



Exploration of Students' Creativity Based on Demography

Alizamar Alizamar, Afdal Afdal Ifdil Ifdil and Yuda Syahputra, Universitas Negeri Padang, Indonesia¹

Creativity development can be implemented through a directed and systematic program. However, no research to date provides a comprehensive insight into student creativity, which results in the absence of well-programmed activities. The purpose of this study is thus to provide an overview using the creativity profile of the students of Universitas Negeri Padang (UNP), Indonesia to obtain preliminary information that can be used in the preparation of a student's creativity development program. This study was conducted with 333 randomly selected UNP students. The Creativity Inventory was employed to measure various dimensions of creativity, and results were analyzed descriptively. The results showed that the creativity of UNP students mostly feel within the 'high enough' category (55.56%). Furthermore, this study discussed differences in student creativity concerning gender, field of study, and year of entry. Such context is necessary for the improvement of programs related to creativity development.

Keywords: gender, guidance and counseling services (GCS), Universitas Negeri Padang (UNP), student creativity, year of entry.



Introduction

Creativity tends to be regarded as an individual's personal trait rather than a social characteristic shared by society (Chan, S., & Yuen, 2014). Nevertheless, an individual's creative ability is not entirely independent of cultural or societal influence (Matsumoto & Juang, 2016). Recent studies have shown that creativity is a difficult concept for teachers to develop (Elbaz, 2018) because it is still thought of as relating to individual character (Alizamar et al., 2016; Weinberger et al., 2016). This, and various cultural barriers obstruct its development (Fisher, 2013; Weinberger et al., 2016). Some experts have stressed that joint efforts are required to develop the potential of learners, particularly with the development of creative potential through educational efforts (Piguave, 2014); something that can be done through formal and informal methods. This is important as creativity is a dimension that has relevance to various aspects which exist in men (Weinberger et al., 2016). It is clear that educational efforts are inseparable from the role of culture that exists in the wider community as culture affects mindset, taste patterns, and the patterns of learners themselves.

A problem demonstrated through research in the field of education and creativity is that it shows the formal education system in Indonesia, including teacher-training institutes in general, is still lacking the capacity to develop the creativity of learners (Chan, S., & Yuen, 2014; Tiawarman, Azhar, & Hanesman, 2015). This leads to the fostering of young learners who only prioritize cognitive ability, want instant gratification, want to lead weak individuals, lack competitiveness, are prone to cheating, and are not independent or creative (Alizamar & Afdal, 2017). Creativity is seen as an important part of the cognitive process because it relates to the ability of individuals to perform divergent thinking (Chow, 2018). As part of cognition in general, creativity is also influenced by many interesting factors which need to be studied. The emergence of creative ideas and works relates to an ability to compete and prosper within contemporary education, thus preparing individuals for an age with markedly complex problems. As such, what that we need to examine are the various issues related to creativity, especially with respect to the profile of student creativity. Importantly, the study of student creativity will foster more effective programs which can be implemented at a university level.

The purpose of this study is therefore to obtain preliminary information that can be



used in the preparation of a student creativity development program. This is done by using a creativity profile of the students of Universitas Negeri Padang, Indonesia. UNP is a teacher-training institute in Indonesia and is one of the leading universities in Southeast Asia. Their expertise extends to the field of science education, sports, and arts based on the piety of God Almighty. To realize the ideals of UNP, the academic community of this university has organized various programs in the field of education and non-education that support the development of students' logical and creative thinking skills.

One of the many benefits of theoretical and practical research, in this area, is that it can strengthen the repertoire of science related to the development of student creativity in the framework of GCS comprehensively. Moreover, it develops the concepts of creative differences when viewed from the variation of the field of study, year of entry, and gender of the student. The results of this study can ultimately relate to a program of GCS, which can contribute to an increase in creativity development of students in universities.

Methodology

The research approach used is a descriptive and comparative methodology. The population in this study consists of the students of UNP registered in the July–December 2016 semester ($n = 5,115$). Sampling was conducted using a purposive random sampling technique. Initially, the sample size was calculated using Slovin's formula, which indicated a sample target of 333. Research data was collected with the assistance of lecturers' teaching in various fields of study (social sciences and natural sciences) in order to disseminate the instrument according to years of entry (2013 and below, 2014, 2015, and 2016).

Data related to the creativity level of students of UNP was collected through the Creativity Inventory adapted from Prayitno (2000). This inventory consists of 108 items that measure six aspects on a 5-point Likert scale: 1) attitudes and prediction toward problems and new things, 2) attitudes toward the environment, dynamics, ability to express and communicate, 3) attitude and dynamics in work, 4) freedom, conviction, and courage, 5) authenticity and achievement, and 6) commitment to togetherness, values, and morals. The results have been analyzed using t-tests and the Rasch model with a reliability value of 0.92 person. This suggests that the reliability of the answers given by each individual is great. In addition, the sensitivity value of person $+1.02$ logit (INFIT MNSQ) to the sensitivity of

overall person +1.02 logit (OUTFIT MNSQ) is still within the ideal range (between +0.5 logit to +1.5 logit), and shows that the individual is serious in working on the given instrument. The item reliability value is 0.98 which implies the quality of the item in expressing creativity is excellent. Further, the sensitivity value of +1.00 logit item (INFIT MNSQ) to the overall item difficulty sensitivity of +1.02 logit (OUTFIT MNSQ) is still within the ideal range (+0.5 logit to +1.5 logit). Overall this suggests that all items are of excellent quality for the measurement conditions undertaken (Bond & Fox, 2015; Sumintono & Widhiarso, 2015). Student creativity categorization is based on ideal scores, and is divided into seven categories with very low intervals (<154), low enough (154–199), low (200–245), medium (246–291), high enough (292–337), high (338–383), and very high (>383).

Results and Discussions

In general, the creativity of UNP students is in the 'high enough' category (mean = 306.28; 70.9%). A more detailed description of the creativity of UNP students is shown below. Table 1, at paper's end shows CI, the ideal score of students' creativities is 432. The highest score obtained in this sample was 396 and the lowest score was 117 with an average score of 306.28 (SD \pm 30.32). Table 2, also at paper's end, provides a breakdown of categorical scores and shows that 55.56% (n = 185) of the students have 'high enough' creativity. According to Alizamar and Afdal (2017), creativity is developed through individual effort and the programming of student creativity development through student activity units. However, creative thinking may not only be implemented in various disciplines but can also be used in scientific circles. This helps students to deepen and broaden their knowledge in developing professional skills and fostering creativity to solve real world problems (Salakhatdinova & Palei, 2018).

Research demonstrates that learning and organizational creativity affects organizational innovation by 71.5% (Sutanto, 2017). The main factor in the creation of student creativity is organizational culture (Coman & Bonciu, 2016; Singh & Chaudhary, 2018). It has been argued, in previous research, that there is an increase in student creativity in the extracurricular activities of scientific and technological innovation/ STI (Xiao-jiang & Xue-ting, 2012). Students can create and implement new programs which support creativity and support the application of an educational culture that must have structures and systems that are in accordance with particular values such as a supportive culture (Coman & Bonciu,

2016). Some universities provide programs on creativity and creative thinking (e.g., Moscow State University, University Kazan Federal) These universities use a scientific community to engage transdisciplinary groups of students to solve topical problems (Salakhatdinova & Palei, 2018).

High student creativity is inseparable from the creative and innovative learning strategies that have been applied by lecturers to develop critical and creative student thinking (Singh & Chaudhary, 2018). In contrast, Khairullina, Bakhtizin, Gaisina, Kosintseva, and Belonozhko (2016) suggested that low student creativity is related to the level of awareness, held by students, about the direction of creative activities at the university. Mynbayeva, Vishnevskaya, and Sadvakassova (2016) stated that exercising emotional intelligence, self-confidence and ego impulses could affect creativity.

Table 3, at paper's end, shows that the level of student creativity per indicator is generally in the 'fairly high' category. In particular, four aspects are in the 'fairly high' category and others are in the 'medium' category. Student creativity has been linked with a motivation to succeed, meaning that students are able to independently solve their own problems by thinking creatively and innovatively (Mynbayeva et al., 2016). Lecturers can create a supportive classroom environment which promotes high levels of student creativity. Factors such as higher student-teacher ratios, shrinking education budgets, and hierarchical bureaucratic structures can negatively impact student creativity (Srivastava, 2013). This would suggest that the lecturer is also responsible for creating conditions that can encourage students in becoming creative (Jackson, 2015).

Table 4, at paper's end, illustrates that there was no significant difference in student creativity in terms of gender ($p = .526$), field of study ($p = .942$), or years of entry ($p = .252$). It is possible that this is due to creativity being a complex, multi-faceted concept that encompasses a variety of related aspects, properties and behaviours (Jordanous and Keller, 2016). Several studies have also examined differences in creativity in terms of gender (Kapoor, 2018; Smith, Sardeshmukh, & Combs, 2016). Further research results from Abraham, Thybusch, Pieritz, & Hermann (2014) and Bart, Hokanson, Sahin, & Abdelsamea (2015) revealed that males and females use different cognitive styles and strategies to be creative. Some researchers have found that males are more creative than females (Yan, 2014). Furthermore, research shows similar results when there are creative differences based on



gender. Studies conducted by Mefoh, Nwoke, Chukwuorji, & Chijioke (2017) show that men are better at problem solving than women. Further, recent findings show that students are more creative when outside the school environment (Runco, Acar, & Cayirdag, 2017) and other findings raised by Paek, Park, Runco, & Choe (2016) show an increase in creativity through extracurricular activities.

Castillo-vergara, Galleguillos, Cuello, Alvarez-marin, & Acuña-opazo (2018) revealed that there are significant variables such as type of school, gender, socio-economic status and participation in extracurricular activities, which can all impact student creativity. An interesting factor which must be discussed is the variability of student creativity based on the year of entry. The basic assumption put forward in this study is that the creativity of a student is not significantly impacted by year of entry. This is because, generally, UNP students have been assessed to possess a high level of creativity; even in low categories creativity is not relatively low. This would suggest that what is obtained by students on campus, both academically and non-academically (through student activities), has not had a significant impact on the development of student creativity. This should be brought to the attention of policy makers in universities, allowing them to prioritize creativity development programs as the pre-eminent programs of universities. The results above show that student creativity is an important point in the development of higher education institutions, where creative students will influence the output of higher education institutions. This is because creativity allows one to create ideas, recognize alternative possibilities, see unexpected combinations, and have the courage to try unusual methods in search for answers (Andriani, 2014), Furthermore, a significant relationships exist between creativity and academic performance; the research showing that increased creativity can lead to superior academic performance (Taştan et al., 2018).

From a technological stand point, the development of the Internet has changed the world and more aptly changed education and learning process. The internet now provides numerous resources which can support and develop student creativity extensively; e-learning has emerged as an inventive method to utilize information and communication technology creatively (Sutanto, 2017). Furthermore, in developing creativity through reflective creativity training, through debate, lectures, seminar conferences and workshops. These methods are used to enhance the understanding of theories of creativity, models, tools, techniques or

processes (Byrge & Tang, 2015). There also exists a positive relationship between the experience of artwork and being creative; artwork helps to bring inspiration that makes creativity thrive (An & Youn, 2017).

This condition requires the University to become a creative development environment, generating creative development programs that establish a creative culture environment. The creative culture environment developed by the university is considered a creative culture strategy (Rodríguez-García, Mora, & Yáñez, 2014) with the aim of generating new ideas (Alizamar, 2016a).

The development of creative dimensions can be organized by the university with the assumption that students, as part of the university's resources, have an impressive ability to improve their creative state (Weinberger et al., 2016). The development of a creative cultural environment is described by the characteristics of

- 1) the availability of cultural means, including the physical resources in the form of equipment, materials and/or other cultural media needed to support the development of creativity;
- 2) openness to cultural stimuli, where cultural stimuli and environments must not only be available but also desirable and easy to obtain;
- 3) the emphasis on becoming is not just being, it means that the creative person realizes that creativity is something that is shared, something that grows, and needs both the future and the present;
- 4) providing free access to cultural media for all citizens, without discrimination;
- 5) the emergence of freedom or discrimination, after experience of intense pressure and action, is an incentive or challenge to the growth of creativity;
- 6) openness to different cultural stimuli and even contrasting stimuli;
- 7) tolerance and interest in divergent views, i.e., views seeking alternative answers to a problem, whereas convergent thinking leads to one possible answer to a problem;
- 8) there is an interaction between meaningful individuals, it indicates the existence of historical social interaction; and
- 9) the existence of incentives, rewards or gifts, in which incentives, rewards or prizes are not the main purposes but used for reinforcing creative behaviour (Alizamar & Afdal, 2017).



Gajda, (2016) shows that prizes are not the main motivator in increasing creativity, because individuals tend to be more creative when they are intrinsically motivated, namely: by interest, pleasure, satisfaction, and the challenges of certain tasks. However, the key in developing creativity is teachers, peer tutors and collaborative group learning, in order to build a students' motivation to creatively solve problems related to subjects or project which require high creativity (Phusavat, Hidayanto, Kess, & Kantola, 2018). For this reason, there is a need to support teachers in the preparation and implementation of education, whose main focus is to foster creativity (Serdyukov & Serdyukov, 2017). In addition to the development of a creative cultural environment, fostering student creativity through the learning process is provided by university lecturers (Alizamar, 2016a).

Through set programs a university can encourage the development of creativity in students' through the construction of a sense of security. In this case, 'creation of security' means the conditions provided, by the campus academic community, to allow students to be fearless and creative (Singh & Chaudhary, 2018). If students have excessive fear, anxiety (Afdal et al., 2019; A Alizamar et al., 2019; Annisa, 2016; Daharnis et al., 2019), and academic stress (Alizamar Alizamar et al., 2018; Ifdil, Apriani, Yendi, & Rangka, 2016; Ifdil & Khairul, 2015; Wardi & Ifdil, 2016), it will hamper their creative power. The protection afforded by an adult is intended for the creative individual to understand his/her relationship with others and to apply his or her unique ideas.

Second, creativity can be developed through the recognition and appreciation of ideas. Lecturers and college leaders need to ensure that the creative efforts and achievements of students are recognized and respected; both material and non-material. It is important that creative individuals feel that the ideas/products they create/convey are useful and well rewarded. Conditions like this are still not done in the implementation of education on campus, considering some adults regard creative individuals as a threat, not as a valuable human resource asset. Third, the impulse to communicate and realize their idea should be encouraged. The creative individual's inhibition to realize his/her idea occurs in the absence of adult encouragement. To this end, feedback needs to be programmed and continuously evaluated, from various parties, for creative people to express and realize creative ideas. Fourth, there needs to be room for creative individuals (Lian, Kristiawan, & Fitriya, 2018) in terms of an understanding of different attitudes and ways of thinking. Furthermore, to foster



creativity, students need teachers to be creative (Richardson & Mishra, 2018). In 1999, the National Creative Education and Culture Advisory Committee (NACCCE) reported that teachers cannot develop their students' creative abilities if their own creative potential is suppressed (Cremin, 2018)

Chow (2018) revealed that diversity does not sufficiently increase creativity. Organizations must promote an inclusive environment to facilitate creativity and performance. What the lecturer can do is to understand that differences in attitudes and thinking are creative traits and not the incompatibility of one idea with another. Lecturers should be able to group students well in order to avoid prolonged conflict. In addition, if differences of opinion occur during discussion, lecturers should mediate individuals by indirectly blaming individuals different from others. Fifth, counsellors can encourage creative clients to communicate their ideas by providing ballot boxes, helping clients participate in extracurricular activities, organizing or engaging creative children in competition, and by providing the necessary facilities and infrastructure. Opportunities for the development of creativity should not only occur in schools but also outside of the school. This can be facilitated by providing information to clients about out-of-school opportunities accessible to creative children (Che Ahmad, Shaharim, & Abdullah, 2017; Phusavat et al., 2018). Sixth, counseling and guidance services in the field of personal life development could offer a program that encourages student creativity development by understanding the various characteristics of individuals who are served well by the incorporation of strategies to achieve optimal daily life skills (Alizamar, 2016).

Conclusions

The results of this research show that the overall creativity of UNP students is generally fairly high and further shows that creativity in regards to various properties (gender, the field of study, and year of entry) do not show any significant impacts on student creativity. The results of this creativity research can be used to design creative environments at universities. A creative environment may possess such features as self-development orientation, application of innovative teaching methods, development of creative tasks for self-employment of students, holding various exhibitions of creative works of students, creation of creative organization, art competitions, and creative awards.

Table 1. Description of Universitas Negeri Padang student's creativity (n= 333).

No	Variable	Ideal	Highest Score	Lowest Score	SD	Mean	
						Score	%
1	Creativity	432	396	117	30.32	306.28	70.9

Table 2. Universitas Negeri Padang Students Creativity Profile (n=333)

No	Category	Interval	F	%
1	Very Low	< 154	1	0.30
2	Fairly Low	154-199	0	-
3	Low	200-245	3	0.90
4	Medium	246-291	96	28.83
5	Fairly High	292-337	185	55.56
6	High	338-383	46	13.81
7	Very High	> 383	2	0.60
Total		-	333	

Table 3. Student Creativity Profile UNP on Each Indicator (n=333).

No	Indicator	Category	F	%
1.	Attitudes toward problems and new things	Fairly High	150	45.18
2.	Attitudes toward environment, dynamics, ability to express and Communicate	Fairly High	156	46.69
3.	Attitude and dynamics in work	Medium	170	51.20
4.	Freedom, beliefs, and perseverance	Fairly High	179	53.92
5.	Authenticity and achievement	Medium	164	49.40
6.	Commitment to togetherness, values, and morals	Fairly High	136	40.96

Table 4. Student Creativity in Relation to Gender, Field of Study, and Year of Entry

No	Differentiated Aspects	Distinct Item	N	Creativity Mean	Different Test	
					Result Value	Sig.
1.	Gender	Male	114	305.17	.635	.526
		Female	219	307.31		
2.	Field of Study	Social Sciences	264	306.63	.072	.942
		Natural Sciences	69	306.35		
3.	Year of Entry	2013 and below	137	307.13	1.368	.252
		2014	2014	310.19		
		2015	2015	300.76		
		2016	2016	302.44		

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ⁱ Author contact details

ALIZAMAR ALIZAMAR

Universitas Negeri Padang,
Faculty of Education,
Department of Guidance and Counseling
Prof. Dr. Hamka Kampus UNP Air Tawar Padang, Sumatera Barat 25131, Indonesia
E-mail: alizamar@konselor.org

AFDAL AFDAL

Universitas Negeri Padang,
Faculty of Education,
Department of Guidance and Counseling
Prof. Dr. Hamka Kampus UNP Air Tawar Padang, Sumatera Barat 25131, Indonesia
E-mail: afdal@konselor.org

IFDIL IFDIL

Universitas Negeri Padang,
Faculty of Education,
Department of Guidance and Counseling
Prof. Dr. Hamka Kampus UNP Air Tawar Padang, Sumatera Barat 25131, Indonesia
E-mail: ifdil@konselor.org



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YUDA SYAHPUTRA
Universitas Negeri Padang,
Faculty of Education,
Department of Guidance and Counseling
Prof. Dr. Hamka Kampus UNP Air Tawar Padang, Sumatera Barat 25131, Indonesia
E-mail: yuda@konselor.org