

# THE THOUGHT OF PESTALOZZI ABOUT INDUSTRIAL EDUCATION AND ITS RELEVANCE TO EDUCATION AT VOCATIONAL SCHOOL (CASE STUDY AT SMK MUHAMMADIYAH 1 SURAKARTA)

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**Abstract:** Pestalozzi is one of big figures who is quite influential in the world of Education. Three main aspects that he introduced (physical, intellectual, and moral), have relationships with each other and they must be considered while carrying out the educational process. Yet in practice, the educational practitioners at Vocational School haven't yet understood how Pestalozzi thinks about education, even though it has been uncsciously implemented. These things cause the essence of the three aspects are not related or not even emerged yet. This article describes the Pestalozzi's thought about the industrial education and its relevance to vocational education in Indonesia. This type of research is case study. The source of the data was taken at SMK Muhammadiyah 1 Surakarta, which was collected in January 2015. The findings showed that the Pestalozzi's thought regarding to industrial education for poor children is very beneficial fo the future. The researchers hope the educational concept which is usually applied in general education (physical, intellectual, and moral) can also be applied in industrial education. Those all three aspects of education have been implemented indirectly at SMK Muhammadiyah 1 Surakarta. In order to prepare the profesional workers, the Vocational School provides the the concept regarding to a productive education so that it can be applied in practice and training at the laboratory. Those who comprehend the theoritical concepts and practices will have a high self-esteem so that they can improve the work ethic in the business world and industry.

**Keywords:** Pestalozzi's thinking, Pestalozzi's thought, indutrial education, Vocational education, SMK education

## INTRODUCTION

The enhancement of human life quality can be planned through education. This planning can be started at the time when junior high school graduates continue their education to secondary school (SMA) or vocational school (SMK). Vocational high school (SMK) is one of formal education oriented to the student's readiness or awareness towards the world of work. That is why lots of students continue their study to vocational school just intend so they can get a job quickly. Mostly, this assumption comes from students in middle to lower economic conditions. They want to get a job quickly right after graduated so they can lift their family burdens, especially in economics. As students, they should consider of their own duties as educator.

According to Pestalozzi, the perfect concept of education is when the education pays attention to physical, moral and intellectual aspects. A student whose high

intellectual but not with the moral, there will be a unhumanistic condition. This means if any one of those aspects are being abandoned, then it is not a perfect education. This thing is need to be considered, not only by providing the skills (physical aspects) which is needed in the world of industry, but also by providing the intellectual and the moral aspects.

Yet in practice, the educational practitioners at Vocational School haven't yet understood how Pestalozzi thinks about education, even though it has been uncsciously implemented. These things cause the essence of the three aspects are not related or not even emerged yet. Based on the description above, the problem statement of the research is how Pestalozzi thinks of industrial education and its relevance to education in Vocational Schools?

The objective of the study is to describe the Pestalozzi's thinking regarding to industrial education, so the educators are able to comprehend the phylosophy of how the learning at Vocational School must be done.

## **APPROACH & RESEARCH METHOD**

This research was conducted in January 2015 at SMK Muhammadiyah 1 Surakarta. The type of this research is qualitative research in case study. The data source of the research was the phenomenon of the ongoing educational process. For the data collection techniques, the researcher collected the data through observation using the observation sheet prepared based on research's indicator.

## **RESULTS AND DISCUSSION**

### **a. Pestalozzi's thinking about Industrial Education**

Pestalozzi has three aspects of education which are related to each other, they are; physical, intellectual, and moral. The physical aspect relates to body, health, and someone's skill. The moral aspect relates to character, meanwhile the intelectual aspect relates to intelligence. The development happens on a particular aspect will affect the condition of other's aspects. If the intellectual aspect exceeds the other two aspects, it is likely to have an unhumanistic impact. And if the moral aspect doesn't develop, so the physical and intellectual aspect will be misused. In Pestalozzi's country, those aspects had been applied at public education (Indonesia named it 'SMU'). These three aspects encourage him to let the industrial education use it, by having the main goal is to develop the entire humanity.

In this case, industrial education is an education intended to poor people, so they are able to get a better life. It is only through education, poor people will be able to change their attitude towards their own lives. To achieve this, there must be a change takes place in their bottom of the hearts, namely by giving them the three aspects of education (physical, intellectual, and moral). In this industrial education, the opportunity to develop physical, intellectual, and moral strength is much more

easier to get and more comprehensive. Pestalozzi hopes that this industrial education institution becomes the first institution which can provide services for children come from poor family whose poor houses where there were no education ever been carried out before. They need a change in term of attitude, such as; self-confidence and self-fulfillment. Another Pestalozzi's hope is that through education all of this changes can be fulfilled and actualized.

#### **b. The Relevance of Pestalozzi's thinking about Industrial Education with the Education at Vocational Schools**

In Indonesia, the definition of industrial education can be interpreted as vocational education which is on par with SMK (Sekolah Menengah Kejuruan). The law of Sisdiknas (National Education System) no. 20 year 2003 mentioned that SMK (Sekolah Menengah Kejuruan) is included in one of formal educations which provided vocational education at secondary education level as a continuation of Junior High School, MTs, or other equivalent forms. The vocational secondary education is an education at secondary education level which prioritized the student's skill development to carry out certain types of work. The priority of Vocational secondary education is to prepare students entering the employment and to develop their professional attitudes. In accordance with that, vocational secondary school organized educational programs that are tailored to the types of employment ("Government Regulation Number, No. 29," 1990).

Vocational High School (SMK) is a vocational secondary education included in one of Indonesia's formal education taken by students after graduating from JHS (so forth), spending 3 years to study, starting from 10th grade until 12th grade. But it is only some people who decided to study at SMK. There are some factors affecting them in making the decisions, they are; the ease of getting a job and getting an adequate compensation from SMK graduates in a high competency, and the self-confident that his expertise can support the career and practice (Santoso, 2014).

The decision in selecting this SMK as a place to study is motivated by the level of the welfare in the family linked to economic status or the level of income obtained by parents. Thus, the parents categorized in lower economic conditions mostly encourage their children to continue their education to Vocational School (SMK). They hoped that once they've graduated, they will immediately be able to work and can sustain the family economy (Rony Windarto, 2011). This review was also conveyed by Rudianti and Wardoyo that most of parents work as farmers, laborers or traders directed their children to study at SMK so that they could immediately work (Endang Rusdianti, Paulus Wardoyo, 2008).

The majority of the students are from the families in middle to lower level of economy. The economic background of the family creates a lot of affect to the family member, such as; the divorce between husband and wife which can sacrifice the psychology and education of their children. Many cases of vocational school

student were found playing truant for almost a month. Of course the homeroom teacher should make a home visit to ask their parents about why the children didn't go to school. The data showed that there are some aspects; 1) As the child's emotional outbursts against the parents quarrel. So they prefer to go to their relative's house which is away from home and school. 2) Children prefer to live with their guardians (such as grandmother, grandfather, uncle, aunt) rather than being with their parents (who have separated and worked overseas as migrant workers). It can cause the children's education development less well controlled. 3) The family economic condition is poor. The willingness of the child to attend school is actually still there. But because of the complaints of parents that they could no longer afford to send their children to school because of not being able to pay, the children themselves decided to work to help the family's economy rather than go to school, albeit with a heavy heart. However, there are still some of them who are still in school, even though sometimes they skip school with the reasons we consider unreasonable for school-age children, namely joining the catering group as a waitress in the wedding or the like. Through this catering group, they get enough money.

According to Pestalozzi, education must be based on love and affection. Hence, home environment or family as the first place for children to get the education must be built with love and affection. Based on that situation, it shows that children's education is very much determined in the family. Unharmonious relationship in a family, often quarreling and broken-home, cannot provide love and affection as the basis for the first education of the child. Parents cannot give encouragement to their children, because they themselves actually need encouragement and enthusiasm. It can be said that parents in these conditions have failed to provide education at home for their children so that they gave this duty entirely to the school. On the other side, the school cannot really teach and educate someone 100%, as if the school was expected to convert a rubbish into gold. So, things like this put the schools as the solid team to educate children whose middle to lower or poor economic backgrounds. Although it is known that the success of children's education is not only determined by the school but also family factors, which both of them (between school and family) must control their children's education development (Martin J.A. Ratcliffe & Melissa L Harts., 2011).

A study by Houtenville and Conway (2008) in (Martin J.A. Ratcliffe & Melissa L Harts., 2011) showed that parental involvement has a strong positive influence on student success (seen from their learning achievements). The more children see that their parents care about the education process when they are learning at school, the more they realize the importance of going to school for the future. When parents are involved in their daily activities, children are able to perform better academically.

On the different sides, there are these parents in middle to upper economic conditions, don't constrain by the cost of education, but their children are involved

in criminal cases because of stealing and immoral acts which results this child is being dropped out from school. Most of them said to their parents that they were going to school, but they destination is distracted by the internet cafes. As a result, they got netted by Satpol PP. This lying action is showing the children's bad moral behaviour. Children's moral behaviour is actually influenced by the moral formation of the family A Baharom Mohamad, B Ali Suradin (2008). It was also stated that the parenting pattern as a form of involvement in home education would affect the children's moral development (Walker & Hennig, 1999). The radical or liberal parenting will have a different influence on the children's moral development.

Pestalozzi hoped that the education for poor people is based on his own general principle of education, namely education pays attention to physical, moral and intellectual aspects. These three aspects are related to each other. Moral education is human development through feelings of the ultimate love, feeling grateful and trust in ideal perfection. It shows that the emergence of morality comes from a sincere relationship between mother and child. The intellectual education is carried out by the teachers to collect and adapt knowledge that must be obtained for the children that it can be immediately understood, even clear to them. Physical education is more directed at physical, health, and motor skills. The most important thing to concern is the moral education. If the morals are not well developed, then the physical and intellectual aspects will be misused. If the intellectuals are better than morals, then it is likely to have a nonhuman conditions impact. In a good physical education, morals will develop well. It will lead to intellectual and physical.

An analysis towards vocational children who come from poor parents who lack physical needs such as food, not accompanying even abandoning their children while they are studying, resulting the children's moral are not developed well. For instance, they don't get the enthusiasm to go to school (causing them often playing truant), they make a lie (when they asked permission to go to school but turned out they go to the internet cafe), the lack of emotional control and less confidence for what they get. The same situation also experienced by students in different level condition of economy. Many poor students who are not enthusiastic about school and have a low enthusiasm for learning when studying in class. So, this results in their learning achievements being low. This is in line with the results of research conducted by (I Gede Aditya, 2014) showed that parental participation in providing education for their children will have a positive impact on learning achievement obtained at school. Similarly, as stated by Bempechat, if the involvement of parents in the education of their children is greater, the achievement of their learning is also better (Bempechat, 1992).

The learning process in Vocational Schools refers to the goal of Dikmenjur Vocational curriculum (2008: 9) namely to prepare the students as prospective workers who have readiness in entering the workforce. Vocational schools are

required to meet the needs of the workforce in the community. In the Kurikulum Tingkat Satuan Pendidikan (KTSP), there are three groups of subjects namely; normative, adaptive and productive. Normative and adaptive learning is a type of non-vocational learning provided to support productive abilities. Normative Group Subjects include: Religious Education, Civics, Bahasa, Penjas, Sports and Health, Cultural Arts. The adaptive group Subject: English, Mathematics, I P A, Physics, Chemistry, I P S, KKPI, and Entrepreneurship. Meanwhile the productive learning is vocational learning that provides special abilities for students in accordance with the chosen program of expertise. Each department student of productive learning study at the Laboratory / installation.

Based on the Minister of Education and Culture Regulation No. 70 of 2013, there was a change in the curriculum structure of the SMK. There was no term such as normative, adaptive and productive subjects anymore. There are three groups of subjects in general structure of SMK, they are; groups A, B, and C. The subjects of Groups A and C are the subject groups whose substance is developed by the center. The Group B subjects are subject groups whose substance is developed by the center and can be supplemented by local content developed by the local government. While the subjects of Specialization Group (C) consist of: a. Expertise Basic Subject Group (C1); b. Basic Skills Program Study Group (C2); and c. Expertise Package Subject Group (C3).

Looking at the structure of the curriculum, the government has adapted Pestalozzi's thought to implement the idea of general education in industrial education (SMK). Moral education that aims to develop attitudes, morals, spiritual and spiritual (with hope that it graduates the noble-minded students), is implicit in normative lessons (they are Religious Education, Civics, Bahasa, Penjas, Sports and Health, Cultural Arts) or group A (in 2013 curriculum). Indonesian has the potential to develop student moral. Language politeness towards peers, teachers, and parents is very much considered. People who when speaking using word choice, polite expression, good sentence structure indicate that the person's personality is indeed good (St Mislikhah, 2009). While the essence of religious education is moral. In Physical Education Sport and health, the message of moral discipline, enthusiasm, independence, confidence, courage and tenacity can be grown. One example is that when sports learning takes place, students must wear uniforms, starting at 6:00 a.m., and they may not be late. The consequence of delay is a physical punishment in the form of push-ups or running. This is a provision that will be taken until later they graduate from vocational school and enter the workforce. When they have worked, they must be on time and orderly, if not, the consequences of salary deductions, replacing them with overtime, warning letters, even if they have to accept the consequences of their work. The consequences were conveyed by one of Astra's students in the mechatronics study program, Jakarta, and was a SMK graduate in Surakarta.

The intellectual education is represented by adaptive learning (covering English, Mathematics, Science, Physics, Chemistry, Social Sciences, KKPI, and Entrepreneurship). Teachers carry out the duty to support the knowledge so that it can be understood by students. The knowledge of mathematics and entrepreneurship is needed so that they are able to establish a business that suits their interests and expertise in accordance with the chosen expertise program. Calculating capital, production costs, profit and loss, and BEP (Break Even Point) requires both knowledge. The concept of knowledge in science lessons strongly supports how to think scientifically when finding a problem. How to manage the wastes generated from production activities, which the SMK graduates are expected to be more concerned about environment. How to gain those knowledge? According to Pestalozzi, observation is the absolute basis of all knowledge. Pestalozzi actually does not condemn the educational content, but the way in which this knowledge is delivered is often not in accordance with life experiences.

In productive (vocational) subjects, the learning is done through interaction with objects that will later become his work. For example, in vocational motorcycle engineering skills programs, children are faced with concrete problems in their daily lives (in the form of trouble motorbikes). By doing observation, they look for the source of the problem then find the solutions. In adaptive subjects, such as Physics, the learning often emphasizes the observation for students to conduct experiments, observations, then record the results of observations, and conclude. However, the teacher no need to fully linked this knowledge to the daily life experiences of students. For example, when the teacher teaches them about measurements using a micrometer measuring device or jangka sorong, it should has something to do with taking objects from the motorized vehicle components but the teacher didn't do this. Perhaps the reason is that the Physics teachers do not understand the components in motorized vehicles.

Likewise when the teacher teaches Chemistry material about the redox reaction in the battery, the students are not taken to the "motorcycle" world. These are some obstacles for adaptive subject teachers in Vocational Schools. Adaptive teachers should understand the material parts or objects that can be associated with productive material. As suggested by (Johar Maknun, 2012), that schools should give equal attention to productive and adaptive subjects, because those two can improve the student's competence and overcome the weaknesses of vocational school graduates who are usually difficult to adapt to work.

Physical education through productive learning or group C subjects (in the 2013 curriculum) is vocational learning that provides specific skills in accordance with the expertise program selected by students. These expertise programs include: Technology and Engineering, Engineering, Information and Communication, Health, Agribusiness and Agrotechnology, Fisheries and Marine, Business and Management, Tourism, Fine Arts and Crafts, and Performing Arts. The examples of implementing the physical education to the technology and engineering expertise

program are the teachers remind the children to breakfast first in order to have a strong physique in carrying out their duties. Before entering the laboratory (workshop, for example), children must run around the school grounds so that they have high spirits. Physical education will affect morals. If students' physical needs are met (with breakfast), they will be enthusiastic in doing activities in the laboratory.

Vocational students can do the experiment in the laboratory that is in accordance with their expertise program. Education in the form of physical skills in the laboratory is the main provision for vocational students to be ready to enter the world of work. Physical skills at Vocational School is an integration between intellectual aspects and physical aspects. The students are able to complete the assignments in the laboratory if they already understood the concept of knowledge, vice versa. Those who truly understand laboratory skills will have high self-esteem and confidence than those who lack or do not understand. With a high confidence, it provides a high work readiness. Supported by Susanto's research (Arip Susanto, 2011), the confidence towards achievement in vocational subjects will affect work mental readiness by 16, 227%, the rest by 83, 77% influenced by factors from within and outside students.

Moral education of Pestalozzi plays a role to encourage the student's mental readiness to work. The changes in student's attitudes such as self-confidence, self-esteem, and self-fulfillment can be developed through counseling in schools. It is like the parents position at home who often give advices, enthusiasm, and directions for the education of their children, counseling guidance is also provided at schools conducted by BK counselors (Counseling Guidance) or homeroom teachers. The students may feel direction, guidance and advice that is able to encourage them in finding a way out of their problem, especially in economy that is to get a job that is in accordance with his field of expertise. This school counseling guidance is what students really want when they do not receive educational attention from their parents at home. Actually, if schools and parents are strongly committed to the children's educational progress, student success will be better (Bempechat, 1992). Thus, all vocational school staff, both principals, homeroom teachers, BK teachers, and all staff must understand the condition of the family, the majority of which are in the lower middle class economy. School staff must protect, provide guidance and help them to solve the problems they experience until they graduate and find a job that can alleviate them from poverty.

For the family whose children have graduated from SMK, it doesn't mean that the school financing is being solved. It is the children who must accept the consequences that their diploma cannot be taken, because parents still have the responsibility of funding the school (not yet paid). In order to be able to apply for a job, the school allows to bring the copies of multiple diplomas and under the condition that they must pay in installments. This is one of the school's supports so that children can continue to take the exam and graduate, until later it will be

delivered to the world of work, whose duties are carried out by the BKK (Special Employment Exchange) team. BKK is an institution established in Vocational High Schools both Public and Private, as an implementing unit that provides services and information on job vacancies, executors of marketing, distribution and placement of workers, who are partners of the Manpower and Transmigration Office (bkk.ditpsmk). This is a form of moral encouragement carried out by the school. These are some efforts made by one solid team from the Vocational School so that the graduates can continue to maintain the economic life of themselves and their families. From the review, it can be seen that moral education emphasized by Pestalozzi in an industrial education has begun to be applied.

The physical education is also given through physical subjects, sports and health. It has a correlation that by doing the physical exercises, it can generate the enthusiasm to start activities in the industry. In addition, having the moral, disciplined, independent, confident, and physically strong. The consideration is that as industrial workers, they must have physical strength to be able to carry out their duties properly. Practical education in the laboratory is in the form of providing physical skills which if students understand it well, it creates a sense of confidence of the ability so that they will be ready to compete in the world of work. The above description is the reason of interconnection between the three aspects of Pestalozzi education, namely moral, intellectual, and physical that influence to each other, and cannot be separated from each other. So if one aspect is not given in vocational education, it is said that it is not called education.

According to the Teacher and Lecturer Law, teachers must have four competencies namely; personal, professional, social, and pedagogical competencies. The moral education is given in Vocational Schools to demand the teachers to have the personal competencies; namely personality abilities that are solid, noble, wise, and authoritative and are role models for students. Teachers who do not have personality competencies caused the moral education in schools is doubted whether it can be done or not. The family economic background of the students impacts on the condition of their education in school. School requires the teachers to have social competence, namely; the ability of teachers to communicate and interact effectively and efficiently with students, fellow teachers, parents / guardians of students, and surrounding communities. Family problems that children bring to school results; disturbing the student's learning achievements, making the teacher to find the point of the problem that is the communicating with parents / guardians.

Physical education (which leads to skills education) and intellectual education carried out by the teacher requires the teacher to have professional competence. Professional competence is the ability to master subject matter widely and deeply. The teachers with good professional competence of course they master the subject matter (both adaptive and productive), so that they are able to instill the intellectual education to students as expected by Pestalozzi. Meanwhile, pedagogic

competence is the ability of teachers to manage learners' learning. Besides the teacher must understand the subject matter that will be delivered to students, the teacher also must pay attention to the psychological condition of the students, the student's natural talents and the character and intelligence of the child. The teacher should be able to communicate the material in accordance with the psychological conditions and character of the child. It showed that pedagogical competence is closely related to professional, social, and personality competencies.

## CONCLUSION

The Pestalozzi's education aspect of moral, intellectual, and physical describe a whole concept of education. The integration of these three aspects of education greatly helps the community by preparing the graduates of vocational students to be ready to work professionally. The vocational graduates (especially those from poor families) are able to have professional competencies or skills if they understand the concept of knowledge and they will be confident when their competencies are valued by others / industry users. The self-confidence will foster a high moral in earning a living. Thus, they began to rise from poverty.

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