



## Factors Influencing Students' Creative Thinking Skills

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**Abstract.** The study aims to get the description of creative thinking skills, self-perception, and motives of personal actualization of students at the PPB FIP program and to examine the influence of self-perception and self-actualization motives (either independent or mutual ) on the student's creative thinking skills. This is a quantitative study with an ex post facto design. We involved 143 students selected using a randomized proportional method. Data were collected using a scale and were analyzed descriptively and inferentially using regression analysis. The findings are: (1) the student's creative thinking skills are generally rather low, while their personal perceptions are less positive, and students' self-actualization motivations are rather low. (2) self-perception positively influences students' creative thinking skills, (3) self-actualization positively influences students' creative thinking skills, and (4) self-perception and self-actualization (simultaneously) influence the creative thinking skills of PPB FIP students.

**Keywords:** creative thinking skills, self-perception, self-actualization motivation.

## INTRODUCTION

Skills required at work include collaboration, communication, and critical thinking (Sabote, Moreno, & López, 2022), creative thinking, Trustworthy/honesty, constructive (Supena, Darmuki, & Hariyadi, 2021; Cirillo, Fanti, Mina, & Ricci, 2023). Critical thinking skill is a factor that receives big attention in education. Creativity or creative thinking is required in education and other life sectors (Mahmudi & Saputro, 2016) because creative thinking can produce various innovations and new development in life (Wiyono & Ardiansyah, 2020).

In the 21<sup>st</sup> century, teachers have to focus on meaningful learning methods so students can think critically and creatively to improve their thinking and processing skills (Jufri, 2013). Critical thinking leads someone to keep curious, synthesizing phenomena through critical thinking, finding the best solution based on multiple solutions, and creative thinking (Luthvitasari, P, & Linuwih, 2012). Critical thinking is thinking deliberately for a heuristic or new discovery to solve a problem (Ruscio & Brady, 2020). Creative thinking is a new way of seeing and doing something that contains four aspects, namely, fluency, flexibility, originality, and elaboration. (Anwar, Shamim-ur-Rasool, & Haq, 2012).

The urgency of developing individual creative thinking skills is emphasized by the Career Center Maine Department of Labor USA (2001) because it is one of the skills needed in the world of work and determines the excellence of a community or a nation. In other words, the creativity of human resources determines the competitive power of a nation, so the development of creative thinking skills is important.

Regarding the importance of training in creative thinking skills, the government has integrated it into the education curriculum. This is formulated in Law no. 20 of 2003, article 3 concerning the National Education System to develop the potential of students to believe in and fear God Almighty, have a noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens. This is reinforced by some national and international research by The State of Queensland, Queensland Curriculum and Assessment Authority / QCAA (Grainger et al., 2019) that to classify the 21st Century skills needed in the environment and all levels of education, six important skills identified are critical thinking, creative thinking, communication, collaboration, personal and social skills, and ICT skills. This shows that everyone must be able to think creatively. It should be developed through education. Productive, purposeful, and intentional thinking processes are the keys to effective learning (Ozgenel, 2018). To face today's increasingly advanced challenges with complex environmental, social, and economic pressures, students must be more creative, innovative, and enterprising, have high motivation and self-confidence, and use critical and creative thinking meaningfully so that they can more easily adapt (Piitro, 2011).

Based on the observations that we made in the odd semester (2021/2022), which was carried out online using technology, we found that learning activities did not sharpen creative thinking skills, both in learning activities and doing assignments. The data we obtained shows that around 80% (at every online meeting) of students have low creative thinking skills. This is indicated by the lack of activeness in the discussion, they tend to be silent or not express opinions, do not try to explain their ideas for fear of making a mistake, being laughed at, scolded by the teacher, or labeled as pretending as smart, and they hesitate to make decisions

and just "present" in every meeting. Also, some students did not optimally complete their course assignments; some students did not complete them optimally, and some "cheat" assignments from other friends (both in the same class or in different classes).

Such phenomena, students' low creative thinking skills, need to be investigated further so that we can find a solution to develop them. It is important to understand the factors related to the development of creative thinking skills, especially the internal factors except in intelligence.

Everyone is creative and has the potential for creative thinking skills. Creative thinking skill is, of course, correlated to other psychological aspects, which means that to develop them, we should consider students' psychological self-perception, expectations or needs, self-confidence, curiosity, imagination, risk taker eagerness for new things, and so on. Some latter factors are considered indicators of creative thinking.

The internal factors related to creative thinking are also related to external factors like the social environment at home, school, or society. The main factors related to education are parents, teachers, and peers, which strongly influence creative development.

Munandar (2016) stated she mentioned two important aspects of building creativity, including *aptitude traits* consisting of thinking skills/intelligence like fluency, flexibility, and originality in thinking. Then, non-aptitude traits consist of aspects related to creative personality criteria like self-confidence, independence, eagerness, curiosity, risk-taking, and exploration. Aspects of creative thinking are a source of energy to make shifts in life. Creative thinking skills are the key to all human potential. The development of creativity in the present era should be considered by every party. The importance of developing creativity in Indonesian education is also mentioned by Munandar (2009:12) that education should focus on the development of student's creative thinking so that they can fulfill their personal, communal, and state needs. The main goal of studying creativity is to identify people with creative thinking, and the personality theory is the basis of the theory of Smith (Susanto et al., 2018:178).

Munandar (2009:31) explained reasons why creative thinking / creativity is important to be developed and considered to be meaningful

in life. Why students' creativity should be developed? First, creative people can actualize themselves, and the realization of self-actualization is a primary need and is a top-tier human need Maslow (Munandar, 2009). Creativity is the self-manifestation that functions holistically. Secondly, the creativity of creative thinking is the skill to estimate various possible solutions to a problem in education, Guilford (Munandar, 2009). The school should focus on training the ability to acquire knowledge, memorization, and logical thinking (reasoning). Thirdly, doing creative activities which are not only beneficial for self and society but also for self-satisfaction. Interviews carried out with people who had received awards for creating meaningful things, like artists, scientists, and founders, show that the satisfaction factor has an important role which is stronger than material benefit, Biondi (Munandar, 2009). Fourthly, creativity allows someone to improve their life quality

## METHOD

This is a correlation survey study that investigated the description of creative thinking skills, self-perception, and motivation for self-actualization and the correlation between those variables. This is an ex post facto quantitative study. We involved 143 students selected through proportional randomized sampling. Data

were collected using a scale and analyzed descriptively and inferentially using a regression test.

To gather data for answering the research questions, we used a scale. The instrument aims to get data about creative thinking skills, self-perception, and motivation for self-actualization. We developed and constructed the scale based on the theories of the three variables.

Data were analyzed using descriptive and inferential analysis techniques. It was to describe creative thinking skills, self-perception, and self-actualization motivation. The descriptive analysis consisted of data processing, arrangement, categorization, and comparison. To describe each variable based on categories, we grouped the data into five, high, rather high, medium, low, and very low.

The inferential analysis used the regression technique. It is to discover the contribution of self-perception and self-actualization motivation to creative thinking skills. The inferential analysis aims to test the hypothesis. For the inferential analysis, we carried out a prerequisite test, namely the data normality test. The results of the tests show that the research data were normal.

## RESULTS AND DISCUSSION

### Results

### 1. Description of Self Perception, Motivation of Self Actualisation, and Creative Thinking Skills

**Table 1.** Descriptive Analysis

No	Measurements	Self Perception	Actualisation Motivation	Creative Thinking
1	Mean	90.3706	70.9021	122.3147
2	Median	92.0000	72.0000	125.0000
3	Std Deviasi	12.14216	9.69486	14.98282
4	Range	57.00	49.00	84.00
5	Minimum	59.00	40.00	77.00
6	Maximum	116.00	89.00	161.00
7	N	143	143	143

#### a. The Description of Creative Thinking Skills

The student's creative thinking skill is described briefly in the following table 2.

**Table 2.** Description of Students' Creative Thinking Skills

No	Intervals	F	%	Criteria
1	154 -169	5	3,49	Very High
2	138 – 153	14	9,79	High
3	122 – 137	62	43,36	Rather High
4	106 - 121	44	30,77	Low
5	90 – 105	16	11,19	Rather Low
6	74 – 89	2	1,4	Very Low
Total		143	100	-

Table 2 shows that, in general (43,36%), the creative thinking skills of students of PPB FIP were in the rather high category, and there were still 30,77% of students having low creative thinking skills. It means that, in general, students of PPB FIP were able to compare data or information, and the idea to find out a new correlation, and the comparison process, run not fluently is still rigid and not original. Around 12,59% of students did not show creative thinking skills, and only 13,28% of students had the ability to compare data or information and ideas to have a new correlation, and the process ran fluently, flexibly, and originally.

Based on the analysis, only parts of (or 50%) students had high creative thinking skills,

while the rests were low. It indicates that it is important to develop the ability to compare data or information, and ideas to create a new connection so that it can be more fluent, flexible, and original.

### b. Description of Self Perception

The description of self-perception refers to aspects that the students understand about themselves or their view or assessment of themselves, like their psychology, physics, strength or abilities, limitations, and expectations. The data are presented in the table 3.

**Table 3.** Description of Students' Self Perception

No	Intervals	F	%	Criteria
1	116 - 128	1	0,7	Very Positive
2	103 – 115	20	13,99	Positive
3	90 – 102	65	45,45	Less Positive
4	77 – 89	36	25,17	Rather Negative
5	64 – 76	17	11,89	Negative
6	51 – 63	4	2,8	Very Negative
Total		143	100	

Table 3 shows that, in general (45.45%), students had a less positive perception of themselves, only 13.99 % of students had a positive self-perception, and only one (0.7%) had a very positive self-perception. On the other hand, students with rather negative self-perception were 25.17%, students with negative self-perception were 11.89%, and students with very negative self-perception were 2.8%.

Based on the analysis, the way students perceived themselves, both physically and

psychologically, their strengths and weaknesses, and their expectations were positive (60% of students) and negative (40%).

### c. Description of Students' Self-Actualisation Motivation

Self-actualization motivation refers to students' willingness to develop all potentials they have by using their skills. The description of self-actualization can be seen in Table 4.

**Table 4.** Description of Students' Self-Actualisation Motivation

No	Interval	F	%	Criteria
1	93 – 103	0	0	Very High
2	82 – 92	18	12,59	High
3	71 – 81	68	47,55	Rather High
4	60 – 70	36	25,17	Low
5	49 – 59	18	12,59	Rather Low
6	38 – 48	3	2,1	Very Low
Jumlah		143	100	

Table 4 shows that the levels of students' self-actualization motivation were generally in the rather high category (47.55%), while students with high self-actualization motivation were 12.59%, and in fact, no students had very high self-actualization motivation. There 25.17% of students had low self-actualization motivation, 12.59% of students had a rather low self-actualization, and 2.1% of students had very low self-actualization motivation.

Based on the analysis, it can be seen that around 50% of students had high motivation to

develop all potentials they had using their ability, and the other 50% had low motivation to develop all potentials they had using their ability.

## 2. The Influence of Self-Perception and Motivation of Self-Actualisation on Students' Creative Thinking Skills

Based on the hypothesis proposed in the study, the results of the regression test of each variable pair can be seen in Table 5

**Table 5.** Summary of Results of Regression Test of Each Variable Pair

No	Variables	Correlations		Regression Test		Regression Equations	
		R	R Square	F	Sig	Constanta	X1
1	Self Perception	0.604	0.427	105.13	0.000	49.435	0.806
2	Actualisation Motivation	0.783	0.613	223.49	0.000	36.513	1.210

Dependent variable: The performances presented in the table show that; (1) Self-perception significantly influences the creative thinking skills of students at PPB FIP, with a percentage of 42.7%. The regression equation is;  $Y = 49.435 + 0.806 X_1$ ; (2) The self-actualization motivation significantly influences the creative thinking skills of students at PPB FIP, with a percentage of 61.3%. The regression equation is;  $Y = 36.513 + 1.210 X_1$ . The multiple regression results can be seen in Table 6.

Table 6 shows that the correlation coefficient (self-perception and self-actualization motivation) simultaneously influences the creative thinking skills of a student at PPB FIP, which is at 0.792, and the R square of 0.622. the correlation coefficient is significant so that the self-perception and self-

actualization motivation of students at PPB FIP are simultaneously correlated with their creative thinking skills. adalah sebesar 0,792 dengan R square 0.622.

In other words, the more positive students' self-perceptions and the higher their self-actualization motivation, the higher their creative thinking skills. The value of the determinant coefficient (R square) is 0.622, meaning that the level of student's creative thinking skills is determined by how positive or negative their self-perception and self-actualization motivation, which are 62.2% and 37.8%, respectively, and it is also influenced by other factors.

Based on the multiple regression tests or F tests, the regression coefficient is  $Y = 30,989 + 0,217X_1 + 1.012X_2$ . The F test shows that the value of sig. (0.000) is smaller than the

alpha score (0.05), the equation can be used to estimate the levels of students' creative thinking skills after identifying the self-perception and self-actualization motivation

scores. The tests emphasize that the self-perception and self-actualization motivation of students at PPB FIP influence their creative thinking skills.

**Table 6.** Results of Multiple Regression

ANOVA<sup>b</sup>

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20004.254	2	10002.127	117.944	.000 <sup>b</sup>
	Residual	11872.585	140	84.804		
	Total	31876.839	142			

a. Predictors: (Constant), Note: Communication, Confidence, Self Perception

b. Dependent Variable: Performance

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	30.979	6.180		5.013	.000
Self Perception	.217	.093	.175	2.326	.021
Actualisation Motivation	1.012	.117	.655	8.680	.000

a. Dep Variable: Creative Thinking

## Discussion

Creative thinking is a psychological skill that should be developed to have a more meaningful and useful life, and it can bring positive contributions to life in either personal, social, or religious aspects. Therefore, we should understand the factors influencing it.

Creative thinking skill is not only a psychological symptom but also a personality. The indicators of creativeness are self-confidence, curiosity, independence, imagination, and adaptability, which are better than other people so that they will be very focused on pursuing a target. Creative people will also see a problem from various perspectives, and they are easy to find ideas, concepts, or possibilities so that they will not give up before reaching a target.

Individuals with creativity are more productive, have a better mind, and tend to face all aspects of life flexibly and creatively, and they can actualize themselves by having a high curiosity, enjoying to do self-exploration, being confident in every activity, and being ready to face any challenges. The principles of

creative thinking are realized through creative personalities, including fluency, flexibility, originality, self-confidence, eagerness, independence, willingness to take a risk, curiosity, and self-exploration.

In general, someone with low creative thinking skills doesn't dare, doesn't care, and isn't curious about the outside world. If this condition continues, they can become cowardly and find it difficult to commit to supporting their existence. In education, students who have low creative thinking skills will be less active in discussions in learning and with peer groups. They tend to be silent, never deliver opinions, hesitate to express their ideas for fear of being wrong, and worry that they will be laughed at.

The level of creative thinking skill is influenced by various factors, including self-perception and motives/needs for self-actualization. Positive perception and need for self-actualization will develop creative thinking skills such as fluency, flexibility, and originality. This is because individuals who perceive themselves positively and have higher self-actualization needs will be more confident,

resilient, independent, willing to take risks, always curious, and like exploration. Furthermore, they will be responsible as individuals and as members of social groups, doing things confidently, such as being able to accept self-deficiencies and overcome anxiety. In addition, they believe that every activity they do is beneficial, and they don't really care about criticism or ridicule of others. They are also open to learning from successes and mistakes so that they are able to accept whatever results they do even though they have tried their best and the results are not as expected. This condition will also motivate them to always find out everything that is not understood and leave their comfort zone so that they can develop themselves optimally.

According to Munandar (2009: 6-12), some basic considerations for the development of creativity are intelligence, personality, and environment (parents at home and teachers at school). First, the factor of thinking skills consists of intelligence and is supported by experience and skills. Second, personality consists of curiosity, self-esteem and self-confidence, independence, courage to take risks, and assertiveness. Third, environmental factors are the results of individual interactions with their environment, where a person can influence and be influenced by the environment wherever he is.

Robert Franken (Sudarma, 2013: 18) mentions three motives that increase one's creativity: They are (1) the need to have something new, varied, and better, (2) the urge to communicate values and ideas, and (3) the desire to solve the problem. These three drives cause individuals to be creative. In other words, creativity is an energy or inner drive that causes individuals to take certain actions or what is commonly known as individual motives in behaving.

Based on these reviews, we reiterate that self-perception and self-actualization motives, both individually and collectively, significantly influence students' creative thinking abilities. In other words, the more positive the student's self-perception and/or the higher the need for self-actualization, the higher the ability to think creatively. Vice versa, the more negative the student's self-perception and/or the lower the need for self-actualization, the lower the ability to think creatively.

## CONCLUSIONS AND SUGGESTIONS

Based on the findings presented and discussed above, we concluded that: (2) the levels of creative thinking skills, which refer to the ability to compare data or information and ideas to make new connections and the process runs fluently, flexibly, and originally is not really high; the students' self-assessment (both physically and physiologically), strengths and weaknesses, and expectations are less positive; and students' motivation to develop all potentials they have through their abilities is not high; (2) self-perception positively influences the creative thinking skills of students at PPB FIP; (3) self-actualization motivation positively influences the creative thinking skills of students at PPB FIP; (4) self-perception and self-actualization motivation positively influences the creative thinking skills of students at PPB FIP.

Based on findings and discussion, we suggest: (1) students, especially at PPB FIP 2018-2021, increase their awareness of their (positive-negative) self-perception, self-actualization motivation levels, and creative thinking skills levels so that they can improve their; (2) educators (from elementary to high levels), should stimulate students to develop the positive self-perception and self-actualization motivation so that their creative thinking skills could be improved; (3) the further researchers should investigate more various social interaction factors which possibly influence the development of self-perception and self-actualization of students.

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