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Kenyan Student-Teacher Counsellors' Creativity and Its Relationship With Their Gender, Age, and Teaching Experience

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The purpose of the study was: (1) assess creativity of postgraduate student-teacher counselors whose age range was 25-54 years old, and teaching experience of 4-25 years; and (2) to find out whether age, gender, and teaching experience influence creativity. Seventy-two participants (43 females and 29 males) responded to the ICAS (Ibadan Creativity Assessment Scale) by Akinboye, 1977. Data were analyzed using percentages, chi-square, Kruskal Wallis tests, and ANNOVA (analysis of variance). Results showed: ideative flexibility, ideative originality, ideative fluency, and creativity motivation scores to be 56.5%, 59.47%, 57.4%, and 68.81% respectively. Creativity overall score was 57.79%. The respondents had great motivation for creativity. Independent tests showed that there were no significant differences in creativity as a result of age, gender, and teaching experience at $p < 0.05$. The development of creativity is not depended on age, gender and teaching experience. It is influenced by other factors, such as divergent thinking, intelligence, and training.

Keywords: creativity, ideative flexibility, ideative originality, ideative fluency, creativity motivation

Introduction

Creative individuals are endowed with abilities to visualize, foresee, and generates ideas (Gardner, 1993). They have flexibility ability defined as the tendency to generate heterogeneous pool of responses or diverse use of categories and themes when producing ideas (Runco, 1986). Flexibility enables one to consider alternatives at the same time. Flexible people can abandon old ways and adopt new ones (Yamato, 1964). Another trait of creative persons is originality or the ability to come up with statistically unusual ideas. This trait is characterized by cleverness, remoteness, and uncommonness of association (Christensen, Guildford, & Wilson, 1957). Originality is rated on how the respondents use unusual ideas to solve problems and visualize innovations. It is illustrated in Guilford's 1968 "unusual uses test". Another ability of creative individuals is fluency. This is the capacity to generate and use new ideas and solutions in new situations. Ideative fluency is the quantity of output of ideas and uses of new ideas in new situations and pertaining to many subjects. Fluency tests the "use of many principles and approaches used in responding to tasks" (Guilford, 1968).

Theoretical Approaches to Creativity

Psychometric approach was initiated by Guilford (1959; 1968) who conducted several researches which showed a link between creativity and divergent thinking. From his work emerged, the idea of primary traits of

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creativity, i.e., fluency, flexibility of thinking and originality of response, and the ability to invent new ideas. Further researches by Torrance (1962; 1966) developed the Minnesota tests of creativity. These tests measure attributes of creativity, i.e., flexibility, originality, fluency, and elaboration. Garnett (1919) developed tests to measure "c" factor which represented cleverness associated with wit, originality, and problem-solving. The multi-component (or con-confluence) perspective creativity and the investment theory of creativity were proposed by Lubart and Sternberg (1995). They suggested that creativity depends on convergence of resources namely background knowledge, intellectual abilities, motivation, and supportive environment. Craft (2002) proposed little "c" creativity important in early childhood education, for shaping one's life. She claimed that little "c" creativity is for ordinary life or personal effectiveness while big "C" creativity is for extraordinary achievement which fundamentally changes knowledge and our perspective of the world. Taylor (1974) in his study of creativity and aging proposed five types of creativity namely: (1) creative spontaneity in children's games; (2) innovative flexibility necessary to modify and adopt basic ideas for new purposes; (3) emergentive originality for creation of totally new ideas emerging after 50 years; (4) inventive ingenuity creativity expressed in idealized drawing gadgetry typical of the 30s and the 50s; and (5) technical proficiency creativity to do with the refinement of skills and instrumental work, typical of the 20s and the 40s. Eysenck (1993) proposed "creative achievement" which is rare occurring in a small number of people. It is responsible for major creative works in science and in the arts.

Importance of Creativity

Research evidence shows that creativity enhances acquisition of knowledge, facilitates problem-solving, and brings innovations and product improvement (Craft, 2002). Creativity stimulates thinking/reasoning and enhances skill development, and self-confidence. It reinforces the use of unusual ideas, and makes discoveries possible (Csikzentimihalyi, 1996; Tucker, 1996). Creativity can help one to cope with problems. It can also help people to develop attributes which have been associated with mental health and adjustment. Creativity attributes have been observed to be central for an individual's degree of mental health, willingness to grow, adapt, and cope with the demands of life (Akinboye, 1982). Creativity can enable a teacher counselor to devise novel helping strategies or revise the existing ones to manage his/her clients' problems. Creative teachers have more ideas about improving educational situations and more flexibility in adjusting their methods to the demands of students and of the environment (Yamoto, 1964). Little "c" creativity is essential for ordinary life or personal effectiveness (Craft, 2002).

Gender, Age, and Creativity

A study carried out at a class in creative thinking for high school seniors revealed that girls showed 40% superiority in fluency of ideas over boys (Tucker, 1996). Another study tested a sample of 702 women and men to investigate their creative aptitude. It was found out that women's creative aptitude average was 25% higher than that of men (Tucker, 1996). Mwiria's (1987) study of creativity and innovativeness among Kenyan primary school students found out that 5% of creative students were females. Taylor (1974) in his study of creativity and aging found out that "emergentive originality" needed for creation of totally new ideas emerges after 50 years. The NACCCE (National Advisory Committee on Creative Cultural Education) (1999) proposed that creative ability grows by experience and training. This committee proposed that creative power grows by exercise, because it is more powerful in the mature than in the young. It is, therefore, mandatory for education to foster its development. Pruit (1989) proposed that both males and females have the potential for creative

ability which grows by exercise. According to Csikzentimihalyi (1996), training can increase the level of creative characteristics.

Teaching Experience and Creativity

Teachers are crucial in nurturing creativity. Much potential is realized if the teachers recognize creative behavior and encourage it. The teacher should carefully guide the students' thinking, so that further original ideas are stimulated (Csikzentimihalyi, 1996). In a cross-cultural study of creative productivity by Alphaugh and Birren (1977) administered creativity tests to 111 school teachers aged between 22 and 83. Their findings supported the idea that creativity does not decline with age. Mwiria (1987) studied on creativity and innovativeness among Kenyan primary school children. He had a sample of 40 primary school pupils, who were said to have made some inventions. He examined the factors that may promote such creativity in these children. The findings revealed these factors may be: enjoyment for the exercise was 37.5%, curiosity was 35%, science festivals 7.75%, and given the incentive to invent. Over 50% of the respondents reported that they did not get their creativity from school. He found out that creativity and mental flexibility was penalized by teachers' emphasis on examination grades.

Motivation, Effect, and Creativity

Motivation is core for creativity. Self-motivation can lead to success in performing a creative task, because it plays an important role in memory, imagination, and mental activity. People rarely do creative work in an area unless they have a passion for what they trying to accomplish (Amabile, 1983). Csikzentimihalyi (1996) interviewed 90 leading personalities in arts, education, business, and science. He found out that creative people engage in challenges that absorb them. He concluded that the first step toward creative life is to cultivate curiosity and pursue interests. People are motivated to explore things that spark interest and spend time on settings that stimulate creativity. Leser (1987) found out that positive affect stimulates a person's repertoire of cognitions, thus, encouraging creativity. Chartyton, Hutchison, Snow, and Rahmaly (2009) found four patterns of effect and creativity: (1) effect acting as antecedent creativity; (2) as an indirect cause of creativity; (3) as a direct consequence of creativity; and (4) effect can occur simultaneously with creative activity. The reverse has been found to be true, illness stimulating creativity. In a study of 1,005 prominent individuals from over 45 different professions in the University of Kentucky, Ludwig (2001) found a slight significance between depression and the level of creative achievement.

The Objectives of the Study

The objectives of the study are as follows:

(1) To assess creativity of the participants;

(2) To find out whether personal traits such as gender, age, and teaching experience influence creativity.

Methodology

The research design was an "ex post facto" research design to assess creativity of the participants. Sampling was not done. The entire population of 72 postgraduate guidance and counseling student teachers (43 females and 29 males) were selected to participate in the study. They responded to the ICAS (Ibadan Creativity Assessment Scale) by Akinboye (1977). It was chosen, because it was found a reliable and valid measure of the variables being assessed. Variables of the study were participants' bio data (gender, age, and teaching

experience) and creativity whose scale had four subscales to measure ideative flexibility, ideative originality, ideative fluency, and creativity motivation. The self-rating scale was intended to measure the absence or magnitude of the creative behavior. The highest value on the rating scale was nine, while zero was the lowest, indicating absence of the behavior.

Totally unlike me 0 1 (2) 3 4 5 6 7 8 9 Very much like me
Example:
I am dull at generating ideas;
My rating is 2 because it is very much unlike me.

Ethical considerations: Before data collection, the respondents explained the purpose of the study and gave their informed consent to participate in it. They were delighted to measure and calculate their creativity and compare measurements with their peers. The instrument was tested in a pilot study with 20 first year postgraduate students majoring in guidance and counseling who did not participate in the main study. The reliability of the research instrument had a correlation coefficient of 0.75. Validity of the instruments was ensured by checking the content and the clarity of the items. Data analysis was done by the use of the SPSS (Statistical Package for Social Sciences) computer program. Statistics of data analysis was frequencies, percentages, chi-square, and ANOVA (analysis of variance).

Results and Discussion

The participants were 72 postgraduate guidance and counseling student teachers. About 59.7% were females while 40.3% were males (see Table 1). There were unequal numbers of males to females because teaching career is not popular with Kenyan men. They were all second year student teachers specializing in Master of Education (guidance and counseling). Their teaching experience ranged from four years to 28 years with an average of 14.8 years.

Table 1
Demographic Data of the Participants

		Age in years							
Gender	Occupation	25-29	30-34	35-39	40-44	45-50	51-54	Total	%
Female	Teaching	2	10	15	12	3	1	43	59.7
Male	Teaching	0	5	10	10	4	0	29	40.3
Total	-	2	15	25	22	7	1	72	100.0

Ideative flexibility is the ability to produce many categories for transformation such that concepts are readily modified. One is open-minded to ideas no matter where they come from. Respondents' self-rating of ideative flexibility percentage mean (% χ) was 56.5%, implying that more than 50% of the respondents have the ability to consider alternatives and adapt to new situations. They may possess spontaneous flexibility that is thinking in terms of broader classes. Adaptive flexibility is essential in making changes in the interpretation of a task or strategy. They can shift from one category of ideas to another and be influenced by reasonable arguments, admonition, rewards, and punishment (Jones, 1972; Torrance, 1976).

Ideative flexibility is considering several ideas and alternatives when solving problems. Females were found to be slightly (0.4% χ) better than their male counterparts. This shows that they were more open-minded to ideas than the males. They are more likely to adapt to new situations than the men (Torrance, 1976).

Ideative originality is the ability to produce unusual statistically infrequent ideas. Ideative originality self-rating was 59.6% χ, an indication that over 50% of the respondents have the potential to produce new ideas or solutions to their problems. The males were found to have higher % χ scores than females (the information in this sentence is opposite with that in Table 2). This could be due to having fewer males in the sample. An explanation could be males are more frequently involved in creative activities, such as designing their houses and figuring out how to mend broken equipment and furniture. Such activities enable men to visualize innovations thus boosting their ideative originality.

Table 2

Creativity and Creativity Motivation Scores

Ideative flexibility scores							
Gender	*N*	Minimum score	Maximum score	Expected mean (χ)	Actual mean (χ)	Percentage of mean (% χ)	Std. Dev.
Female	43	21	189	105	107.17	56.7	7.33
Male	29	21	189	105	106.41	56.3	7.05
Total/mean	72	21	189	105	106.79	56.5	7.19
Ideative originality scores							
Gender	*N*	Minimum score	Maximum score	Expected mean (χ)	Actual mean (χ)	Percentage of mean (% χ)	Std. Dev.
Female	43	25	225	125	136.14	50.6	9.28
Male	29	25	225	125	131.48	58.43	9.11
Total/mean	72	25	225	125	133.81	59.47	9.19
Ideative fluency scores							
Gender	*N*	Minimum score	Maximum score	Expected mean (χ)	Actual mean (χ)	Percentage of mean (% χ)	Std. Dev.
Female	43	26	234	130	131.93	56.38	7.94
Male	29	26	234	130	136.72	58.42	10.8
Total/mean	72	26	234	130	134.33	57.4	9.21
Creativity scores							
Gender	*N*	Minimum score	Maximum score	Expected mean (χ)	Actual mean (χ)	Percentage of mean (% χ)	Std. Dev.
Female	43	24	216	120	125.08	57.86	8.18
Male	29	24	216	120	124.87	57.72	8.88
Total/mean	72	24	216	120	124.93	57.79	8.53
Creativity motivation scores							
Gender	*N*	Minimum score	Maximum score	Expected mean (χ)	Actual mean (χ)	Percentage of mean (% χ)	Std. Dev.
Female	43	17	153	85	107.13	70.17	7.19
Male	29	17	153	85	103.44	67.6	9.11
Total/mean	72	17	153	85	105.28	68.81	8.16

Ideative fluency is the generation of ideas pertaining to many subjects. Their self-rating was 57.4% implying that majority of them have the three indices of fluency, i.e., ideational fluency, expressional fluency, and associative fluency (Jones, 1972; Torrance, 1962). Men were found to be better than women, probably because they have a greater exposure to media than women, which may increase males' pool of elements to form associations, thus, boosting their ideative fluency (Eysenck, 1993; Tucker, 1996). Ideative flexibility,

ideative originality, and ideative fluency are traits of creativity. The creativity (% χ) score was 57.79%, signaling that the patricians are just above average divergent thinkers, who seek alternative ways of doing things and of solving problems. Creativity motivation self-rating was 68.81%, very high rating being an indication that the respondents have positive attitude towards creativity. Female (% χ) was 70.17%, which could be due to their motivation to decorate themselves and the environment (see Table 2). A study by Csikzentimihalyi (1996) showed that creative people are carried away by the anticipation of excitement and enjoyment associated with their work, and they enjoy the sheer joy of creative activity for its own sake.

Tables 3 and 4 shows that no significant sex differences in creativity at 0.05 level of significance as 0.684 is greater than the 0.05 significance level. Findings contradict Mwiria (1987) claimed that out only 5% of creative and innovative participants were girls. Tucker's (1996) findings showed girls' superiority in fluency of ideas over boys. Contradictory findings may be due to the fact that creativity tests are not fully objective and depend on the experimenter's subjective assessment of creativity (Forester, 1971). Another study of Oyundoyin and Olatoye (2007) on gender factor as a correlate of students' performance on creativity and intelligence tests concluded that gender does not predict creativity and IQ (intelligence quotience). Studies, which investigated gender differences in creativity, seemed to be characterized by contradictory results. Some of the findings showed male to be superior over females (Torrance, 1976), and some showed female superiority over males (Orieux & Yewchuk, 1990); yet, other psychologists believe that creativity is commonly found more among the males than the females due to sex role differences emphasized in the society (Oyundoyin & Olatoye, 2007).

Table 3

Sex Differences in Creativity

Gender	*N*	Mean rank
Creativity female	43	37.33
Male	29	35.28
Total	72	

Table 4

Test Statistics (a, b) of Gender

	Creativity
Chi-square	0.166
df	1
Asymp. Sig.	0.684

Notes. a. Kruskal Wallis Test; b. Grouping variable—gender.

Age Differences in Creativity

Table 5

Test Statistics (a, b) of Age

	Creativity
Chi-square	6.296
df	5
Asymp. *Sig.*	0.278

Notes. a. Kruskal Wallis Test; b. Grouping variable—age.

Table 5 shows that comment no significant differences in creativity as a result of age at 0.05 level of

significance as 0.278 is greater than the 0.05 significance level. Findings concur with Pruit's (1989) suggestion that creativity is not influenced by age. Mwiria (1987) and Tucker (1996) claimed creative potential grows by exercise, and it is more powerful in the mature than in the young. Emergentive originality emerges after 50 years (Taylor, 1974).

Differences in Teaching Experience and Creativity

Table 6 shows that no significant differences in creativity as a result of teaching experience at 0.05 level of significance as 0.781 is greater than 0.05 significance level. The participants' teaching experience ranges from four to 28 years. The findings concur with those of Alphaugh's and Birren's (1977) cross-cultural study which sampled 111 teachers with diverse work experience and found out that of creative productivity does not necessarily develop due to teaching experience. The participants teach in the Kenyan education system that is too theoretical in orientation and gauging students' success by their performance in national examinations and in memorization of facts. Mwiria (1987) found out that the schools do not nurture creativity and innovativeness among Kenyan students. Findings supported by Taylor (1974) who found out that creative spontaneity characteristic in children's games is suppressed by education.

Table 6
Creativity ANOVA

	Sum of squares	*df*	Mean square	*F*	*Sig.*
Between groups	1,119.549	22	50.889		
Within groups	3,390.166	49	69.187	0.736	0.781
Total	4,509.715	71			

Limitations

Creativity is a very complex variable to measure, its basic facets can be grouped into four qualities, they are: (1) person—characteristics of creative people; (2) process—preferences associated with aspects of creative people; (3) products—qualities of creative people; and (4) environment or press—factors in the environments that facilitate creative performance (Guilford, 1959). This study investigated personal characteristics of people. Some researchers give the participants tasks to do to show their divergent thinking by producing new ideas or objects. Other researchers give the participants questionnaires with self-reports to describe their creativity (Akinboye, 1977). This method of assessing creativity has the limitation of not establishing whether the participants are productive or reproductive. In addition, self-reports cannot guarantee a hundred percent honesty. Self-reports did not give chance to the participants to give their divergent views or suggestions. There was unequal number of males and females in the study, hence, difficult to predict whether equal representation of genders would produce different results.

Recommendations

The participants' self-rating creativity motivation was the highest implying they enjoy creative activities. They should be exposed to conditions that foster creativity, application of the multi-component (or con-confluence) perspective creativity and the investment theory of creativity (Lubart & Sternberg, 1995). The development of creativity depends on convergence of resources, namely, background knowledge, intellectual abilities, motivation, and supportive environment. Ideative flexibility mean score is the least among the

components of creativity implying the participants that are deficient in their ability of being open-minded to new ideas. Creative people should have flexibility or playful thinking and accept ideas from many sources. They shift from one idea to another on one without losing track (Runco, 1986). It is recommended that the participants should be given opportunities to ask questions, explore new opportunities and possibilities. The findings showed variations of the mean scores of ideative flexibility, ideative originality, ideative fluency, and creativity motivation. This is an indication that there are individual differences in ideational processes. Creativity is not a single factor but rather a collection of different abilities, every one of which can be possessed in different degrees by each individual (Guilford, 1959; Jones, 1972; Torrance, 1962). It is recommended that the participants whose creative potential has been assessed should be trained to increase their level of creativity. It was found out that the participants who were guidance and counseling student teachers were less divergent than convergent in their thinking, and in approach to problem-solving. In order to improve their creative potential, it is recommended that they should try to be innovative, inquisitive, and divergent thinkers, and devise new problem-solving skills. For comparison purposes, another investigation should be done by giving the participants tasks to do instead of responding to self-reports.

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