Role of Creative Thinking in Assessment Techniques Among University Students

Khadija Sittar[1], Sehrish Khalid[2] and Mahwish Safder[3]

Abstract

This study explores assessments' crucial role in encouraging people to improve their critical and creative thinking abilities. A critical skill for managing today's complicated and fast-changing world is the ability to think creatively. Assessment of these talents becomes crucial in guiding successful educational practices as educators and researchers work to improve creative thinking abilities. The study employed a survey approach and was quantitative. Students from district Lahore universities made up the study's population. One hundred fifty students from district Lahore's public and private institutions made up the study's sample. Data gathering involved the use of a questionnaire. Two components comprised the questionnaire: the first portion contained demographic data, while the second contained assessment methods. Descriptive statistics was used for data collection. The value of creative thinking in many personal, intellectual, and professional situations is established in the first paragraphs of the essay. It highlights how creative thinking has several facets, including ideation, problem-solving, originality, and adaptation.
Keywords: Creative Thinking, Assessment Techniques, Education

Introduction

Assessment tools are crucial in education because they give teachers important information about the knowledge and abilities of their pupils. To better prepare students for the difficulties of the twenty-first century, there has been an increasing focus on encouraging creative thinking in education in recent years. This conversation examines how evaluation methods and creative thinking intersect, emphasizing the value of evaluating creativity in the classroom and fostering it (Guilford, 2019).

The ability to be creative is crucial to learning. Creativity improves the student's attitude towards learning and makes studying more enjoyable. The learner uses imagination to transform the passive information into a product, activating it. People may more easily handle everyday challenges and become more productive in adulthood because of the creativity they learn early in life. One of the fundamental goals of education is to prepare students for their futures and to develop them into contributing members of society. Because of this, the Ministry of National Education has invested in teaching creative thinking in classrooms. Teachers do not instruct in a democratic classroom environment but rather act as leaders, according to constructivism, which the Ministry of National Education has approved. Students freely share their ideas while learning and producing information. The evolution of societies can only be enhanced in this way.

There is not a single definition for creativity. The urge to develop a unique idea or solution is what is meant by creativity. The two main components of creation are desire and imagination. According to Sternberg and Lubart (1998), more than originality is needed for creativity. Torrance

[1] *Assistant professor, Lahore Leads University. Email: drkhadijasittar@leads.edu.pk*

[2] *Assistant professor, Lahore Leads University. Email: dr.sehrishkhalid.edu@leads.edu.pk*

[3] *Assistant Professor, Lahore Leads University. Email: drmahwish.edu.@leads.edu.pk*

(1988) defined *creativity* as "the process of sensing difficulties, problems, gaps in information, missing elements, something askew: making guesses and formulating hypotheses about these deficiencies; evaluating and testing these guesses and hypotheses; possibly revising and retesting them, and finally communicating the results" (Bartscher et al.; Lubart & Sternberg, 1998) (according to the authors of the following articles). Thinking is the source of creativity, which everyone may grow regardless of age. The school setting is one of the best places for teaching creative thinking, provided it is created with a culture of thinking and guided by a committed teacher. According to Torrance (1977), it is crucial to create an environment where instructors may build strong relationships with their pupils and where they feel confident expressing themselves on their own without fear of criticism. Torrance enjoys reviewing the pupils' responses like a new adventure. According to Florida (2004), creative kids require a more accepting learning environment. Respecting student viewpoints is crucial for a learning environment built on critical thinking. Urban (2007) suggested fostering creativity in learning environments that allowed for constructive criticism, mistakes, tolerance, humor, and an emphasis on students' interests (Honneck, 2016). A key talent for college students is creative thinking, which goes hand in hand with critical thinking. It is crucial because it enables one to approach issues and circumstances with new eyes. Developing new or unconventional solutions that do not just rely on earlier or current ones can be accomplished through creative thinking.

Review of Related Literature
Assessment Techniques in Education
Tests, quizzes, essays, and projects are just a few of the classic methods used in educational assessment. These techniques help assess students' factual knowledge, conceptual comprehension, and procedural abilities. The evaluation of creative thinking, characterized by developing original ideas, solutions, and insights, may need to be revised, 2006).

Creativity is a crucial ability for the 21st century since it is essential in every aspect of our globalized society, along with critical thinking and problem-solving (Voogt & Roblin, 2012). As a result, K–12 education places a high value on creativity. Creativity is frequently identified as a desired outcome in curriculum worldwide (Voogt & Roblin, 2012).

Depending on the context, creativity may be perceived and characterized in several ways (Mellini et al., 2010). It can depend on a person's knowledge, idiosyncratic abilities, and culture; thus, various groups may have different ideas about creativity. From the perspective of cognitive psychology (Matlin, 2014), creativity is connected to the field of problem-solving. It is often characterized by the ability to produce original, relevant, functional, accurate, and worthwhile ideas and solutions (Walia, 2019). According to Guilford (1950), creativity is:

•Fluency is the capacity to produce many ideas, which liberates creativity. •Flexibility combines various places, individuals, orientations, and epochs to analyze a situation from a new perspective. •Originality: The capacity to produce distinctive or remarkable goods. •The capacity to include details, adorn, and finish anything creative is known as elaboration.

Challenges in Assessing Creative Thinking
Divergent thinking (creating various ideas), convergent thinking (evaluating and selecting ideas), and problem-solving are all aspects of the multidimensional ability of creative thinking. Accurately evaluating these aspects using conventional evaluation approaches is frequently difficult. It is challenging to standardize the examination of creative thinking since it also contains subjective components (Sternberg, 2003).

•Including Original Thought in Assessment: Educators should take into account a variety of evaluation methodologies that go beyond conventional procedures in order to evaluate creative thinking successfully. These might consist of: Students build a collection of their writing, art, and projects for their portfolios. With this method, educators may assess how creative thinking has changed (Amabile, 2018). • Performance-based evaluations: Assignments like group projects, discussions, or presentations call on students to use their critical thinking abilities in practical situations. Understanding their creativity may be gained through seeing how they perform. •Rubrics for Creativity: Making the evaluation process more objective can be achieved by creating rubrics that clearly state the standards for evaluating creative thought. These evaluation criteria may consider creativity, fluency, adaptability, and concept elaboration (Torrance, 2015). •Self-Assessment and Peer Assessment: Students' self-awareness and developing creative thinking abilities may be improved by encouraging them to reflect on their creative processes and enabling peers to offer criticism. •Alternative Testing Methods: Instead of using conventional examinations, think about using open-book exams, homework assignments, or scenario-based tests that let students show off their inventive problem-solving skills.

Fostering Creative Thinking
Assessment encourages the development of creative thinking in addition to its evaluation. Teachers may foster a creative, thinking-friendly climate in the classroom by:
•Encourage Students to Take Chances: Fostering an environment in the classroom where students feel comfortable taking chances and making errors helps foster innovative thinking. •Diverse Learning Opportunities are Offered: Include exercises encouraging students to explore issues from different disciplinary and worldview angles. •Supporting Collaboration: By allowing for the interchange of ideas and viewpoints, collaborative initiatives and debates may encourage innovative thinking. •Giving Students Choice and Autonomy: Giving students the freedom to select their subjects, projects, or strategies may boost motivation and engagement while encouraging creative thinking.

Creative Thinking and Education
Only his schooling prevented him from continuing his studies, claimed Churchill. We are all born scientists, but throughout our school years, we frequently lose our sense of curiosity, according to physicist Michio Kaku. Children are often formed in schools where academic growth is monitored and where, after the school year, pupils are issued report cards with grades on them. An alternative report card, according to Shade and Shade (2014), will significantly impact students' inventiveness. From this perspective, if students' empathy, sense of humor, tolerance, observation, questioning propensity, self-confidence, imagination, risk-taking, perseverance, fields of interest, ability to learn from mistakes, adaptability, energy, and happiness could be gauged and assessed in this report, the creative productivity would be increased. Like all other types of thinking, creative thinking may be divided into passive and active categories. Passive creative thought results neither in action nor a tangible output.

In actuality, most individuals think in their heads and come up with new ideas often, but ideas that need to be put into action are not particularly valuable. After actively engaging in creative thought, there occurs a performance or action. This action can occur in various structures, including creative works like poetry, fiction, theatre, inventions, designs, paintings, and problem-solving. There must be at least a minimal ability to embody the notion, even though creative thinking alone is insufficient for these goods' birth. In a school where a creative thinking culture is being tried out,

a problem might arise. Is school the setting where creativity is taught, or is it the setting where creativity is taught? In a school that aims to equip pupils with the ability to think creatively, unique and innovative teaching approaches and tactics are required. Students should be those who are immersed in the creative environment and continue their education as artists rather than those who acquire creativity as an external component. It makes a learning environment where unconventional methods are attempted in addition to conventional ones a more ideal one. According to studies on creativity, humor enhances both the quantity and quality of creative thinking in groups and benefits idea generation (Shade & Shade, 2016). However, to manage the classroom and finish the curriculum, teachers are making the learning atmosphere more serious. Additionally, homework reinforces previously taught material rather than sharpens pupils' analytical skills.

Creative Writing

Creative writing is one of a school's most crucial abilities to teach its pupils (Arthur & Zell, 1996). According to Demir (2013), creative writing expresses ideas and emotions on paper by recreating previously known facts, ideas, events, sounds from past experiences, pictures, scents, sensations, and dreams. What are the objectives of teaching pupils creative writing techniques? Some justifications for teaching creative writing abilities (Maltepe, 2006). Children's imaginations are developed, their artistic expression is encouraged, the value and purpose of writing are learned, and they are entertained.

Teaching reading and writing, as well as making sure pupils have an open mind, are important (Kaya, 2017). Writing is a subject in language lessons and literary courses, but it is mostly viewed as a time waster in a classroom setting centered on a multiple-choice exam system. Unfortunately, it would be accurate to say that one of the many goals that could not be accomplished within the educational program was creative writing. There are four steps in the creative writing process: • Incubation period: The time before writing is required is the most difficult component of writing activity. The person reads a lot, makes notes, dreams, and gains confidence during this process. • Writing requirements: The person must be able to convey their verbal communication abilities in writing. His mental collection of phrases, descriptions, images, and tales attach like chains as they try to translate an intangible phenomenon into a tangible outcome. • Creative thinking: The need to write prompts introspective contemplation on the tales that arise in one's head, internal discussions, cause-and-effect relationships, and the emergence of a new existence in one's inner world. • Creative writing: Said, poetry, storytelling, and fairy tales all start with the necessity for writing and the creative thought process.

Research Method and Procedure

The study employed a survey approach and was quantitative. Students from district Lahore universities made up the study's population. One hundred fifty students from district Lahore's public and private institutions made up the study's sample. The data were gathered using a straightforward random sampling approach. Data gathering involved the use of a questionnaire. Two components comprised the questionnaire: the first portion contained demographic data, while the second contained assessment methods.

Data Analysis

SPSS (Statistical Package for the Social Sciences) was used for data analysis. Descriptive statistics was used for data collection. Frequency, mean, and standard deviation were used for data analyses.

Table 1 Distribution of Demographic variables (gender, university type, department, qualification)

Demographic	Attribute	Percent
Gender	Male	61 (40.7)
	Female	89 (59.3)
University type	Public	64 (42.7)
	Private	86 (57.3)
Department	Education	48 (32)
	Psychology	56 (37.3)
	Sociology	46 (30.7)
Qualification	BS honor	60 (40)
	MPhil	67 (44.7)
	PhD	23 (15.3)

Table shows the demographic information of university students.

Table 2 Mean and standard deviation of university students regarding assessment techniques

Sr. no	Statements	SDA	DA	UN	A	SA	M	SD
1	My teacher pushes me to consider how I might make my tasks better.	23	16	11	66	34	3.48	1.360
2	After examining my test results, my teacher discusses the answers I gave to the test with me	6	17	20	55	52	3.87	1.133
3	While I'm doing my projects, my teacher asks how I feel about how I'm doing.	8	6	23	70	43	3.89	1.037
4	My professors give me the freedom to consider what I want to study in the classroom	9	10	23	59	48	4.12	3.466
5	I have the choice to select my own learning objectives thanks to my teacher.	19	33	21	45	32	3.25	1.352

The table shows university students' mean and standard deviation regarding assessment technique. The statement shows, "My teacher pushes me to consider how I might improve my tasks. (M=3.48, SD=1.360), After examining my test results, my teacher discusses the answers I gave to the test with me (M=3.87, SD=1.133), While I'm doing my projects, my teacher asks how I feel about how I'm doing. (M=3.89, SD=1.037), My professors give me the freedom to consider what

I want to study in the classroom (*M*=4.12, *SD*=3.466), I have the choice to select my learning objectives thanks to my teacher. (*M*=3.25, *SD*=1.352). It was concluded that most of the university students were agreed regarding assessment techniques.

Table 3 Mean and standard deviation of university students regarding assessment techniques

Sr. no	Statements	SDA	DA	UN	A	SA	M	SD
6	My teacher encourages me to enhance my learning process.	28	18	23	41	40	3.31	1.457
7	I receive advice from my teacher to help me learn.	15	14	19	61	41	3.99	4.374
8	My teacher and I discuss how to strengthen my weaknesses.	10	13	18	64	45	3.81	1.157
9	My teacher points out the things I need to focus on to get better grades.	9	11	22	53	55	3.89	1.159
10	I am aware of the standards used to evaluate my assignment	8	5	16	68	53	4.02	1.039

Table shows the mean and standard deviation of university students regarding assessment technique. Statement shows the that "My teacher encourages me to enhance my learning process. (*M*=3.31, *SD*=1.457), I receive advice from my teacher to help me learn. (*M*=3.99, *SD*=4.374), My teacher and I discuss how to strengthen my weaknesses. (*M*=3.81, *SD*=1.157), My teacher points out the things I need to focus on to get better grades. (*M*=3.89, *SD*=1.159), I am aware of the standards used to evaluate my assignment (*M*=4.02, *SD*=1.039). It was concluded that most of university students was agreed regarding assessment techniques

Table 4 Mean and standard deviation of university students regarding creative thinking

Sr. no	Statements	SDA	DA	UN	A	SA	M	SD
11	I try out new ways of doing things.	27	13	8	63	39	3.55	1.661
12	I take up new activities or hobbies on a regular basis	18	19	26	56	31	3.75	4.401
13	When I have a problem, I talk to lots of people about it	25	18	26	39	42	3.37	1.430
14	I like to talk to new people, not just old friends	13	18	28	63	28	3.50	1.180
15	I enjoy discussions with people with different viewpoints.	21	28	20	39	42	3.35	1.420

Table shows the mean and standard deviation of university students regarding creative thinking. Statement shows the that "I try out new ways of doing things (*M*=3.55, *SD*=1.001), I take up new activities or hobbies on a regular basis (*M*=3.75, *SD*=4.401), When I have a problem, I talk to lots of people about it (*M*=3.37, *SD*=1.430), I like to talk to new people, not just old friends (*M*=3.50, *SD*=1.180), I enjoy discussions with people with different viewpoints (*M*=3.35, *SD*=1.420). It was concluded that most of university students was agreed regarding creative thinking.

Table 5 Mean and standard deviation of university students regarding creative thinking

Sr. no	Statements	SDA	DA	UN	A	SA	M	SD
16	I enjoy finding out more about things that are new to me	21	20	22	52	35	3.40	1.351
17	I make an effort to take on new challenges	8	33	23	49	37	3.49	1.230
18	I am open to new ideas, even those that challenge the way I think	16	14	26	53	41	3.58	1.274
19	I can think of new ways to use a pan.	21	15	19	55	40	3.52	1.355
20	I like to work on creating new things instead of doing repetitive exercises	12	8	29	68	33	3.80	1.932

Table shows the mean and standard deviation of university students regarding creative thinking. Statement shows the that "I enjoy finding out more about things that are new to me (M=3.40, SD=1.351), I make an effort to take on new challenges (M=3.49, SD=1.230), I am open to new ideas, even those that challenge the way I think (M=3.58, SD=1.274), I can think of new ways to use a pan (M=3.52, SD=1.355), I like to work on creating new things instead of doing repetitive exercises (M=3.80, SD=1.932). It was concluded that most of university students was agreed regarding creative thinking.

Table 6 Mean and standard deviation of university students regarding creative thinking

Sr. no	Statements	SDA	DA	UN	A	SA	M	SD
21	I can find the materials I need to develop an idea.	17	18	21	61	33	3.50	1.273
22	If a certain resource is not available, I try to find a solution with other available resources	11	19	31	64	25	3.49	1.134
23	I care about the details when I do something.	17	22	28	44	39	3.44	1.323
24	I think it is important to think about things in many different ways	10	18	43	48	31	3.48	1.145
25	I like to discuss matters by giving my opinion	21	28	30	44	27	3.43	3.430
26	I find that others see patterns and similarities much more easily than I do	33	24	28	28	27	3.35	4.475
27	I tend to use the same routes to and from work each day	24	26	21	44	35	3.27	1.408

Table shows the mean and standard deviation of university students regarding creative thinking. Statement shows the that "I can find the materials I need to develop an idea (M=3.50, SD=1.273), If a certain resource is not available, I try to find a solution with other available resources (M=3.49, SD=1.134), I like to discuss matters by giving my opinion (M=3.43, SD=1.340 I find that others

see patterns and similarities much more easily than I do (M=3.35, SD=4.475), I tend to use the same routes to and from work each day (M=3.27, SD=1.408). It was concluded that most of university students was agreed regarding creative thinking.

Discussion

Our research's objective was to develop questionnaires that would assess students' and instructors' impressions of AFL practices in the classroom and may identify (potentially divergent) perspectives. Self-report study methodologies that have been previously accessible have not successfully contrasted evaluative judgments of real practices that are directly relevant to improving learning for both teacher and student populations (MacLellan, 2001Matching questions were used in the questionnaires for the current study, and measurement invariance across the two versions of the questionnaires demonstrates the two-factor structure's resiliency and potential for equal perception by instructors and students. Our results indicate that (1) group differences in estimated factor means are fair and (2) group differences in observed means are solely based on group differences in factor means and are not tainted by differential response bias because corresponding latent factor intercepts are constant across groups. In other words, different perception scores may be attributed to distinct perceptions rather than changing interpretations of the components when used to compare perceptions of both student and teacher groups. The significance for researchers is that instructors' and students' mean scores may be directly compared. Different scores can be used to objectively measure how closely instructors' and students' opinions of perceived comparable classroom practices coincide. Research attempting to maximize the effects of assessment on student learning has turned to comparing student and teacher perceptions of AFL as a result of observations that students may perceive, for example, learning criteria to be more implicit and 'hidden' than their teachers believe they are (Konings, 2007). AFL must entail constant contact between teachers and particular students, with the giving of feedback and its acceptance and utilization acting as important components if it is to integrate assessment with learning (Black & Wiliam, 2009). Regarding the nature and content of the provided evaluation, there must be agreement between students' and teachers' opinions.

Conclusion

In order to adequately prepare students for the complex difficulties of the modern world, it is essential to incorporate creative thinking into instruction and evaluation. Assessment methods must advance if critical thinking abilities are to be correctly assessed and developed. Students may develop and demonstrate their creative potential using various evaluation techniques, a positive learning environment, and specific training in creative thinking.

Recommendations

1. Conduct tests that measure a person's capacity to develop several ideas in response to a single challenge, such as the Torrance Tests of Creative Thinking. These exams assess a person's mental agility, adaptability, and creativity.
2. Keep an eye on people while they work on creative chores or projects and offer input. Think back on their inventive methods, approaches to addressing problems, and the caliber of their results.
3. Provide people with fictitious situations and assess how they adjust, innovate, and develop fresh answers.

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