

Intellectual Giftedness and Creative Personality Development through Learning with Process Approach in E-learning Programme

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Abstract

*The objective of this research is to produce university graduates who have excellent intellectual giftedness and creative personality. This will only be achieved if learning is done with process approach within e-learning program, which integrates the elements of **motion, audio, color, and image** in the learning materials. With the e-learning program, which integrates learning-by-doing methods, the students are trained to design learning materials that are not limited only to the theories but also to the applications. This learning method is believed to develop an advanced intellectual giftedness because the learning becomes more interesting and meaningful. Therefore, the learning materials will be mastered (acquisitioned). This model of learning will also enables the development of a creative personality.*

Keywords: Process approach learning, e-learning program, Learning by doing.

1. Introduction

1.1 Background

There have been too many complaints from the society on the low quality of the graduates in all levels of education in Indonesia, along with the university graduates. The reflection of the low quality is presented in the research results in *Programme International Student Assessment (PISA)*, a research on students aged 15 years old, from the countries that are joined in *Organisasi Ekonomi dan Pembangunan (OKEP)* which covers 57 countries including Indonesia. The research showed that the achievements of Indonesian students in science, reading and mathematics ranked in 50, 48 and 50 respectively out of 57 countries. The ranks of the students in other Asian countries are above Indonesia, even Thailand that ranked 46, 41 and 44 respectively (PISA/PPSI 2006). It is also clearly seen that the number of educated unemployed reflects the low quality of the graduates and there are 30% vacancies in the job market that is not occupied. According to the data taken from *Badan Pusat Statistik (BPS-Statistics Indonesia)* there are 4.516.000 out of 9.427.600 people who are included in open unemployment (unemployed labor force) and they are graduates of high school, vocational school, diploma and university (Kompas Daily, August 22 2008).

As a matter of fact, the government has carry out a number of efforts to increase the quality of the graduates continuously, for example by implementing *Cara Belajar Siswa Aktif* (Active learning students program), *Ujian Akhir Nasional* (National Final Examination), *Nilai Ebtanas Murni* (Examination Grades), *Kurikulum Berbasis Kompetensi* (Competence-Based Curriculum), *Program Sertifikasi Guru/Dosen* (Teachers/Lecturers Certification Program), constructing Higher Education Curriculum based on UNESCO, et cetera. However, in reality these efforts have not been able to produce excellent quality graduates optimally. This occurred most likely because the teachers and lecturers are still having the paradigm that by giving knowledge as much as they can to the students, will enhance their knowledge and skills at the same time. Whereas knowledge and skills will only be achieved if the students know about learning methods, therefore the students need to “*learn how to learn*” (Semiawan, 1997) and do “*exploration and discovery*”. This can be achieved if learning is done by process approach.

In the globalization era, the world is becoming narrow with the rapid technology development, especially information technology. With this information technology development, we are able to know, see and hear what is happening in other countries at the same time. The effectiveness and efficiency of many process activities are attained incredibly, for example the technologies in banking, trading, administration processes, school learning, services in medical, et cetera. We can even say that technology in general and information technology in specific has penetrated into the human life.

Thereby a nation without the ability to use and develop technology in general and information technology in specific will not be able to establish the country the sake of the security and prosperousness of its people. Aforesaid nation will also be able to compete with other nations, which have made the most use of technology and information technology.

With its rich natural resources, it is impossible for Indonesia to make use those if they do not possess excellent human resources who are able to apply and develop technology and information technology. Such human resource is achievable only if the quality of graduates in each level are excellent, which means they have the intellectual giftedness and high creativity. Education with the paradigm of giving knowledge as much as we can will not reach excellence. Therefore that paradigm needs to be substituted with the paradigm that emphasizes on learning process. Thus the students are able to master the learning methods and are able to do the *exploration and discovery* from their own knowledge. Hence the knowledge is mastered (*acquired*), and for this reason the students are able to finish the academic assignments and their occupational tasks. The effectiveness and efficiency of creating process has been proven by the development of information technology. In the same way, learning should be a knowledge transform process and to make this effective and efficient we need to make use of information technology by designing an e-learning program that integrates the elements of **motion, color, audio** and **image** in the learning materials.

The advantage of using and developing technology and information technology requires not only excellent human resource with intellectual giftedness but also creative personalities. For that reason, the learning model mentioned needs to be combined with the method of learning by doing. With the combination of those methods, it is possible to create a conducive environment that supports new ideas, which then can be applied and tested if they are effective and efficient. This means the creativity of the students can be grown and developed. In order to build a nation we need the ability to master the sciences and technology including information technology. Indonesia has a very rich natural resource or in other words, a comparative excellence but does not have a competitive excellence, which is to compete with other nations. Competitive excellence will only be achieved if the human resources have superiority in intellectual giftedness and creative personalities.

The government has continually improve the quality of the graduates in conception level, for example competence-based curriculum, curriculum design based on UNESCO and also on the operational level, for example teacher/lecturer certification, learning methods, evaluation system, upgrading schools' facilities and infrastructure, et cetera. But the quality of the graduates is not as good as it has been expected.

If it is analyzed further, where is the main issue? The analysis made by the writer is that the problem lay on the operational level, especially the paradigm used in learning by the teachers. The paradigm used is the teachers'/lecturers' responsibility to give knowledge as much as they could. Assuming this would lead to knowledge being automatically acquired and will be applied accordingly in the academic assignments or occupational tasks. Whereas delivery of knowledge does not mean the knowledge will be mastered (*acquired*), especially if it is being applied to academic tasks or occupational tasks. The paradigm that needs to be applied is learning by process approach. This learning makes the students' orientation towards learning have the quality of *mastery-oriented* and not *performance-oriented* (Ames and Acher, 1987, 1988).

The *performance-oriented* learning does not aim at potentials development through expertise of knowledge and life skills, but rather at diplomas and degrees. The quality of those graduates is questionable. And this is supported by the fact that 30% to 50% vacancies in the job market are not occupied with graduates of high schools, vocational schools, diplomas and university graduates, because the candidates are not eligible. Such paradigm is actually only a process of knowledge transfer from the teachers/lecturers to the students. The learning materials and main discussions are given as much as they could. On the other hand, the process-oriented paradigm emphasizes on the development of *human capacity or human capital skills* through the process of mastering learning methods for the *acquisition* of knowledge and life skills. The skills to apply knowledge in real life, skills to be creative and skills needed in studying for further education; for example skills to analyze, to synthesize, problem-solving, decision-making, adapting with complex demands, knowledge transferring to other areas; those are the life skills (*Pusat Kurikulum Badan Penelitian dan Pengembangan Departemen Pendidikan Nasional*, 2002). Cote and Levine (2000) call this *Human Capital Skills*.

1.2 Research Objectives

A. The specific objective of this research is to grow and develop intellectual giftedness and high level of creativity. Therefore a learning experiment with process approach within e-learning program, which integrates the elements of **motion, audio, color** and **image** in learning materials are going to be conducted. Such learning model will be presented with *learning-by-doing* method. The students are trained to design learning materials, which are not restrained to the theories only but also to the application on the e-learning which integrates the elements of **motion, audio, color** and **image**. Such learning model is believed to be able to grow and develop intellectual giftedness and creativity. Most likely because such learning grows and develops both left and right brain functions.

To test whether those mentioned above can be obtained, an experiment is going to be conducted. There will be two classes; one which going to apply learning with process approach in e-learning program which integrates the elements of **motion, audio, color** and **image** in the learning materials. The result in academic achievement and creativity of this class will be compared with the Control Class', which will apply the conventional learning method.

B. To test whether the research objective is obtained as mentioned above, there should be specific formulas, which are:

1. To test whether there will be any variance on Intellectual Giftedness and Creative Personalities pre-test scores (which is given before the test) with the post-test (given after the treatment) in the Experiment Class, the class that acquires the e-learning program which integrates the elements of **motion, audio, color** and **image** in the learning materials on Test 1.
2. To test whether there will be any variance on the scores of Intellectual Giftedness and Creative Personalities post-test from the Experiment Class with that of Control Class', the class that receives e-learning program without integrating the elements of **motion, audio, color** and **image** in the learning materials and without applying process approach in Test 1.
3. To test whether there will be any variance on the scores of Intellectual Giftedness and Creative Personalities post-test from the Experiment Class on Test 1 with that of the Experiment Class on Test 2.
4. To test whether there will be any variance on the scores of Intellectual Giftedness and Creative Personalities post-test from the Experiment Class on Test 1 with that of the Control Class on Test 2.
5. To test whether there will be any difference on the scores of Intellectual Giftedness post-test from the Experiment Class on Test 1 with that of the Experiment Class on Test 2.
6. To test whether there will be any difference on the scores of Creative Personalities post-test from the Experiment Class on Test 1 with that of the Control Class on Test 2.

2. Literature Review

2.1 Intellectual giftedness and creative personality

There are few similar definitions about giftedness from few experts. Hagen and Hollingworth (Hawadi, 2002) define the difference between gifted and talented. Gifted is an individual with a high academic abilities, while talented is an individual with excellence in art, music and drama. Coleman (1985 in Hawadi, 2002) differentiates the concept of gifted with genius, while generally these concepts are not differentiated.

Coleman believes a gifted person may not be a genius, because this group is considered to not give any contribution towards the community in a certain period of time. But a genius person is certainly a gifted person. According to Coleman, Feldhusen (1985 : 16 in Hawadi, 2002), genius refers to an individual with a superior ability and it is reflected in a meaningful or excellent achievements. Gifted refers to an individual with superior abilities. According to Terman (in Fawzia, 2000), a talented child is one that generally masters all subjects and even able to finish higher education in a very young age. This child is easily identified from the distinctive achievements in all areas. They have an excellent verbal ability as well as spatial, calculation and logics abilities, therefore they are able to finish mathematical problems or other subjects precisely and fast. Furthermore, Terman explains that based on the research on 1500 children with superior IQ, which the teachers has clarified as talented children, resulted that these are precocious children. They walked, spoke, and read earlier than other children their age and according to their parents they have a very high curiosity and a very good memory.

Terman also describes these gifted children are not only superior in intelligence but also in health, social adaptation and moral actions (Fawzia, 2000).

The United States Office of Educations (USOE) does not differentiate gifted and talented. A talented child, according to USOE is defined by: *“Such a child can be identified by professionally qualified person as one with outstanding abilities who is capable of high performance and demonstrated achievement in any one of six area, namely, general intellectual ability, creative or productive thinking, specific academic aptitude, leadership ability, visual and performing arts ability, and psychomotor abilities. The last category in has been excluded by the United States Congress in 1978 as unnecessary since artistic psychomotor abilities can be included in the performing arts category, and the athletically gifted are taken care of very well (Kathena 1992).*

The definition above combines the meaning of gifted and talented. In this research talented child is limited to intellectual only, therefore using the term “intellectual giftedness”, which definition is similar to the definition of gifted (Haggen and Hollingworth in Hawadi, 2002). To understand the definition of Creative Personality let us look at Czikzentmihalyi’s opinion (1996 in Munandar, 1999), which declares that what indicates creative people is their extraordinary ability to adapt in almost every situation and do what is needed to achieve their goals. Their complex personality enables them to move from one extreme to another extreme if the situation demands so, without any conflicts. Moreover, according to Munandar (1999) from four creativity perspectives (Person, Drive, Process and Product) the one that determines creativity is Person aspect. Czikzentmihalyi propose 10 characteristics of creative people:

1. Creative people have a great deal of physical energy, but they're also often quiet and at rest. They work long hours, with great concentration, while projecting an aura of freshness and enthusiasm.
2. Creative people tend to be smart yet naive at the same time. How smart they actually are is open to question. On one side they have the wisdom but on the other hand they are also childlike. A deep insight can be seen at the same time with emotional and mental immaturity. They are able to think convergent and divergently.
3. Creative people combine playfulness and discipline, or responsibility and irresponsibility. Creativity requires hard work, endurance and perseverance in dealing with a new idea or creation.
4. Creative people alternate between imagination and fantasy, and a rooted sense of reality. Both are needed to release oneself from the present without losing touch with the past. People often think that an artist is strong in fantasy and imagination, and scientists, politicians and businessman are very realistic. This is the general assumption, but if involved in a creative work, an artist can be as realistic as a scientist, and vice versa.
5. Creative people trend to be both extroverted and introverted. Someone can work alone to “create”: writing, painting, and experimenting in a lab. But it is also important for that person to meet others and acknowledge the work of others.
6. Creative people are humble and proud at the same time. They are happy with the performance they have achieved but generally are being humble about it. They are also aware of the role that luck played in their own achievements. And they are usually so focused on future projects.
7. Creative people, to an extent, escape rigid gender role stereotyping. When tests of masculinity/femininity are given to young people, over and over one finds that creative and talented girls are more dominant and tough than other girls, and creative boys are more sensitive and less aggressive than their male peers.
8. Creative people are both rebellious and conservative. It is impossible to be creative without having first internalized an area of culture. So it's difficult to see how a person can be creative without being both traditional and conservative and at the same time rebellious and iconoclastic.
9. Most creative people are very passionate about their work, yet they can be extremely objective about it as well. Without the passion, we soon lose interest in a difficult task. Yet without being objective about it, our work is not very good and lacks credibility.
10. Creative people's openness and sensitivity often exposes them to suffering and pain, yet also to a great deal of enjoyment. Superiority often creates resistance from the society, and a creative person may feel isolated and misinterpreted.

These ten pairs of characteristics that seem to opposed are the characteristics that represent a creative personality. Czikzentmihalyi (1996 in Munandar, 1999) thinks each of these paradoxical characteristics is needed to develop new ideas.

2.2 Process-approach learning in the e-learning program will develop intellectual giftedness and creative personality

Learning that is process-oriented will emphasize on *learning how to learn* (Semiawan, 1997). With such teaching strategy the students will master the learning methods. By mastering the learning methods, the students will also eventually master the learning materials and skills related. Hence the function of teachers should be replaced from instructor to facilitator. Teachers only guide and facilitate the students in a conducive method to make the students find their own way to explore and discover the main points of the learning materials independently. Therefore the students will be able to apply the knowledge and skills in their academic assignments and occupational tasks.

According to the paradigm that emphasizes on those processes, learning is a process of constructing knowledge by the students themselves. This is relevant to what Kolb (1984: 14) presents: “*more over the child was learning about the process of discovering knowledge, not just the content. Children became ‘little scientist’ exploring, experimenting and drawing their own conclusions*”. That paradigm is in accordance with constructivism view by Eggen and Khauchack (2001: 294) that features: 1. *Learners construct their own understanding*, 2. *New learning depends on current understanding*, 3. *Learning is facilitated by social interaction*, 4. *Meaningful learning occurs within authentic learning task*.

The broadness and quantity of knowledge is not the main point, but the mastery of learning methods, thus the students are able to explore and discover the main points of the learning materials and forms knowledge clearly and whole. Such learning begins from the knowledge and experience that the students have already had. Learning does not prioritize quantity but quality, therefore enables the teachers/lecturers to explore together with the students, or the students with other students in groups, to find the learning context. The learning process becomes attractive because the assignments are relevant with the students’ needs or in other words, meaningful.

With the explanation above, it is clear that learning with process approach enables development of intellectual giftedness because the learning is applying the first up to third feature in the constructivism paradigm that Eggen and Khauchack has presented (2001: 294). The graduates do not only master the knowledge but also are able to apply it in the academic assignments and occupational tasks. This is possible because the learning with teacher as a facilitator will create a condition that enables students to *learn how to learn* and *explore and discover* at the same time. Mentioned conditions provide the means of *nurturing learning condition*. The students and teachers should do plenty of sharing about behavior, values, skills and science that needs to be acknowledged. Such condition will create a good friendship relationship between the teachers and student, instead of the common hierarchy relationship. Therefore the relationship can create the spirit of *esprit de corps* towards the students and teachers (Terezini, 1991 in Côté and Levine, 2000). Learning in a nurturing learning environment will produce graduates that has human capital skills and an excellent academic achievement. Those skills are the basics towards the establishment of skills needed by the job market (eg. Beeker, 1964, 1975 in Côté and Levine, 2000). Human capital skills contribute to self-management skills, self-motivation skills and technical skills (Côté and Levine, 2000).

Theoretically, investment in human capital skills will eventually give a very good contribution towards human and economic conditions. The more advanced intangible non-technical skills, the more important higher education is. Those skills will contribute on the ability to keep adapting in the world that is very dynamic (Lockhart, 1978 in Côté and Levine, 2000). The self-management and self-motivation skills are not limited to applying theories in finishing academic assignments and occupational tasks, but also to set the steps in problem-solving, including planning, monitoring strategies and evaluation in learning context and also in daily life including at work. Therefore those two skills can also be called *Self-Regulation Behavior* in behavior context, and *Self-Regulation of Learning* in learning context. This means human capital skills are self-regulation of learning and technical skills. Self-Regulated of Learning is one of the aspects from metacognitive ability. According to Baker and Brown (1984 in Hamilton and Gatala, 1994), there are two types of metacognitive: 1. *Knowledge about cognition*, 2. *Regulation of cognition*. While Michanbaum and friends (1985 in Woolfolk, 1998), declare metacognition as *awareness of their own cognition and how the machinery works*.

Based on this, Eggen and Khauchack (2001) presents metacognition includes: 1. *People’s knowledge or awareness on their cognitive processes*, 2. *The ability to use regulatory mechanism to control these processes*.

The second ability is also called Self-Regulation of Behavior or Self-Regulation on Learning. These abilities have 3 functions: 1. Planning, which covers time and strategies going to be used in finishing the academic assignments or occupational tasks, 2. Monitoring, which is online awareness supervising the activities, are they done according to the plans, are the strategies used appropriate, and the problems faced, 3. Evaluation, which covers judgments on process and thinking results and learning “will I change the strategy? Do I need help? Are the academic assignments done according to the time plan?” (Brown, 1987; Nelson, 1996 in Woolfolk, 1998).

Although there are differences between the theoretical definitions about Self-Regulation on Learning, generally it is characterized as an activity that organizes learning by themselves efficiently through planning, monitoring and strategies (Boekaerts, Printrich and Zeidner, 2000; Butler and Winne, 1995; Paris and Paris, 2001; Pintrich, 2000; Winne and Hadwin, 1998; Winne and perry, 2000; Zimmerman, 2001 in Greene and Azevedo, 2007).

2.3 Hypothesis

1. The Pre-test score variance analysis of the Intellectual Giftedness and Creative Personality from the Experiment Class (before treatment) with the Intellectual Giftedness & Creative Personality Post-test (after treatment) from the Experiment Class is conducted in Test 1.
2. Score Variance analysis of the Intellectual Giftedness and Creative Personality Post –Test in the Experiment Class with that of the Control Class is shown on Test 1.
3. Post–Test Score Variance analysis of the Experiment Class’ Intellectual Giftedness and Creative Personality in Test I with Post-Test score of the Experiment Class’ Intellectual Giftedness and Creative personality in Test II.
4. Score Variance analysis of the Intellectual giftedness and creative personality Post –Test in the Experiment Class with that of the Control Class is shown on Test II.
5. Post –Test Score Variance analysis of the Experiment Class’ Intellectual giftedness and creative personality with Post-Test score of the Experiment Class’ Intellectual Giftedness and Creative Personality in Test II.
6. Post –Test Score Variance analysis of the Experiment Class’ creative personality in Test I with Post-Test score of the Experiment Class’ creative personality in Test II.

3. Research Method

3.1 Applied research method

The research method applied in this research is Quasi Experiment. The Experiment Class is the class from the Psychology Department of Gunadarma University which given a treatment in process approach learning with four modules of subjects: 1. Abnormal psychology, 2. Personality Psychology, 3. Development Psychology, 4. Social Psychology presented in e-learning program without integrating **color, audio, image and motion** in lecture materials.

The scheme of the experiment is as follows:

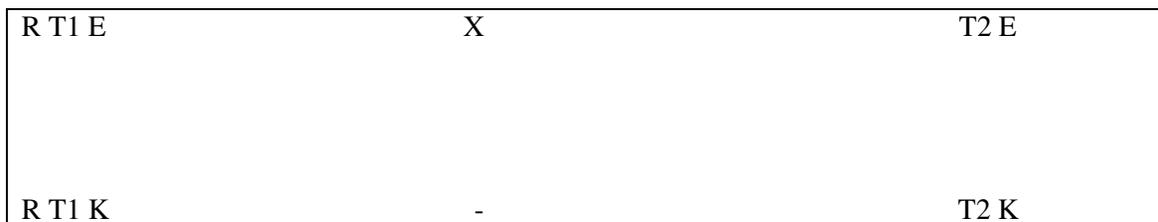


Figure: The Pre-Test – Post- Test Control Group Design scheme

Remarks:

- T1 : Pre-test
- X : Treatment (4 subject modules in learning with e-learning program integrating color, audio, images and motion in the lecture materials.
- T2 : Post-Test
- R : Randomization
- E : Experiment Class
- K : Control Class

The experiment was conducted two times. The second experiment was executed after the updating or improvement of the 4 lecture modules that has weaknesses found in the first Experiment. If the result of the

learning process, which is the academic performance of the 4 subjects as well as the creativity of the Experiment Class varies significantly from the learning result of the 4 subjects and the creativity of the Control Class, or if there is also a significant difference of the Experiment Class learning result in Test 1 and in Test 2, these facts show that learning in Experiment Class may develop Intellectual Giftedness and Creative Personality.

3.2 Research population and samples

The population of this research is the whole class of Psychology students in Gunadarma University on the 5th semester. The research sample consists of 80 students; 40 students from Class A (3PA01) as the Experiment Class; another 40 students from Class B (3PA02) as Control Class. The whole students in the Experiment Class and Control Class are the students with GPA of 3 and above (with the scale of 4). The sampling technique used is *purposive sampling*, the samples are chosen based on the criteria of GPA of 3 and above, males and females.

3.2 Aspects measured in Intellectual Giftedness and Creative Personality

a. Aspects measured in Intellectual Giftedness

Intellectual Giftedness or *Gifted* is shown within individuals who possess high academic competence (Hagen and Hollingworth in Hawadi, 2002). Based on the opinion of Hagen and Hollingworth, the measuring of Intellectual Giftedness uses academic competence scores of the following subjects:

- 1) Abnormal Psychology
- 2) Personality Psychology
- 3) Development Psychology
- 4) Social Psychology

b. Aspects measured in Creative Personality

The aspects measured in Creative Personality are the characteristics of the Creative Personality as described by Csikszentmihalyi (1996 in Munandar, 1999), as follows:

- 1) Strength of the physical energy
- 2) Smart, clever and at the same time, naive.
- 3) Combination of playful and discipline behavior
- 4) Alternating intervals of imagination and fantasy, yet still focused on reality.
- 5) Introversion and extroversion tendencies
- 6) Low self-esteem and at the same time feels proud of their works
- 7) Tendency to be psychologically androgynous
- 8) Independent to rebellious, yet remain traditional and conservative.
- 9) Passionate toward their works, yet very objective in rating their works
- 10) Open and sensitive.

4. Research Result and Discussion

4.1 Research Result

Before being utilized as one of the instruments of research, a questionnaire validity and reliability should be tested. Validity test to the creative Personality showed a score ranging from 0.318 to 0.574, while the reliability score showed a range of 0.792 to 0.816. A valid and reliable instrument can be used to measure Creative Personality.

- a. The Pre-test score variance analysis of the Intellectual Giftedness and Creative Personality from the Experiment Class (before treatment) with the intellectual giftedness & Creative Personality Post-test (after treatment) from the Experiment Class is conducted in Test 1.

The first hypothesis test showed t-test value between the Pre-test and Post-Test score of the Experiment Class in Test 1 showed -27.226 score with significance rate of 0.00 ($p < 0.05$). This showed a significant variance of the Pre-test and Post-test in Test 1 on Intellectual giftedness and Creative Personality of Experiment Class. **This means the first hypothesis is accepted.**

- b. Score Variance analysis of the Intellectual giftedness and creative personality Post –Test in the Experiment Class with that of the Control Class is shown on Test 1.

The second hypothesis showed a t-test value between the post-test score of the Experiment Class' Intellectual Giftedness and Creative personality and the post-test score of the Control Class' Intellectual Giftedness and Creative Personality in Test 1 showed a score of 21.339 with significance rate of 0.00 ($p < 0.00$). This means there is a significant difference between the Post-test score of the Experiment Class' Intellectual Giftedness and Creative Personality with that of the Control Class in Test 1. **This means the second hypothesis is accepted.**

- c. Post –Test Score Variance analysis of the Experiment Class' Intellectual giftedness and creative personality in Test I with Post-Test score of the Experiment Class' Intellectual giftedness and creative personality in Test II.

The third hypothesis test result showed a t-test value between the post-test score of the Experiment Class' Intellectual Giftedness and Creative personality and the post-test score of the Experiment Class' Intellectual Giftedness and Creative Personality in Test II showed a score of -8.621 with 0.00 ($p < 0.05$) significance rate. This means there is a significant difference of the Experiment Class' intellectual giftedness and creative personality Post-Test scores in Test I with that in Test II. **This means the third hypothesis is accepted.**

- d. Score Variance analysis of the Intellectual giftedness and creative personality Post –Test in the Experiment Class with that of the Control Class is shown on Test II.

The fourth hypothesis showed a t-test value between the post-test score of the Experiment Class' Intellectual Giftedness and Creative personality and the post-test score of the Control Class' Intellectual Giftedness and Creative Personality in Test II showed a score of 22.054 with significance rate of 0.00 ($p < 0.05$). This means there is a significant difference between the Post-test score of the Experiment Class' Intellectual Giftedness and Creative Personality with that of the Control Class in Test II. **This means the fourth hypothesis is accepted.**

- e. Post –Test Score Variance analysis of the Experiment Class' Intellectual giftedness and creative personality with Post-Test score of the Experiment Class' Intellectual giftedness and creative personality in Test II.

The fifth hypothesis test result showed a t-test value between the post-test score of the Experiment Class' Intellectual Giftedness and Creative personality in Test I with post-test score of the Experiment Class' Intellectual Giftedness and Creative Personality in Test II showed a score of -5.106 with 0.00 ($p < 0.05$) significance rate. This means there is a significant difference of the Experiment Class' intellectual giftedness and creative personality Post-Test scores in Test I with that in Test II. **This means the fifth hypothesis is accepted.**

- f. Post –Test Score Variance analysis of the Experiment Class' creative personality in Test I with Post-Test score of the Experiment Class' creative personality in Test II.

The sixth hypothesis test result showed a t-test value between the post-test score of the Experiment Class' Creative personality in Test I with post-test score of the Experiment Class' Creative Personality in Test II showed a score of -5.534 with 0.00 ($p < 0.05$) significance rate. This means there is a significant difference of the Experiment Class' creative personality Post-Test scores in Test I with that in Test II. **This means the sixth hypothesis is accepted.**

4.2 Discussion

- a. With the acceptance of the first hypothesis, the treatment in the form of learning with process approach within the e-learning program that integrates **color, audio, images** and **motion** in the lecture subjects as follows: Abnormal psychology, personality psychology, development psychology and social psychology is able to improve intellectual giftedness and creative personality of Experiment Class.
- b. The acceptance of the second hypothesis showed the different level/rate of intellectual giftedness and creative personality between the students in Experiment Class and those in Control Class. Mainly, this is due to the fact that the students in Experiment Class received learning with process approach in e-learning program that integrates color, audio, images and motion in their lecture material, while Control Class' students did not receive learning with process approach, they received conventional learning.

Although the Control Class' students also received e-learning program, it is not integrated with **color, audio, images** and **motion** in their lecture materials.

- c. The acceptance of the third hypothesis showed the different levels/rate of intellectual giftedness and creative personality of Experiment Class students in Test I with the level/rate of intellectual giftedness and creative personality of Experiment Class students in Test II. This is because in Test II, the learning module has been improved immediately after the findings of flaws and weaknesses in Test I.
- d. The acceptance of the fourth hypothesis proved that there is a rate/level difference between intellectual giftedness and creative personality of Experiment Class students and those of Control Class in Test II. This further confirms that the difference is due to the learning with process approach and by integrating color, audio, image and motion in the lecture materials in the Experiment Class, while it was not the case with Control Class, as described in point 2b above. Another fact that contributed to the difference is the improved and updated version of the four lecture modules in Test II, namely: Abnormal Psychology, Personality Psychology, Development Psychology and Social Psychology which were provided in the e-learning program which integrates color, audio, images and motion. While in Control Class, there were no improvement or update made, resulting the modules remain the same as the beginning of study.
- e. The acceptance of the fifth hypothesis showed that there is a rate/level difference between intellectual giftedness of Experiment Class students in Test I and Test II. This is because the learning modules in 4 subjects has been improved immediately after the findings of flaws and weaknesses in Test I, as described in point 2c above.
- f. The acceptance of the sixth hypothesis proved that there is a difference on rate/level of Creative Personality of Experiment Class in Test I and Test II. This difference is due to the improved 4 modules of learning immediately after the findings of flaws and weaknesses in Test I, as described in point 2c above.

With the proven hypothesis I, it is clear that learning with process approach in e-learning program which integrates *color, audio, images* and *motion* is capable of improving the students' intellectual giftedness and creative personality. This becomes furtherly enforced with the proven second hypothesis that with the learning model as described above, the students in Experiment Class were able to improve the level of intellectual giftedness and creative personality better than the students in Control Class.

Students doing *how to learn* will be able to master the right learning method. Students doing *exploration and discovery*, finding the cores of the lecture themselves. The lecturer, in this case, only gives direction, and not explaining extensively in more details. Lecturers do not act as instructor, but as facilitator. With this type of learning, the lecture materials will be mastered (*acquisition*). Furthermore, the materials presented in an e-learning process which integrates color, audio, images and motion will draw more students attention. The attractive lecture materials will allow the perception to them to become more accurate and complete (Plotnik, 2005). The advanced effect is the lecture materials will be absorbed deeper and mastered (*acquisition*). If the lecture materials are understood and mastered deeply, Intellectual Giftedness and Creative Personality can develop fast.

The third, fourth, fifth, and sixth hypotheses are proven to be accepted. This means by perfecting the 4 lecture modules, and after discovering their flaws and weaknesses in Test I, could increase the students' level of Intellectual Giftedness and Creative Personality. Another contributing factor is also because the modules were developed and perfected by the students themselves through learning by doing method. The development of the modules by integrating colors, audio, images and motions into the lecture materials require high level of Intellectual Giftedness and Creative Personality.

5. Conclusion and Suggestions

5.1 Conclusion

- a. Learning by **process approach** presented with e-learning program that integrates **color, audio, images** and **motion** into the lecture materials may have more ability to increase the level or rate of the students' Intellectual Giftedness and Creative Personality than conventional learning, which although presented also with e-learning, but not integrating **color, audio, images** and **motion** into the lecture materials.

- b. The development and perfecting of the lecture modules presented in e-learning which integrates **color, audio, images** and **motion** by the students themselves using learning by doing method under the lecturer's guidance may increase the students' level of Intellectual giftedness and Creative Personality.

5.2 Suggestion

- a. To increase the Intellectual Giftedness and Creative Personality level, the students are suggested to be provided with learning process with process approach and within an e-learning program that integrates **color, audio, images** and **motion** within the lecture materials using learning by doing. Conventional learning, although presented in e-learning program but not integrating **color, audio, images** and **motion** within the lecture materials, is not suggested because it fails to increase the students' Intellectual Giftedness and Creative Personality level.
- b. To increase the Intellectual Giftedness and Creative Personality level of the students, the students themselves are suggested to conduct the development and perfecting of the lecture modules, under their lecturers' guidance.

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