giving theory in advance because students remember and understand the material based on what they have done and written. The effectiveness of this method can be known when students, especially problem students, can explain well enough when asked to explain the material again at the next meeting (usually one week later) verbally. Likewise to practicum, students are still quite capable of repeating the work they have done. Thus, all students are ready to learn new material.

## **6.2 Pay attention to every student**

Vocational school students who have behavioral problems are usually caused by a lack of emotional attention from the closest people, such as parents, relatives, or friends. They do bad things, such as breaking school rules, as a form of expression of lack of attention as well as an "invitation" to those around him so that someone gives attention. Based on this consideration, the teacher has the potential to provide school subject matter to students through emotional attention effectively. Moreover, ref [14] explains that teachers who teach students with low poor academic performance and unacceptable behavior must carefully consider the history and emotional factors of students.

Students will focus more on studying the material when he feels someone is very concerned about him, or others recognize his presence. When the learning process takes place, as explained above, the teacher accompanies the students one by one in the practicum and provides ample opportunities to learn until, at a minimum, all students are quite understanding and capable. At this stage, teachers are required to be more patient, because based on experience, sometimes there are students, especially problem students, who do work that is not exemplified by the teacher when practicum, or ask something that is not related to the material being studied.

Giving attention to every problem student during the learning process will foster student confidence. Many vocational school students, especially in the class being researched, have limitations in expressing something, either orally or in writing. They are more likely to be silent or passive and do not dare to express something during the learning process, including not daring to ask the teacher when there is something they do not understand. Through accompaniment and paying attention to each individual in the class, their confidence will emerge and begin to express themselves. Increased students' confidence in conveying something will create a warm communication process between teachers and students, as well as potentially reducing one of the obstacles of vocational school graduates who often fail at interview sessions when looking for work to industry

### **6.3 Additional Study Time**

The learning process described above will undoubtedly take up a lot of learning time. In fact, the material learned at one meeting will be less when compared to nonvocational subjects. However, the authors believe that this is not a weakness but an investment. When students feel comfortable with the learning process, then, gradually their motivation to learn will increase. With the increased enthusiasm for learning in productive subjects, students will also have the potential to be more enthusiastic in learning other subjects and begin to improve their bad behavior in school. Apart from that, mastery learning is a top priority, not the amount of material delivered to students regardless of their understanding.

Based on the author's experience and observations, although vocational subject teachers prioritize the achievement of understanding of the material, the teachers also pay close attention to the achievement of the amount of material delivered to students according to the curriculum. When the school hours allocated by the school are insufficient, or there are still students who need additional study time, especially problem students, the vocational subject teachers are willing to provide additional hours after school hours without asking for additional fees from the school or students. At least, based on the author's observation, this is a common practice of productive subject teachers in vocational schools in Indramayu Regency. The author believes that productive subject teachers in other regional also do similar things.



## 6.4 Language

As explained at the outset of this paper, many students in the vocational schools, which are the place of research, are from families with weak economic backgrounds and low learning achievement, so this condition affects sociability. Socially, we can guess that they will get along with children who have similar backgrounds whose consequences harm their behavior and the way they communicate or use language. Problematic students tend to use abusive language in daily life, including in the school environment. This condition does not mean that they cannot speak well and politely to friends, but, according to the author's sighting, the use of abusive language and sounding impolite is a form of intimacy between them in getting along. Due to the more significant portion of time spent communicating with peers, they are not accustomed to using formal and polite language in communication, and this is one of the causes of their low self-confidence when asked to express something in class to the teacher.

Indonesian is the official language of instruction used in schools. The community environment around the school which is the place of research has two local languages, namely Javanese language (*Dermayon*) and Sundanese language where both languages have variations of words based on their use (rough and smooth or polite and impolite). When students communicate with other students, it is effortless to find them using the harsh local language, even in the classroom. For the writer, this situation is also a potential and not an obstacle to the learning process. If schools forbid students to use local languages while students are at school, this will create new problems.

During researching the TKPI class, the author tries to use language that is not too formal in the learning process and often uses the local language. Sometimes using harsh words like students often use when they are hanging out. Using students' language does not mean that the authors set a terrible example for students in the use of language, but it is a strategy to get closer psychologically to students with problems during the learning process. At this stage, teachers are required to be observant when and in what context students' slang is used so that misunderstandings occur and instead worsen the learning situation. Often this informal language is used to incorporate humor in their pedagogy as a scaffold for transferring knowledge, reducing tension, increasing motivation, and strengthening teacher-student relationships [15].

After the problematic students feel that their teacher is a "friend" to get along with, then they will respond to the learning process better and will pay more attention to the material provided. Based on the author's experience, if the learning process only uses formal language, then within a few tens of minutes problem students will begin to lose focus and not pay attention to the teacher, or even doze and fall asleep especially when in theory class. Therefore, the choice of language is very important because language is the most important component of communication in the learning process [7].

## 6.5 Punishment

Vocational schools that accept new students with the conditions described above, which come from families with a weak economy and low learning achievement, have the opportunity to have many students who violate school rules. Although the number of problematic students entering vocational schools is small, they often become a bad influence on other students so that their numbers increase and substantially disrupt the learning process. Therefore, teachers need to have the right strategy to deal with student conditions like this.

The most common way teachers do problematic students is to apply penalties for students who violate school rules. The type of punishment imposed at the school where the research is carried out has several stages, from verbal warnings to physical punishment (push-ups, running around the field, cleaning toilets, or others). If the violation continues, the student can be expelled from school by calling the student's parents to school or the teacher who comes to the student's home.

In the first few years of teaching at a vocational school, the author applies penalties to students who violate school rules as do other teachers who have been teaching longer. However, the application of punishment, especially using physical punishment, appears to be less effective and does not have much effect on changes in student behavior. According to the information the author obtained after discussing with teachers who had taught in junior high school, this condition was due to students having misbehaved before they entered vocational school or since attending school at a previous level where at the school they also received similar penalties for their violations. Furthermore, the conditions at home are the same; that is, their parents apply a similar concept to their bad behavior. Thus, problematic students are accustomed to and "immune" to handling schemes like this. The author even made jokes to other teachers by stating that students who have the strongest and healthiest bodies are problematic students because they are the most frequent sports (push-ups, running, etc.) than other students.

During the research process, the authors do not apply penalties for students who violate school rules as is generally done by other teachers. When the learning process, the authors focus on teaching and training students who are ready to learn. If there are students who are late for class, the author allows students to enter without giving a penalty, and the learning process continues. Likewise, when a student falls asleep in class, the writer leaves it alone, and the learning continues. When there are students who do not participate in learning in class, the writer does not go around the school looking for students but instead teaches students who are already in class. Even, many times, the learning process was only attended by around eight to ten students.

The pattern as above is a punishment too, but not physical punishment. It is a psychological or social punishment. When there is no physical punishment given by the teacher, so there is no teacher's attention to the students. Apart from that, the teacher's time and energy will be maximized to teach students who are ready to learn in school. Evidently, during the two years of doing this way, most students gradually followed the learning process well, especially when they learned that their friends had understood

and were able to operate or maintain specific machines. So finally, only two or three students were left who were still behaving poorly.

## **6.6 Remedial**

The test, whether oral, written or practicum, is a stage that students must pass after carrying out the learning process. The test is done in the middle of the semester and at the end of the semester. Productive subject tests are carried out by testing students' understanding and abilities (theoretical and practical tests) on the material that has been given. In practical tests, students are asked to show how to operate and carry out a machine maintenance procedure. The evaluation process like this certainly requires quite a long and tiring time compared to other subjects, but the teacher will see the psychomotor abilities of each student.

Students who do not follow the learning process will have difficulty facing the test, so their scores will be much lower than other students. Based on experience, usually, students who score low ask the teacher to re-teach the material that has been given and retest to improve the score. This request was made because problematic students felt ashamed and jealous of the low scores they got compared to the scores obtained by other students. In this situation, the authors see that the enthusiasm for learning in problematic students appears. Every teacher would feel happy if the students are enthusiastic about learning, even at the end of the semester. Therefore, this opportunity can be used to teach problematic students as well as make them aware that by showing enthusiasm for learning or the right attitude, they will get attention or good response from the teacher. In the end, this kind of treatment will increase the positive expectations of changes in the behavior of problem students

## **7 Conclusion**

Every student needs the attention of the teachers, especially when the learning process in the classroom or workshop. Students who have lousy behavior need extra attention. Problematic students are special students who need special teachers. Problematic students have not yet realized that finding work and living independently after graduating from school is very difficult, so they feel "safe" with bad behavior and free to do anything at school age.

Ways of teaching problematic students in vocational schools written in this study may not be the most appropriate way for all vocational schools (SMK) in West Java. However, it is these methods that the writer feels are suitable to be applied in the vocational school where the author teaches (SMK Negeri 1 Kandanghaur) after a little understanding of the character of the problematic students and the causes of their behavior in school. Evidently, their enthusiasm for learning and learning achievement increased compared to previous years. Therefore, the author recommends the managers of vocational schools, especially productive subject teachers, to understand the character of

students in the learning process and conduct classroom action research according to the conditions of problematic students in school. Hopefully, this classroom action research can be useful for vocational school teachers.

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