

Focus Group Interview(FGI) Survey and Analysis of Teacher's Cognitive Component in time of Progress of Creativity-Personality Convergence Educational Program

YiYeon Kim *

**Seoul Nat'l Univ. of Science and Technology, Seoul, Korea.*

**Corresponding author:*

Abstract

As the competency, with which talented individuals requisite for the future society should be equipped, not only creative problem-solving but also personal aspects, which are necessary for our living together with me, should be required as well. The educational system, in which being educated about, and educating a personal aspect and creative aspect simultaneously like this is called creativity-personality convergence education, and about this, each education institution on all sides is getting brisk activity started using differentiated contents, and setting about actual operation.

As a result of the actually operated creativity-personality convergence education, it was found that as there exists a part which should be educated together with an aspect of personality, there have been many cases where teachers reveal their difficulties in proceeding with actual education; hereupon, this study organized and analyzed the required supplementary parts of educational contents, and the components which teachers should recognize through the actual interview survey.

Accordingly, this study conducted the 6-week pre-service teacher training session about Creativity-Personality H-STAEM Convergence Education from June 17 until July 15, 2017, through which this study extracted and analyzed the cognitive components by class week and content targeting the pre-service teachers who are to conduct education of this, and the results are as follows: First, this study could put together the opinion that it's desirable to naturally proceed with the amalgamative design class of personal aspects and creative aspects by lessening class hours for personal aspects as a theory class, and increasing class hours for object productions of creative aspects through the recognition that main class trainees are elementary & middle school students whose concentration is somewhat falling.

In addition, there was also an opinion that educational contents, which can deduct output of experience contents as the future growth engine, should be diversified in line with the rapidly-changing times. Hereupon, it is thought that if a pre-service teacher comes up to a learner with the grasp of an educator's cognitive components in multidisciplinary education as basic studies combined with personality when he/she educates actual learners in relation to the future

creativity-personality convergence curriculum, it might play a part in conducting education more easily in time of progress of education.

Keywords: Convergence education research, Fourth Industrial Revolution, Education contents, Focus Group Interview, Cognition Element

INTRODUCTION

The recent actual state is that as core elements and competency, with which talented individuals requisite for the future society should be equipped, personal aspects necessary for living together with others other than myself alone are also required together, not to mention creative problem-solving power.

Proceeding with creative education and personal education simultaneously like this is called creativity-personality education, and the strategy & aim of such creativity-personality convergence education are to develop creative aspects, and also to create an upright climate as a social member in possession of ethical, correct judgment as a human.

After all, as specified in the strategy and aim of the creativity-personality convergence education, only after building up an individual's competency in line with the rapidly-changing world trend, but constrained parts should be solved and built up within the category of the very 'Personality', it is possible for learners to get to the apex. As regards the creativity-personality convergence education like this, many countries including advanced countries have been doing educational operation with curricula and contents of their own recently; accordingly, in our country, each educational institution is standing on tiptoe to launch brisk activity with individually characteristic contents in an effort to cultivate global talented individuals in preparation for the 4th Industrial Revolution, and their actual operation is in progress.

However, even if such creativity-personality convergence education is in possession of a solid operating curriculum, it is said that there are many cases where teachers feel much more burden than expected, and reveal difficulties with an educator's instruction of learners and class operation. The difficult part in educational operation revealed by field teachers is mostly attributable to the lack of preceding cases

of the creativity-personality convergence education, and the lack of the precedents like a sort of guide book as to what teachers have to recognize in time of progress of education, or how to solve the situation of unexpected variables.

Particularly, educators' role is more important than anything else in proceeding with such creativity-personality convergence education, for the process factor in a teacher's leading learners & class progress exercises the most influence on the final output production variable. For the creativity-personality convergence education to be properly operated for the time to come, it's necessary for educators in charge to have the basic understanding of creativity-personality, and to properly convey the true meaning of creativity-personality to learners, together with good operation through careful recognition of the effective method for educating this and situations on the whole.

Hereupon, this study conducted the expert's educational course training session on Creativity-Personality H-STAEM Convergence Education for 6 weeks from June 17 until July 15, 2017 with the support money from the Ministry of Science, ICT, and Future Planning as a part of pre-service teacher training related to the later creativity-personality convergence education.

After the close of this training session, this study actually looked into the part that should be recognized by teachers in time of progress of the Creativity-Personality H-STAEM Convergence Education in the near future through the interview survey by weekly session, and is intending to present the guide as to teachers' cognizant component of a sort of Creativity-Personality H-STAEM Convergence Education by looking into the components teachers are required to recognize after applying and developing the part that should be recognized by teachers..

THEORETICAL BACKGROUND

Concept of Creativity-Personality Convergence Education

With the recent problem-posing appearance from the aspect of the personality education increasing, another concept of Creativity-Personality Convergence Education came into existence by putting the personal aspect in the existing convergence(STAEM)education.

Such Creativity-Personality H-STAEM Convergence Education can be clearly regarded as the education for getting talented individuals having new, creative problem-solving power, which all of us have to recognize in preparation for the upcoming 4th Industrial Revolution, combined with personality, and for promoting it.

One of the biggest characteristics possessed by the Creativity-Personality H-STAEM Convergence Education is its advocacy of construction and operation of behavioral

programs well combined with creativity and personality for good education while putting emphasis on individual functions and roles of the creative side and persona side. In short, the Creativity-Personality H-STAEM Convergence Education could be defined as the one playing a part in making a person who can lead his/her life along with others other than alone, and also the one which enables a person to be equipped with creative issues and personality combined with problem-solving ability, which are the virtues required as a social member of the global era.

Roles and Component of Creativity-Personality H-STEAM Convergence Education

The ultimate direction of the Creativity-Personality H-STAEM Convergence Education can be summarized as some points. First, as this education is the naturally integrating one so that a learner's creative aspect and personal aspect can be mingled other than conveying the value of the unilateral, or directive education to learners; therefore this education is characterized by the fact that it gives education with the relational aspect between people and ethical judgment as a foothold in time of problem-solving.

Second, the Creativity-Personality H-STAEM Convergence Education basically aims at training creative talented individuals, so another characteristic of this education is that it provides the environment as befits the aim, namely it provides learners with the atmosphere for their creative thinking and solution to it, and further, this education leads the whole atmosphere so that learners' creativity can be expressed freely.

As the component of the Creativity-Personality H-STAEM Convergence Education can be defined by basically dividing creativity and personality. As the elements in creativity, they can be roughly divided into cognitive area, dispositional area and motivation area while required virtues in time of human relations, and judgment of personality can be pointed out as personality elements.

To look into the elements more concretely, there might be thinking extension & gathering, and problem-solving ability in the cognitive area of creativity-educating elements, and openness of diverse characteristic aspect, one's own originality, autonomy, or independence in the dispositional area, and the part like interest, or immersion belongs to the motivational area. In addition, as requisite virtues in time of human relations of the element educating personality, an honest aspect of treating the other party sincerely, thoughtful and considerate mind of the other party, mind of accepting multi-cultures and multi-disciplinary aspect, a promise-based aspect, mind of begging for forgiveness first could be cited while the ability to discern more desirable value, the ability to bear oneself in the righteous process and to pursue legitimacy, and the ability to put a desirable act into practice belong to judgment of personality.

Table 1. Requisite Elements in Creativity-Personality Education

Classification	Requisite Elements
Personality	Consideration, honesty and forgiveness, etc required for human relations, etc. Ability to make a decision, to execute behavior, judgment of personality from the personal aspect, etc.
Creativity	Cognitive area –Ability to extend(imagination, analogy, metaphor) and gather(critical thinking) and the ability to solve problems for integrating them Dispositional area – Independence having originality and autonomy, and openness accompanied by diversity and sensitivity Motivational area – Looking for what is interesting, or much inquisitiveness

ANALYSIS OF CREATIVITY-PERSONALITY H-STAEM CONVERGENCE EDUCATION EXPERT INSTRUCTORS TRAINING COURSE PROGRAM

Purpose and Goal of Creativity-Personality H-STAEM Convergence Education

In the midst of the recently prevailing Creativity-Personality H-STAEM Convergence Education, the Creativity-Personality H-STAEM Convergence Education has significance in constructing the educational system for developing the future-oriented global talented individuals who can creatively solve problems by preventing learners from having an addictive disposition like school violence, learning maladjustment, and Internet& game addiction, and additionally by integrating the knowledge in diverse fields.

In short, the Creativity-Personality H-STAEM Convergence Education can be defined as “Human-centered Creativity-Convergence Education” which forms by putting personality(Human) in the subjects of science, technology, engineering, art, and mathematics, referring to the convergence-based educational system for enhancing the ability to solve problems by grafting it onto real life after looking for the reason to learn knowledge first in addition to

personal aspects to the existing convergency education-STAEM Education, and mastering the way to apply it to people.

The Creativity-Personality H-STAEM Convergence Education like this aims at developing global talented individuals who can lead convergence creatively with various fields by directly being acquainted with human’s intrinsic nature, self-esteem, and community spirit, and properly recognizing the problems facing the present society, not to mention experiencing studies in various fields.

Introduction of Creativity-Personality H-STAEM Convergence Educational Program Process

Basically, the Creativity-Personality H-STAEM Convergence Education which is lectured by an educator is comprised of 3 stages in total including base type, extension type and stepping type. In teaching this to students in educational fields, an expert in personality education and an expert in creativity education are designed to do education in common in the same classroom. Detailed educational items about the base type, extension type and stepping type are presented as in Table 2. below.

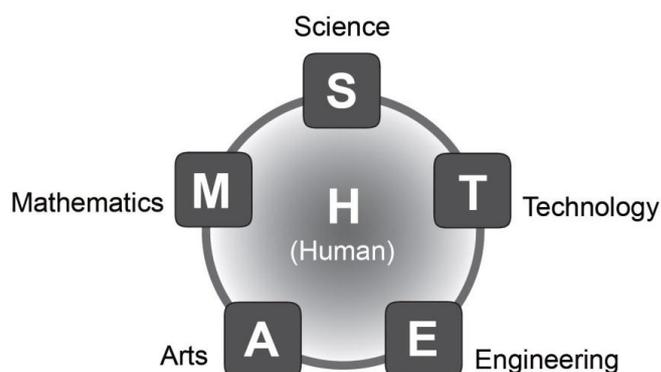


Figure 1. Conceptual Diagram of the H-STAME Education on the basis of Creativity & Personality

Table 2. Three Sorts of Educational Courses of the Creativity-Personality H-STAEM Convergence (Base type, Extension type, Stepping type)

Classification	Object for Education	Requisite Elements
Base type	Elementary school student	It's the creative experience activity centering on personality education, which is implemented as a short-term project.
Extension type	Science (Middle student)	It's available for a learner-wished career search. It includes a variety of programs such as science search, convergence experience education, augmented reality& virtual reality experience, etc. with the aim of developing global leaders.
Stepping type	High school student	There is a specialized program which actualizes the acquired knowledge to be applicable to social activity and daily life only for those who completed the above base type and extension type classes.

As the course training a lecturer who is to conduct a lecture on the Creativity-Personality H-STAEM Convergence Educational Courses later, the Creativity-Personality H-STAEM Convergence Education was conducted for 6 weeks from June 17 until July 15, 2017 through the support money

from the Ministry of Science, ICT, and Future Planning. In the course for lecturer training, the above base type, extension type and stepping type were conducted as a course of 30 hours with 6 hrs per week in 5 weeks in total, and its detailed matters of program progress are listed as in Table 3. below.

Table 3. Weekly Education Schedule of Creativity-Personality H-STAME Convergence Pre-Service Lecturer Educational Course

Week	Date	Classification	Subject Name	Total class hours
1	June 10	Theory	H-STAEM Orientation	6 hrs
			An Introduction to H-STAEM	
			Development of Self-Conception	
			An Introduction to Digital Writing Tool(3D Printer, 3D Pen)	
		Practice	H-STEAM 3D Self-Expression using 3D Tools	
2	June 17	Theory	Emotional Development	6 hrs
			An Introduction to Creative Conception(Web-Storming)	
		Practice	H-STAEM using Brainstorming, Web-storming	
			Friend's Agony Counseling Center , Sentiment PMI	
3	June 24	Theory	Peer Relations	6 hrs
			An Introduction to 4D Frame	
		Practice	H-STAEM DNA Fence using 4D Frame	
			Community Pyramid	
4	July 1	Theory	Internet Addiction	6 hrs
			An Introduction to Creativity Convergence using Energy Sources	

		Practice	H-STAEM LED Paper Cup Flower Bed using Electric Elements My own LED Frame	
5	July 8	Theory	Career Development An Introduction of Future Growth Industry, VR/AR	6 hrs
		Practice	H-STAEM VR Google Cardboard using VR/AR Looking for a Friend in Augmented Reality	
6	July 15	Theory	Application of H-STAEM Convergence Education	6 hrs
		Practice	Enrichment of H-STAEM Convergence Education	

Looking into the above [Table-03], it is learned that the education was conducted by dividing each course into two areas, i.e. theory and practice in the fusion of three sorts of courses, which learners are taught. In theory, the class was conducted mainly with personal aspects which should be recognized in the Creativity-Personality H-STAEM Convergence educational courses, and ethical aspects, which lectures have to teach learners by bearing them in mind as an instructor and educator, for the sake of expository instruction through booklets; in practice, the class was conducted in the form of sharing each other's output between group members through actual production and creation of electric element paper cup making, etc., together with idea conception, an introduction to VR/AR using actual convergence contents from the position of a learner with the addition of the concept of practice which makes it possible for learners to extend their thinking width on the basis of theoretical aspects which learners learned previously.

FGI(Focus Group Interview)Survey and Items for Analysis after the Close of the Weekly Creativity-Personality H-STAEM Convergence Educational program

The 27 pre-service teachers participating in the Instructor Training Course of the above Creativity-Personality H-STAEM Convergence Educational Program consisted of the present 12 educators related to personality and the present 15 educators related to creativity marking a little larger in number than that of the educators related to personality. A total of 27 pre-service teachers were divided into Part I and Part II, and in Part I, they took a theory lecture related to creativity-personality while in Part II, the participants experienced, discussed, and shared the educational course, which the learners learned in the actual H-STAEM educational program, in the same way through individual activity and group activity by 5~6 learners. Afterwards, this study analyzed the part, which should be instructed while an educator has to get learners to recognize the part, in time of progress of actual educational courses later, and the elements among the program contents, which should be complemented through a review by week order, and the analysis results are as in Table 4.

Table 4. Comprehensive Opinion Items through Focus Group Interview(FGI)survey after the close of education by week order

Week Order	Teacher's cognizant component in time of progress of the future Creativity-Personality H-STAEM Convergence Education	Contents complementation elements in time of progress of the future Creativity-Personality H-STAEM Convergence Education
1	Personality The competency of a teacher who can lead a group by mediating the source of conflicts in time of group activity - Conveyance of the fact that a human is a prime mover taking the lead in new revolutions to learners - A learner's consideration time for self-search through the time for self-search, Development of easy class environment where learners can recognize their inner self.	- Separate book making & distribution of a teacher's cognizance besides learners - Class progress while putting emphasis on the fact that a machine takes the initiative due to the future AI development, but it's only the person that can operate the machine - Consideration of the contents which can make a link more naturally at the part

		<ul style="list-style-type: none"> - Guidance of learners so that they can develop an eye for feeling and experiencing something by themselves other than a correct answer - Inducement of earnest consideration of one's own self-esteem by addressing the contents on self-esteem 	<p>where self conception is expressed using digital tools, and consideration of the method of explanatory comments</p>
	Creativity	<ul style="list-style-type: none"> - Conveyance of the contents on the vision of another value creation in the 4th Industrial Revolution Fields beyond the existing STAEM Education with emphasis. 	
2	Personality	<ul style="list-style-type: none"> - It was good for a teacher to express his/her own thinking freely and to get to know the process of the empathy with others. - Realization of the fact that the empathic ability is a virtue of education relations and also the part, of which an education has to get learners cognizant importantly.(natural expression about consolation and encouragement) - Arrangement of the place of communication which can draw others' empathy using the recent plaza of communication through the program titled "Friends' Agony Counseling Center" - Empathizing with the other party's mind, and encouraging - The experience of sharing each other's agonies and getting consoled through the Web was fresh. 	- Necessity of a Standard Teaching Plan
	Creativity	<ul style="list-style-type: none"> - Available for fundamental thinking about brainstorming by reconstituting the existing brainstorming in line with a learner's eye level <p>Particularly, the point that ideas are changing and finally ideas are being arranged through the division using PMI proves the education adjusting to elementary/middle school students' eye level.</p>	
3	Personality	<ul style="list-style-type: none"> - Getting learners cognizant through the case about the attitude towards a bystander in community - The point that it's possible to learn community spirit on 'I', 'You' and 'We' through Creativity Tools - More focus on the process than the result 	- Suggestion of a practical solution method against school violence in peer relationship, and necessity of a teaching plan
	Creativity	<ul style="list-style-type: none"> - Important of tools, progress of creative education about an eye-level education - A place of arrangement of momentum for naturally mastering the Math-scientific principle+community spirit through creative structure production of 4-D frame fractal structure 	
4	Personality	<ul style="list-style-type: none"> - Helpful in an individual's self-esteem improvement by acknowledging and respecting each other in community of 'We' by jumping over 'I' and 'You' 	- Necessity of class development by combining personality with creativity without distinction of them

		- Necessity of an explanation about relations	
		- Mutual respect and understanding of others come from self-esteem.	
	Creativity	- Mastering how to do mutual respect naturally through tool production	
		- Wiseful fusion between a human and science	
5	Personality	- The most important point in career choice begins from understanding myself accurately and objectively.	- Increase in the number of experiences of more diverse contents which could connect the future growth industry
	Creativity	- Guidance of learners so that they can adapt themselves to the 4th Industrial Revolution Age in advance by imagifying the image of the future of the self-understanding symbol through the link with a career	

ANALYSIS RESULTS OF TEACHER’S COGNIZANT COMPONENT OF CREATIVITY-PERSONALITY H-STAEM CONVERGENCE EDUCATION THROUGH FOCUS GROUP INTERVIEW(FGI) SURVEY

As a result of FGI analysis of pre-service teachers, it was found that they completed the creativity-personality convergence education like creativity-personality H-STAEM convergence education, and most of them learned by top priority that it was possible to grasp two categories naturally, together with personal aspects from the convergence education.

In addition, there came about several opinions comprehensively, and the opinions are summarized as follows: First, learners came to be easily cognizant of the change of our life by learning the fact that our life changes due to the rapidly-changing technological development through theory and practice; also, the convergence education program becomes a momentum for learners to recognize the fact once again that although new revolutions take the lead, the ultimate prime mover is a human after all.

Second, most of the participating teachers in the education agreed to the opinion that the natural environment, which made it possible for participants to empathize and communicate with others through group activity after the theory class, paved the way for a place where participants could unfold their thinking freely and exchange views.

Third, most of the participants in the convergence education said in one voice that it’s possible to naturally master how to express my ideas and to empathize with others through the convergence contents education in social community where ‘I’and “We” and even community spirit are gradually broadened.

Fourth, in proceeding with the class with focus on the process of solving problems in opposition to the social atmosphere which makes much of the result, participants in

the education said that there were things learners in the present age have definitely to experience through the progress of education focusing on the part setting great store by the process of sharing each other’s feeling and solving problems together other than the world where one saves one’s own skin by defeating the other party.

In addition, participants in the education pointed out some elements among the creativity-personality H-STAEM Convergence Education Program contents, which need to be complemented; among others, a majority opinion was that they wished there would be a sample teaching plan for teachers as there has been no sample teaching plan for teachers as yet although there are the educational program books and a teaching plan for learners. Concretely, there was an opinion that it’d be better to produce and distribute a teaching plan, a teaching plan separately which can suggest a practical solution to school violence in peer relationship. Second, there was also an opinion that the current educational courses are conducted by dividing the courses into Part I(Creativity) and Part II(Personality), but it would be preferable to make integrated(Creativity+Personality) class contents in order for elementary/middle school students learners to get higher concentration. As other comments, there was an item arguing the necessity of the increase in numbers of educational contents available for a lot more diverse, exciting experience because there exists only one sort of contents experience element that can connect the future growth industry.

DISCUSSION AND CONCLUSION

This study intended to deduct implications through the part which should be recognized by the pre-service teachers who will be in charge of the future H-STAEM Creativity-Personality Convergence Education when they are in

education, or the future development elements, the results thereof are as below:

As a result of conducting an interview from the personality aspect, this study found that it's urgent to arrange activity-centered contents that make it possible for elementary/middle school students to master the personal part interestingly and naturally because their concentration level could fall due to their age restrictions not enough to be in contact with the personal part theoretically.

As a result of conducting an interview from the creativity aspect, it was found that there is a need for contents education of diverse aspects through the experience of the contents combined with the personality aspect and creativity aspect; nevertheless, such contents should be intriguing, and there is a principle in reflecting the trend of the times.

Also, this study is going to make a suggestion through this research as follows:

First, in proceeding with the convergence education on the basis of the future creativity-personality, teachers are supposed to conduct their class by definitely recognizing and acquainting themselves with the part which teachers are required to recognize, and there is an absolute need for developing diverse creativity-personality educational contents consecutively, and for the process of doing simulation.

Second, as other comments, the creativity-personality convergence education like this has not been included as the regular course in class organization, but included as an after-school curriculum, or a non-subject; hereupon, this study thinks that it's necessary to do research on its related policy at a national level, not to mention the teaching staff, who conduct this education, in order for this convergence education course to be included as a regular subject.

REFERENCES

- [1] G.H. Bang et al., "Development Model of STEAM based Practical Arts Education Program for Creativity Character Education," *The Journal of Practical Arts Education Research*, Vol. 21, No. 2, pp. 1-23, May 2015.
- [2] K.S. AN, "An Exploratory Study of the Character Education Programs using Maumgrarm," *Journal of Digital Convergence*, Vol. 15, No. 1, pp. 393-401, Jan 2017.
- [3] G.H. Lee and K.L. Kang, "A study on the effects of the creativity-personality education programs for pre-service secondary teachers," *The international journal of creativity & problem solving*, Vol. 11, No. 3, pp. 107-141, Sept 2015.
- [4] C.J. Kim et al., "A study of Developing curriculum reflected Practical Humanistic Education," Ministry of Education and Science Technology, October 2013.
- [5] H.K. Kim et al., "Comprehensive plan to improve evaluation method for realization of Creativity Character Education", Korea Institute for Curriculum and Evaluation RRE 2013-20, 2013.
- [6] Ministry of Education, "2017 Conference of Korean Society for the Study of Vocational Education," press release by Ministry of Education, April 2017.
- [7] Blog of Ministry of Education. <http://blog.naver.com/moeblog/220995032052>
- [8] H-STEAM café. <http://cafe.daum.net/H-STEAM>
- [9] KOREA Human centered STEAM Association. <http://www.h-steam.or.kr>
- [10] Ministry of Education. <http://www.moe.go.kr/>
- [11] Naver News. <http://m.news.naver.com/read.nhn?mode=LSD&sid1=105&sid2=230&oid=001&aid=0009100577>
- [12] <https://youtu.be/mp2EoLaTOkA>