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"OPTIMIZING OF MULTIPLE INTELLIGENCES TO EXAGGERATE HUMAN POTENTIAL TOWARDS VIRTUOUS CHARACTER"

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"OPTIMIZING OF MULTIPLE INTELLIGENCES TO EXAGGERATE HUMAN POTENTIAL TOWARDS VIRTUOUS CHARACTER"

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DAFTAR ISI

KATA PENGANTAR

Bismillahirrohmanirrohiim, Assalamu'alaikum warahmatullaahi wabara-kaatuh. Alhamdulillahirabbil'alamin. Wabihi nasta'in 'ala umuridunnya waddin. Wash-sholawatu wassalamu'ala asrofil anbiya'I walmursalin. Wa'ala alihi wa ashabihi ajmain. Amma ba'du. Robbisrohli shodri wayassirli amri, wahlul 'uqdatan millisani, yafqohu qauli. Segala puji bagi Allah SWT, shalawat serta salam semoga senantiasa tercurah kepada Nabi Muhammad SAW, beserta para sahabat dan umatnya yang senantiasa mengikuti sunahnya.

Kegiatan ini terselenggara atas dasar perlunya perubahan demi perubahan, inovasi-inovasi pembelajaran senantiasa menjadi perhatian kalian akademik dan praktisi pendidikan.

Dalam hal ini prodi PGMI akan berusaha semaksimal mungkin untuk senantiasa mengembangkan kegiatan yang mendukung peningkatan mutu tersebut, baik untuk dosen, mahasiswa, bahkan bagi alumni dari PGMI itu sendiri, serta masyarakat luas pada umumnya sebagai pengguna dari alumni PGMI Fakultas Ilmu Tarbiyah dan Keguruan UIN Sunan Kalijaga. Peningkatan mutu tersebut di antaranya dilakukan dalam bentuk pelaksanaan 'seminar internasional'. Seminar internasional akan menetapkan tema *"Summit Meeting on Education The End of The Year 2013"* dan Penandatanganan MOU dengan University Kebangsaan Malaysia (UKM).

Adapun kegiatan yang diselenggarakan meliputi kegiatan Seminar Internasional dengan tema Optimalisasi kecerdasan majemuk untuk melejitkan potensi menuju manusia berbudi pekerti. Dilanjutkan Fashion show Tarbiyah *Fashion Week* 2015 yang bertajuk "Islami, Trendy and Syar'i". Kegiatan berikutnya adalah Seminar Nasional dengan tema Kurikulum 2013 "Realisasi dan Refleksi Kurikulum 2013". Berikutnya Seminar Peringatan hari Ibu dengan "Peran keluarga dalam pendidikan anak (Kolaborasi catur pusat pendidikan)". Dilanjutkan dengan acara Bedah buku yang bertema "Merajut pendidikan di kota Yogyakarta" karya: Bp. Zainal Abidin, M.Pd. Selanjutnya Seminar Edupreneurship dengan tema "Membangun kreatifitas melalui edupreneurship"

Adapun narasumber dari kegiatan ini dari berbagai negara, yaitu: dari negara Malaysia, Australia, Brunei Darussalam, dan Indonesia. Adapun nama-nama narasumber sebagai berikut: Prof. Dr. Lilia Halim (University Kebangsaan Malaysia), Bapak Setiyo Iswoyo, Drs. HD. Iriyanto, M.M., Dr. Slamet Suyanto (Dosen Pendidikan Biologi, UNY), Hj. Dyah Suminar (SE istri mantan walikota Yogyakarta), Prof. Dr. Taufik Ahmad Dardiri, SU (Dosen Fakultas Adab dan Ilmu Budaya, UIN Sunan kalijaga)., M Arief Budiman, S.Sn., Managing Director PT. Petakumpet Yogyakarta. Adapun peserta dari kegiatan ini dari berbagai negara yaitu Turki, Rusia, Thailand, Malaysia.

Dalam hal ini dosen atau pendidik pada umumnya adalah perintis pembangunan di segala bidang kehidupan dalam masyarakat. Seorang dosen atau pendidik yang benar-benar sadar akan tugas dan tanggung jawabnya, tentulah akan selalu mawas diri, mengadakan introspeksi, berusaha selalu ingin berkembang maju, agar bisa menunaikan tugasnya lebih baik, dengan selalu menambah pengetahuan, memperkaya pengalaman, menambah kualitas dirinya melalui membaca buku-buku perpustakaan, mengikuti seminar loka-karya, kursus-kursus penataran, dan sebagainya agar selalu bisa mengikuti gejolak perubahan sosiokultural dalam masyarakat serta kemajuan ilmu dan teknologi modern dewasa ini. Melaui kegiatan *international Summi Meetng* ini diharapkan dosen, guru, dan mahasiswa menjadi lebih profesional, khususnya terkait dengan kompetensi profesional.

Pekerjaan mengajar memang tidak selalu harus diartikan sebagai kegiatan menyajikan materi pelajaran. Meskipun penyajian materi pelajaran memang merupakan bagian dari kegiatan pembelajaran, tetapi bukanlah satu-satunya. Masih banyak cara lain yang dapat dilakukan guru untuk membuat siswa belajar. Peran yang seharusnya dilakukan guru adalah mengusahakan agar setiap siswa dapat berinteraksi secara aktif dengan berbagai sumber balajar yang ada. Guru pun sangat erat kaitannya dengan pendidikan karakter.

Pendidikan karakter yang semakin hangat sering menimbulkan kekhawatiran para guru. Namun sebenarnya hal itu tidak perlu khawatir, masih banyak tugas guru yang lain seperti: memberikan perhatian dan bimbingan secara individual kepada siswa yang selama ini kurang mendapat perhatian. Kondisi ini akan terus terjadi selama guru menganggap dirinya merupakan sumber belajar satu-satunya bagi siswa. Jika guru memanfaatkan berbagai setrategi pembelajaran secara baik, guru dapat berbagi peran dengan setrategi. Peran guru akan lebih mengarah sebagai manajer pembelajaran dan bertanggung jawab menciptakan kondisi sedemikian rupa agar siswa dapat belajar. Untuk itu guru lebih berfungsi sebagai penasehat, pembimbing, motivator dan fasilitator dalam Kegiatan Belajar Mengajar.

Upaya Pemerintah terhadap tenaga guru sebenarnya telah dilakukan oleh Pemerintah Republik Indonesia, melalui berbagai bentuk kebijakan. Ditetapkannya Undang Undang nomor 14 tahun 2005 tentang guru dan dosen merupakan dasar kebijakan untuk memperkuat eksistensi tenaga kependidikan sebagai tenaga profesional, seperti profesi-profesi yang lainnya. Kualitas profesi tenaga guru selalu diupayakan, baik melalui ketentuan kualifikasi pendidikannya maupun kegiatan in-service training, dengan berbagai bentuknya, seperti: pendidikan dan latihan (diklat), penataran dan pelibatan dalam berbagai seminar untuk memperbarui wawasannya dalam kompetensi pedagogi dan akademik.

Pemerintah mulai menyadari betapa strategisnya peran tenaga guru dalam mengantarkan generasi muda untuk menjadi sumber daya manusia (SDM) yang berkualitas dan kompetitif sehingga mampu mewujudkan suatu kesejahteraan bersama. Sejarah peradaban dan kemajuan bangsa-bangsa di dunia membelajarkan pada kita bahwa bukan sumber daya alam (SDA) melimpah yang dominan mengantarkan bangsa tersebut menuju pada kemakmuran, tetapi ketangguhan daya saing dan keunggulan ilmu pengetahuan dan penguasaan teknologi (ipteks) bangsa tersebutlah yang berperanan untuk meraup kesejahteraan. Bahkan SDM yang menguasai ipteks cenderung memanfaatkan teknologinya untuk menguasai SDA bangsa lain. Dalam hal ini pemerintah ingin mengejar ketertinggalan dengan menyempurnakan kurikulum KTSP menjadi Kurikulum 2013.

Kurikulum 2013 yang telah diimplementasikan pada tahun ajaran 2013/2014 menimbulkan pro dan kontra atas kurikulum tersebut masih terus terdengar. Banyak pihak yang mempertanyakan kesiapan implementasinya, pengembangan bahan ajarnya, evaluasinya, dan proses pembelajarannya di kelas. Perwakilan guru di Kota Kupang menilai implementasi kurikulum pendidikan 2013 akan menjadikan guru-guru seperti robot. Alasannya, semua Rencana Pelaksanaan Pembelajaran (RPP) dan Silabus disusun oleh pemerintah pusat. Sedangkan guru hanya siap untuk mengajar dengan RPP yang ada. Pada tahun ajaran 2013/2014, kurikulum baru akan diberlakukan untuk siswa kelas 1 dan 4, sedang siswa kelas 2,3,5, dan 6 masih menggunakan kurikulum lama. Beberapa pendapat pro dan kontra masih terus berlanjut, tapi mau tak mau kurikulum baru akan segera diimplementasikan secara bertahap. Seminar ini memperbincangkan masalah tersebut dari sisi pembuat kebijakan, ahli kurikulum, dan praktisi pendidikan/pengajaran.

Demikian yang dapat kami sampaikan terkait dengan esensi dari penyelenggaraan kegiatan *"Summit Meeting on Education The End of The Year 2013"*. Kami mengucapkan terima kasih banyak atas partisipasi dan dukungan dari berbagai pihak yang tidak dapat kami sebutkan satu per satu. Tanpa bantuan dan partisipasi rekan-rekan semua kegiatan ini tidak dapat terlaksana dengan baik. Semoga kegiatan ini dapat menambah kontribusi pada khasanah keilmuan khususnya pada Pendidikan Dasar dan memberi manfaat kepada para peserta dan pembaca. Amiin

Yogyakarta, 19 Desember 2013

Ketua Panitia

Dr. Aninditya Sri Nugraheni, M.Pd.

OPTIMIZATION OF MULTIPLE INTELLEGENCES THROUGH SCIENCE LEARNING FOR SD/MI (ELEMENTARY SCHOOL) STUDENTS

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ABSTRACT

Optimization process of multiple intelligences through science learning for students of SD/MI should be done by the teacher as an actor behind the transfer of knowledge by starting from a positive stigma on the ability of the students. The abilities which belong to the students are various including linguistic intelligences, logical-mathematical, visual - spatial, intrapersonal, interpersonal, musical, and kinesthetic intelligences. The main supporting factor which belongs to the teacher is a sense of caring and sharing the equal treatment of all students. Starting from this perception, it will create a sense of high confidence for teachers on how to teach their students. Integration of science with multiple intelligences can be started by inserting the materials of science to the diverse student learning skill such as playing a character, in which it is a kinesthetic intelligence that is combined with the material of science which will be studied. The methods used are intended to encourage the student interests. The application of multiple intelligences can be applied in science learning with a method that is very varied and diverse. Thus, a teacher must have the motivation and professional skills in teaching science to the students.

Key words: *Optimization, Multiple Intelligences, Science Learning*

A. INTRODUCTION

In the process of education surely a teacher finds many things related to the problems of their students. There is a very *extrovert* students even there is a very *introvert* students. *Extrovert* students refer to the students who have exceptional character which this condition can be categorized as hyper-active child who is not close to the outside world, while *introvert* students are the students who are close to the situation around them so that the teacher should be able to open the students' nature in order the *transfer of knowledge* can be run well as the expectation of teacher. However, in this the situation the teachers are required to have a role in the understanding of the characters which belong to the students themselves. Hence, the learning process here means the students understand the teachers who give understanding to them in order the process of knowledge transfer can reach an optimal point.

Based on the existing problems can be drawn a conclusion that learning style of each student has diversity or plural. Some are happy with the way by learning to music, drama, or even by using a method of self actualization. Considering from the variety of learning methods can be obtained the result of analyses that every student has various intelligences (multiple intelligences). The various characters and natures and the different brain in receiving stimulants are a challenge for a

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teacher to be able to provide their knowledge in different ways. Therefore, the quality school is a school which assumes that there is no stupid student and there is no teacher who cannot teach.

One of strategies that can be used by teachers to optimize multiple intelligences belongs to the students is to use science learning as a pathway to provide a transfer of knowledge. The science learning is integrated with the learning material presented to provide optimal understanding to the students, for instance by throwing a ball or playing to open the bottles, where learning science can be found here. Throwing the ball is a physical science lesson that applies the theory of gravity, and then in opening the bottles is applied the theory of how to use a lever.

B. MULTIPLE INTELLEGENCES

Intelligence is not fixed. Intelligence is like the ability or skill that can be cultivated and developed. Intelligence is the ability to solve a problem, the ability to create new problems to be solved, the ability to create something or offer a service that is a valuable in a culture. In this case, Gardner states that:

> *An intelligence entails the ability to solve problems or fashion products that are of consequence in a particular cultural setting or community. The problem solving skill allows one to approach a situation in which a goal is to be obtained and to locate the appropriate route to that goal.*[2]

Furthermore, another opinion states that the theory of multiple intelligences is the highest validation of the idea that individual differences are important. The application in education is very dependent on recognition, acknowledgment, and appreciation for each or the various ways of students (learners) learning, besides recognition, acknowledgment, and appreciation for each interests and talents of individual learner.[3]

Gardner also states that there are seven intelligences that can be used in learning, namely: 1) linguistic intelligence (related to language), 2) logical-mathematical intelligence (related to mathematical and logic reasoning), 3) visual-spatial intelligence (relating to space and pictures), 4) musical intelligence (pertaining to music, rhythm, and sound or voice), 5) bodily-kinesthetic intelligence (relating to the body and gestures), 6) interpersonal intelligence (related to interpersonal relationships, social), 7) intrapersonal intelligence (associated with things that are very personal).[4]

The seven intelligences in the multiple intelligences can be described as belowed:

1. Linguistic intelligence

   Linguistic intelligence is the ability to use words effectively, both in speaking and in writing. This intelligence includes sensitivity to the meaning of words, word order, sound, rhythm and intonation of words that are pronounced. It also includes the ability to understand the power of words in the altered state of mind and to convey the information.

2. Logical-Mathematical Intelligence

   Logical mathematical intelligence is the ability of someone in problem solving. Someone will be able to figure out and put together a solution (exit) with a logical sequence (sense). Moreover, he/she likes numerals, sequence, logic and coherence. Further he/she understands this system and capable of doing the inductive and deductive thinking. Deductive thinking process means

2 Julia Jasmine. *Mengajar dengan Metode Multiple intelligences Implementasi Multiple intelligences.* (Bandung: Nuansa, 2007). pg. 35.

3 *Ibid. Mengajar dengan Metode Multiple intelligences Implementasi Multiple intelligences.* pg. 11.

4 Gardner, Howard. *Multiple intelligences* (Batam Centre :Interaksara, 2003). pg. 23.

the way of thinking from the big things to the small things. Inductive thinking process means the way of thinking from small things to big things.

3. Visual and Spatial Intelligence

   Visual and spatial intelligence is the ability to see and observe the visual and spatial world accurately (carefully). Visual means picture. While spatial relates to the space or the place. This intelligence involves awareness of color, line, shape, space, size and also the relationship among these elements. This intelligence also involves the ability to see the object from different angles.

4. Musical Intelligence

   A musical intelligence is the ability to enjoy the music, observe, distinguish, fabricate, form and express musical forms. This intelligence includes sensitivity to rhythm, melody and timbre of the music which is being heard. Music has a profound influence on the development of math and science abilities in a person.

   Based on the results of researches in seventeen countries on the ability of students aged 14 years in the fields of sciences are found that children from the Netherlands, Japan, and Hungary have the highest achievement in the world. When they are examined more deeply, the countries incorporate this element into their curriculum. In addition, the music can also create an atmosphere that is relaxed yet alert, can encourage enthusiasm, stimulate creativity, sensitivity and ability to think. Learning by using the right music will greatly help us in improving memory.

5. Interpersonal intelligence

   An interpersonal intelligence is the ability to observe and understand the meaning, motivation and feelings of others. It is also sensitive to the expression of the face, voice and body movements of others, and he/she is able to respond effectively in communicating. This intelligence also is able to get into the other person, understand the world of others, understand the views, understand the attitudes of others and generally he/she is able to lead the group.

6. Intrapersonal intelligence

   Intrapersonal intelligence is the ability of someone relates to the consciousness and self knowledge. He/she is able to understand his/her own strengths and weaknesses. He/she is also able to motivate his/herself and to do self-discipline. Someone who has this intelligence is very appreciative to the values (rules) of ethical, and moral.

7. Kinesthetic intelligence

   A kinesthetic intelligence is the ability to use body skillfully to express ideas, thoughts and feelings. This intelligence also includes the physical skills in the areas of coordination, balance, endurance, strength, flexibility and speed. [5]

   The teachers realize that every child has all of the intelligences, but they have different levels. Teaching overall intelligences will ensure them to be superior; for example, in the musical intelligence will give them the opportunity to learn using that intelligence. [6]

The concept of multiple intelligences is a critique to psychometric which is commonly used to measure human intelligence based solely on the strength of the human left brains. During the measurement of intelligence is only on the quantitative aspects (logical) and verbal. Humans who have low scores based on these tests are considered to have a low intelligence level or called low IQ

5 Riyadi Mubdi Zhaahir. *Multiple Inteligences.* Accesed on 25 November 2013. http://www.wikimu.com/news/displaynews.aspx?id=2108.

6 Johnson, Elaine.B. *Contextual Teaching and Learning.* (Bandung: Mizan, 2007). pg. 67.

(Intelligence Quotion). Measurement of intelligence with an IQ in the development is considered unrepresentative, because there are a lot of facts that man with a low IQ is more successful in life than a man who have high IQ level. People with a mediocre IQ is found to have great competence in specific areas, such as painting professional, sport professional, singing professional, and others. The strengths which drive the multiple intelligences tests are the tests which are usually done inconsistently on well-established major scientific theories. Multiple intelligences is not a domain or a discipline. The concept of multiple intelligences is a new type of construct, but the multiple intelligences is not similar to the style or learning style, cognitive style, or style of work.

Multiple intelligences as a new concept impact on the design and curriculum of the school. The theory of multiple intelligences suggests that there are some human intelligence which are relatively independent and can be combined in a multiplicity way in order to suit each individual and culture. The independence of each type of intelligence can be shown in the case those who cannot master mathematics, but they can produce or understand the beauty of a painting or a song composition quickly. Another case, a person who cannot have verbal and spatial ability, but he/she is very smart in motion or kinesthetic. In human beings there may be one, two, three or more types of intelligences that stand out. This type of intelligence may further relate to learning style and life style.

C. OPTIMIZATION OF MULTIPLE INTELLIGENCES THROUGH SCIENCE LEARNING

Related to the learning process, Winkel opines that learning is a mental or psychic activity, which takes place in the environmental and active interactions that result a number of changes in the understanding of knowledge, skills and attitude values, and the change is relatively constant and impressive. Correspondingly, the local design is needed to maintain and direct the students to the stage that does not stagnate on the knowledge about where they live so that they better understand and know the available resources around them that have the potential to be empowered.[7]

In the optimization process of multiple intelligences there are some things that should be known in advance by the teachers. One of them is they are required to have a perspective that no dumb students. The statement shows that there is no fool students, however why there are many students have less academic and character values or lower than expected.

According to Munif Chatib, the theory of multiple intelligences offers fairly fundamental changes in the assessment as the output of a learning process. This theory suggests a system which does not rely on tests that are based on the formal score, but the tests are more based on the authentic assessment that refers to specific criteria by using the test that have a specific reference point and *ipsative* (a test that compares the student achievement today with the previous performance). Based on this, the students' potential development will be attached and make the level of consciousness and their potential is more immune to any changes that occur. [8]

The problem arises because the teaching way of teachers is still far from expectations. They are still using monotonous conventional method in teaching –learning process, and it is too easy to be guessed by the students who are mostly bored with such methods. Therefore, in order to optimize the process of multiple intelligences goes well, of course, the teachers should also strive to provide the best solution through a new breakthrough innovative and creative teaching methods.

7 Winkel, W.S. *Psikologi Pengajaran.* (Yogyakarta: Media Abadin, 1999). pg. 59
8 Munif Chatib. *Sekolahnya Manusia* (Bandung: Kaifa, 2011). pg. 155

Science learning is one of the subjects that can be used as an example in the optimization of multiple intelligences. For instance, in a physics class, the material is about levers. There is a super hyper - active student which is very difficult to set up. Then the teacher as a parent and teacher at the school of course is obliged to seek a solution to the problem by finding out what he/she likes and what can encourage his/her to something positive in the classroom. If the student has a high kinesthetic intelligence thus the usual methods cannot accommodate the intelligence, so give his/her a breakthrough method, for example, is to give an active role to the student as an object of lever material or tool holder so that he/she would have a sense of responsible and able to follow the lesson like the other students.

Based on the cases above can be known that the optimization process of multiple intelligences consists of several factors such as the internal motivation of teachers, the appropriate teaching methods, the equal treatment of all students, and of course the positive thoughts that no students are stupid. Here is the optimization of multiple intelligences through science learning for students of SD/MI:[9]

1. Science learning process that develops verbal linguistic intelligence

   The learning process which develops verbal linguistic intelligence can stimulate the development of multiple intelligences in each subject including science, or *IPA*. Some ways to do in learning to develop verbal linguistic intelligence in science learning is to listening to the material that will be covered from the cassette or from information that is directly delivered by teachers, classroom discussion, making an observation reports, conducting interviews, finding the materials to complete the task, writing scientific papers and so on.

2. Science Learning which develops mathematical-logic intelligence

   In science learning, the noteworthy things in teaching is the application of basic science concepts appropriately in making decisions every day and help the students recognize the relationship between science and technology in society. The application of mathematical-logic intelligence in science learning can be in several ways, namely:

   a. The scientific method

      The scientific method is a way to find scientific products trough step-by-step logically and mathematically. The general process of empirical scientific method is: finding a problem, formulating a hypothesis or provisional estimates, testing the hypotheses by performing experiments, drawing conclusions, and testing conclusions.

   b. Thinking scientifically based on curriculum

   c. Deductive logic

      The deductive logic is a way of thinking by outlining the general concept to a specific concept. For example:

      i. Syllogism is an argument that is composed from the rationale and the conclusion.

      ii. Venn diagram uses complementary circle to compare a bunch of information.

   d. Inductive logic

      Inductive logic is a way of thinking of someone by considering special facts

9 Sri Wahyu Widyaningsih. *Multiple Intelegensi Dalam Pembelajaran* http://sriwahyuwidyaningsih.blogspot.com/2012/01/multiple-intelegensi-dalam-pembelajaran.html accesed on 1 December 2013

general conclusion analogically.

e. Improving learning and thinking

To improve the students' thinking, teachers use instructional media in learning.

f. The process of thinking mathematically

Mathematics is the subjects which have specifically abstract thinking and hard, so the children are not interested in. For the teacher can construct the teaching-learning with pattern images, graphics, and codes to cause them curious.

g. Working with numbers

Students who like the thoroughness will discover the pleasure of working with numbers such as measurements, opportunities, and problems in the form of a story.

h. Technology that increases the mathematical-logical intelligence

Students can learn effectively by using interested software.

3. The learning process which develops a music intelligence

Music has a close connection with someone's emotional, namely:

a. Providing a friendly atmosphere when the student enters the room.
b. Offering the ease effects after doing physical activity.
c. Smoothing the transition between classes.
d. Generating the energy back which has been falling down.
e. Reducing the stress.
f. Creating a positive atmosphere in the school.

The methods that can be done to develop musical intelligence at school for instance: a) install a soft and universal music background in the school, b) through the learning of each field of study in the schools for instance creating the theme songs of the material which is being taught, c) learning processes that develop kinesthetic intelligence.

There are various tactile-kinesthetic activities that aims to enhance the student learning in the age of SD/MI (elementary school), namely:

a. Physical environment: classroom area, in classroom planning, the teacher makes the room where can make sense of the students became excited.
b. Drama: theater, role play, creative play, simulation (a state that mimics) the real situation.
c. Creative motion: understanding the physical knowledge, introducing creative movement activities, applying the basic skills of creative movement, creating the content that is more focused on the movement activities.
d. Dances: dance sections, a series of learning through dance.
e. Playing instruments: task cards, task card puzzle, drawing the additional tools, making signs for classrooms.
f. Classroom game: Beast hunted (scavengers) large floor games, the games which respond totally physical motion, repeating the game in general.
g. Physical Education: the characteristics of a physical teacher, educational adventure, spider web, a pyramid of ten people, adventures of ten people.

h. Training opportunities

i. A trip to the wild

4. The learning process which develops visual-spatial intelligence

This learning process is a process that develops the perceptual abilities. Imagination and esthetical in the book Mc.Kim *Experience in Visual Thinking* identified three broad components of visual depiction; they are the external picture that we perceive, the internal picture that we dream or we imagine, the picture that we create through irregular images.

5. The learning process which develops interpersonal intelligence

To build a positive interpersonal environment, an effective group is needed. The criteria are: a) warm and open classroom environment, b) teachers and students together make rules and sanctions based on humanity, c) the interdependence of the learning process, means an active role and contribution from all students, d) the learning is to aim learning from the curriculum, from friends, and from experiences. e) Duties and responsibilities are divided equally, so that each member of the class feels important in the classroom.

5. The learning process which develops intrapersonal intelligence

The development of intrapersonal intelligence can be done through several things including: a) establishing an environment to develop self-knowledge, b) supporting self esteem, c) composing and achieving the goals, d) thinking skills, e) emotional skills education in the classroom, f) writing journal, g) knowing themselves through the others, h) reflecting astonishment and life purpose, i) self-directed learning, j) technology that enhances the interpersonal intelligence.

6. The learning process that develops naturalism intelligence

This learning process is a process that develops the naturalism students ability: a) organizing the school environment to be green and lush, b) when studying the materials which are related to the classification of plants, ecosystems, environmental pollution, invites the students directly to the nature, c) the school provides the teaching tools such as the torso and the chart of the human body organs, d) applying the lessons of agriculture or fisheries that are adjusted to the local conditions respectively, e) the school develops the learning processes that can arise the students' concern for the environment.

7. The learning process which develops the emotional intelligence

The emotional learning can improve cognitive learning system, whereby an emotional brain involved in logical reasoning learning as strong as the brain thinks. The things that can be implemented by teachers in developing emotional intelligence are as followed: a) the teacher should begin the lesson with a gentle demeanor, by gradually increasing the enthusiasm, b) creating an atmosphere as desired by students, c) teachers can move students slowly to the social circumstances which has different emotional, d) when teaching. the teacher should develop a sense of humor to reduce the tension that may arise due to lack harmony between teachers and students.

8. The learning process which develops the spiritual intelligence

The learning process should expand the scope of the Quranic verses and the meanings contained in it, so it will be deeply rooted in the soul and mind of students by drawing lessons from the material learning which is presented to students. Material implications of science learning in developing spiritual intelligence are very much, as an example about the solar system. In these materials the students are required to master the sun

as a star, the sun as the center of the solar system, the earth's rotation and revolution, 9 kinds of planetary movement and so on. At the end of the lesson the teacher invites students to observe the regularity of motion in the solar system and connect it to the letter *Yasin* verse 37 to verse 40 which means:

"And as a sign of the greatness of Allah for them is the night, we remove the day from the night, then while they were in the dark. And the sun runs its place circulation. Such is the command of Allah the Almighty, the All-Knowing. And We decreed place of the moon, so (after he came to the last passage) back to the old form tanndan. It is not possible for the sun to overtake the moon and the night could not outstrip the day. Each orbits on geostationary orbit".[10]

D. CONCLUSION

If the optimization process of multiple intelligences through science learning want to run optimally, of course the teachers as actors behind the transfer of knowledge have to start with a positive stigma against the ability of the students. The multiple intelligences are a diverse distinction which is owned by the students considering to their basic abilities differently.

In this case the students have different abilities as stated by Howard Gardner that there are seven types of intelligences include Linguistic intelligence, Logical-Mathematical, Visual-Spatial, Intrapersonal, Interpersonal, Musical, and Kinesthetic Intelligence. From the seven intelligences that exist in their students need different approaches so that the teachers are required to have a creative and innovative teaching in order to do not make the students become bored.

The supporting factors of optimization multiple intelligences through science learning is started from the teachers who are required to have a sense of caring and sharing the equal treatment for all students, because the teacher basically is an organism of educational management which has the function as the students' entrance academic. Hence, the teachers are also required to have the perception that no students are stupid and there is no teacher who cannot teach. Starting from such a perception, it will create a sense of high confidence for teachers on how to teach their students.

Integration between science and multiple intelligences can be started by inserting materials of science to a diverse student learning ability, for instance through a role play-it is a kinesthetic intelligence which is combined with science material to be studied. The methods used are intended to foster the student interests.

E. SUGGESTION

Related to the development of students skill, the teachers are required to have the appropriate soft skills to the development of education which is growing at present, besides the teachers refers to a rule of the education system (curriculum). Preliminary understanding to a curriculum culture can be a solution when it is done optimally. In curriculum 2013, there is a solution that the genetic is almost similar to Multiple Intelligences methods. Here, the role of the teacher as an actor behind the successful students is necessary to be tested due to every student has different capabilities in capturing a subject matter, so teachers need to make new methods in action as a teaching materials to raise students' motivation in learning in order to do not make them feel bored with monotonous method.

The application of multiple intelligences which is applied to the materials of science can be

10 Surat Yassin. Ayat 37 – 40. Kementerian Agama RI.

highly variable and various methods, considering to the science as a discipline which has many branches such as: Physics, Biology, Chemistry, and so forth. Thus, the focus of the science teachers as well as the science learners should have an extra ordinary motivation and ability in teaching science to the students.

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