

Being a Good Teacher in Biology and Chemistry Classes (A Case Study at SMAN 2 of Semarang City)

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Abstract: *The position of teachers in education process is very important and dominant. Thus the success of education affected much by the existence of teachers. Being a good teacher, one must fulfill any kind of qualifications, such as pedagogical competency, personality competency, social competency, professional competency, and spiritual competency or religious competency; as recommended by UUGD No. 14/2005. From the aspect of graduation, teachers in all education institutes from kindergarten to Senior High School must be S1 or D4 graduates. Moreover; all the teachers must have passed a certification program. To support all competencies, the teacher then continues the education to reach the target level of S1/D4 or even S2 program. In brief, the teacher should have all competencies required either in the classroom activities or outside the classroom, and even in the daily life of society. SMAN 2 of Semarang City is one of Senior High Schools in Semarang City having tried to carry out the issue of UUGD No. 14/2005 to prepare all things needed to be a good school in this city and even in national scope.*

Keywords: *competency, certification program, graduates, graduation, and dominant*

INTRODUCTION

The problem of education is very complicated, because it refers to the existence of the country, and especially the concept of “*nation building*.” The great man from China, Hou Chie Minch, said: “*If you want to have harvest in a year, please plant rice, if you want to have harvest in a decade, please plant fruit trees, and if you want to have harvest in a century, please plant people.*” “*Plant the people*” here means train the people, or educate the people. This shows how important the position of education for the nation building. Education is placed as the long term investment for the country. Then the people must have harvest, though in the long period, and through the long process and struggle. But this investment is something compulsory, precise, and prospective.

The success of education is affected by many aspects, such as teaching materials, teachers, students, media/facilities, environment, trainings/exercises, talents, motivations, intelligence, and funds/capital. In other words, the aspects are simplified in two categories only, i.e. internal aspects and external aspects. Among all, the position of teachers is important because teachers are the agents of education activities both in the classroom and outside the classroom. To support much the success of education, the teacher should have the qualities and qualification of being a good and professional teacher like teaching competency, technical knowledge, pedagogical skills, interpersonal skills, and personal qualities. This is also recommended by UUGD No. 14/2005 that teachers should have five competencies, i.e. pedagogical competency, personality competency, social competency, professional competency, and spiritual competency or religious competency. The similar

statement is also given by Mungin Eddy Wibowo (2001). The problem is that whether the nowadays teachers in our country are appropriate with all these qualities or not. Therefore, the focus of this study is to look into whether the SMAN 2 of Semarang City, especially the biology and chemistry teachers are appropriate with all those qualities in supporting the success of education.

Many experts in education discuss the area of education and all things related to the success of the education itself. The success of education is affected by many aspects, but can be simplified in two aspects only, internal aspects and external aspects. Among all aspects, the teacher is one of the external aspects. Many researches are carried out to make the better qualities of teachers. Parris and Block (2007) found that there must be eight domains of secondary literacy teaching expertise, i.e. approaches to teaching (pedagogy), addressing diverse needs, personal characteristics, knowledge base, approaches to teaching (activities), professional development, appropriate relationships with students, and classroom management. Yongming (1996) found that there must be ten points of highly qualified teachers, i.e. establishing an ideal image of teacher, propagating effectively the idea that teachers are to be respected and education stressed, initiating the ideology of lifelong education, adapting to the development of society, laying emphasis on the study of basic education, implementing the training of millions of primary and secondary school headmasters, training specially the main stay of teachers, promoting the integration of record of formal schooling and basic quality, strengthening international cooperation and promoting the diversity of teacher's training. Gurney (2007) found that the differences among teachers lie not only in the proportions of the good and the bad, but also in their awareness of the effects of what they are doing, and their readiness to share this awareness with their students. Laczko-Kerr, et al. (2009) found that the students of under-certified teachers make about 20% less academic growth than do the students of regularly certified teachers. Stronge, et al. (2009) found that there must be six domains of teacher effectiveness, i.e. prerequisites of effective teachers, teacher as a person, classroom management and organization, organizing for instruction, implementing instruction, and monitoring students' progress and potential. Minor, et al. (2009) found many characteristics reflected effective teaching, i.e. student centered, effective classroom and behavior manager, competent instructor, ethical, enthusiastic about teaching, knowledgeable about subject, and professional. Haycock (2009) found that there are several ways to improve teacher quality, i.e. salary increases, subsidized master's programs, and housing assistance. Howard (2009) found that there are some points of central teaching strategies, i.e. teachers who established family, community, and homelike characteristics, teachers who established culturally connected caring relationships with students, and use of certain types of verbal communication and affirmation. Eyre, et al. (2002) found that effective teachers shared similar beliefs about learning, had empathy with the needs of able children, created a secure classroom environment, held high expectations, used encouragement and praise, and stressed humor and fun. Goodlad (2002) found that quality teachers are key to successful reform, not reform rhetoric by state governors and US Presidents; and competent teachers are essential to accomplish the mission of providing the students an educational apprenticeship in democracy. Corbett, Wilson, and Bruce ((2002) found that there are six qualities of good teachers, i.e. pushing the students, maintaining order, willing to help, explaining until everyone understands, varying classroom activities, and trying to understand students. Harmer (2007) found that there are seven points to be good teachers, i.e. having a personality in some way different and 'more teacher-like' from normal self, being both adaptable and able to perform different roles at different lesson stages, creating good teacher-student rapport as a result of listening to students, respecting them, and being totally even-handed in treatment of individuals and groups, having good preparation, record keeping, and reliability, having good skills of managing classes, matching tasks to different groups and

circumstances, providing variety in lessons, and offering students clear learning outcomes, having knowledge of language system, available materials, resources, classroom equipments, and the latest developments in the field, doing teaching as both a science and an art. Allen in Brown (2001) found there are nine points of good teachers, i.e. competent preparation leading to a degree in TESL, a love of the English language, critical thinking, the persistent urge to upgrade oneself, self-subordination, readiness to go the extra mile, cultural adaptability, professional citizenship, a feeling of excitement about one's work. Brown (2001) expresses further the more complete criteria of a good teacher in four aspects, i.e. technical knowledge, pedagogical skills, interpersonal skills, and personal qualities. The complete criteria are as follows: (1) technical knowledge contain six components, such as understanding the linguistic systems of English phonology, grammar, and discourse, comprehensively grasps basic principles of language learning and teaching, having fluent competence in speaking, writing, listening to, and reading English, knowing through experience what it is like to learn a foreign language, understanding the close connection between language and culture, and keeping up with the field through regular reading and conference/workshop attendance, (2) pedagogical skills containing twelve components, such as having a well-thought-out; informed approach to language teaching; understanding and using a wide variety of techniques; efficiently designing and executing lesson plans; monitoring lessons as they unfold and makes effective mid-lesson alterations; effectively perceiving students' linguistic needs; giving optimal feedbacks to students; stimulating interaction, cooperation; and teamwork in the classroom; using appropriate principles of classroom management; using effective, clear presentation skills; creatively adapting textbook material, and other audio, visual, and mechanical aids; innovatively creating brand-new materials when needed; using interactive intrinsically motivating techniques to create effective tests, (3) interpersonal skills contain seven components, such as aware of cross-cultural differences and sensitive to students cultural traditions; enjoying people, showing enthusiasm, warmth, rapport, and appropriate humor; valuing the opinions and abilities of students; patient in working with students of lesser ability; offering challenges to students of exceptionally high ability; cooperating harmoniously and candidly with colleagues (fellow teachers); seeking opportunities to share thoughts, ideas, and techniques with colleagues, (4) personal qualities contain five components, such as well organized, conscientious in meeting commitments, and dependable; flexible when things go awry; maintaining an inquisitive mind in trying out new ways of teaching; setting short-term and long-term goals for continued professional growth; and maintaining and exemplifying high ethical and moral standards. And the last is that good teachers are those who are able to enrich and enhance the students with four aspects of hearts, intelligence, emotion, and physics (Bambang Sudibyo, 2007).

METHODOLOGY

As the purpose of this study is to look into the teaching qualities and or qualified teachers, so some observations are done in the classroom activities. There are also some interviews done with the authorized teachers. The focus of class is biology class, and chemistry class. These relate most to teachers' language style, teachers' performance, teaching method/technique/strategy, classroom management, and assessment or evaluation.

RESULTS AND DISCUSSIONS

- (1) teachers' language style. The teacher still makes some mistakes related to vocabulary, grammar, and pronunciation. As language/s used is the mixture of

English and Indonesian or in this case implementing the eclectic method, there must be any clarifications of the context whether it is in English context or Indonesian context. For example, "biology"; if it is in English context, the pronunciation is /bailoji/, but in Indonesian context it is pronounced /biologi/. Then it is complicated enough for students to identify the teacher's context, so it needs special time for students to switch and or to mix the thinking process between the contexts. For punctuation marks, English context is also different from Indonesian; for example the use of coma and full stop, coma in English stands for full stop in Indonesian, and full stop in English stands for coma in Indonesian. This specially relates to accounting and or numbers. The other is about tenses, because this is concerning any set of unit of time. For example, if the teacher says, "Aedes aegypti mosquitoes **live** in the dry and good clean places, even in any rooms of good and clean houses." This is simple present tense, and the meaning will be different if the teacher says, "Aedes Aegypti **lived** in the dry and good clean places, even in any rooms of good clean houses." The latter stands for this event/occurrence happened in the past, and not for now or nowadays, or some other time at present.

- (2) teachers' performance. The teachers usually sit in front of the class most of the time. This seems to be monotonous, that the teachers' supervision and or control of the class/students is not running well and effectively.
- (3) teaching method. The teachers usually read some materials in laptop projected by LCD, and this lasts fast enough, and seems to be monotonous too. Questions and exercises after and before the main materials cannot cover all students or at least most of the students, so the students' opportunity is not even or fair. This still lacks of demonstration, or any kind of role plays, working team, and or working group.
- (4) classroom management. This seems to run smoothly and not many problems arise, because the students' awareness to study is good. Any way the class needs being varied to create condhusive atmosphere. This is also to avoid the teacher-centered activities, and replaced by students-centered activities.
- (5) assessment/evaluation. In general this task is done well, and there are mid-test, final test, and formative test. Besides; there are some exercises for either classical or individual student, or may be completed by take home assignment in a small group, big group, and or individuals.

To make some improvements or any kind of betterment, it is important to refer to any kind of teacher qualities recommended by some experts. Corbett, Wilson, and Bruce (2002) suggested some teacher qualities as follows:

- (1) pushing the students. In this context the teacher should encourage the students to be more and more active, full of ideas, energetic, optimistic, that the students can dig up oneself's competence, and even motivate and maximize oneself's prestige.
- (2) maintaining order. It seems that the teacher should keep the well-designed class running well and smoothly. Then this improved to be not only in the class, but also in the laboratory class and even for the extracurricular programs.
- (3) willing to help. This is important for the rather poor or poor students to be successful. If necessary, there must be any kind of tutorial programs for special students.
- (4) explaining until everyone understands. This needs a patient teacher to do this, because not all students have the same talents, intelligence, motivation, economy and social backgrounds, and or educational background.
- (5) varying classroom activities. This is important to create the condhusive class, and make the class have fun, learning by doing, good collaboration among class members, and either cooperative or competitive class. The cooperative class is dominated by team-work, and the competitive class is dominated by any kind of contests or championships, such as ISO (International Scientific Olympiads), ICYS

(International Conference of Young Scientists) or just internal class/school contests/championships. This also motivates the students to be more creative and interested in certain fields of study. This concept is also appropriate much with some kinds of students' learning style, i.e. auditorial/audio, visual, and kinesthetic (DePorter and Hernacki, 2002).

- (6) trying to understand the students. To do this, the teacher should know more about psychology, that he/she can recognize the students well and give the best treatment and service for them.

Related to language competency, it is suggested that the teacher should be given a special training about language as means of communication to make his teaching better. A language is an important aspect in learning and teaching process, or even in all areas of life and fields. As suggested by Danis (1976), all teachers are language teachers because the essence of field of study is language, and if the language aspect decreased from the field of study meaning that there is no field of study (knowledge, and or science). In other words that language is means of communication. Further statement is given by Harmer (2007), when a teacher is teaching in the class meaning that he/she is performing the functions of language such as giving instructions, giving directions, persuading, describing objects, apologizing, inviting, giving agreement/disagreement, refusing, etc. In this case the training materials can focus on giving presentation, presenting facts and figures, describing objects, responding critics/questions, opening the class session, giving the main materials, and closing the class session. Ideally all teachers, especially SMAN 2 teachers of Semarang should have the qualities as suggested by the education experts.

Concerning the teaching method or approach, it is better to try the concept of constructivism, where the students are involved in '*operative thinking*' i.e. making the students develop their knowledge/science from one step to another higher level of steps (Suparno, 1997). The whole concept of constructivism is as follows:

- (1) mind as inner individual representation of outer reality. This means that knowledge/science is merely the view of the world of reality, but there must be any kind of reality construction through the students' activities.
- (2) reflection/abstraction as primary. In this case the students' abstraction process and the reflections are as influential aspects in constructing the knowledge/science.
- (3) knowledge as residing in the mind. In this case knowledge/science is all things in the students' mind. The knowledge/science formed by the individual student's concept structure, and the new concept should be tied to the student's concept available before.
- (4) meaning as internally constructed. This means that the process of forming knowledge/science, the meanings are as the individual student's interpretation to his own experience.
- (5) learning as negotiated construction of meaning. Learning is a process of negotiating among the individual student with his experience through interaction in learning process.

To implement this concept/approach, the teacher should design any kind of experiments that can be done either in the laboratory or in the open air. The class activities can be semi-guided or purely free experiments.

CONCLUSIONS

In general the teachers' performance, knowledge, and skills in SMAN 2 of Semarang City is good. Any way it is better to make some improvements related to teaching method,

classroom management, motivating the students, doing assessment/evaluation like formative tests, take home assignments, and varying the class activities. The language competency is also something unforgettable and undeniable, so there should be intensive English course that enables the teachers to master English well as means of communication and do their tasks smoothly.

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