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TEACHING AND LEARNING CREATIVITY IN FASHION. A CASE STUDY OF THE FASHION DEPARTMENT OF TAKORADI TECHNICAL UNIVERSITY

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ABSTRACT: *Ghanaian fashion products are generally described as "unattractive' or "unimaginative" due mainly to poor creative designs. As a result, many Ghanaian fashion designers who are largely tertiary education graduates have been unable to compete favourably in both the local and international fashion markets. With increasing complaints about the lack of creativity in Ghanaian clothing designs, it became imperative to research into the reasons for the poor creative skills of the fashion design graduates of the Technical Universities. Several factors could account for the poor creative skills of the fashion graduates; one critical factor being the method of teaching and learning creative design skills. The main thrust of this research is to examine the professionalism of the lecturers, the attitude of students to learning and the effectiveness of the teaching and learning methods and models used in the Technical University to promote student learning and development. The study briefly outlined existing theoretical frameworks on teaching and learning in colleges and their application to achieve effective student learning and acquisition of creative skills. The study employed the descriptive survey method; using Questionnaires, structured Interview and Observation instruments to gather primary data from professional fashion designers, lecturers and students on how to enhance the teaching and learning of creative fashion design. This research confirmed the use of the traditional methods (lectures and textbooks) of teaching and learning at the Takoradi Technical University which according to existing research findings did not support the effective development and training of students to become life-long learners or critical thinkers. The study therefore recommended the use of more of the evidenced- based models like critical thinking and problem solving skills in the teaching and learning of creativity than the much fancied traditional methods of lecture, Hand-outs and textbook. The research concluded by encouraging lecturers to use alternative instructional models in teaching creativity and urging students to acquire innovative and critical thinking skills to become successful fashion designers.*

KEYWORDS: Creativity, Models, Critical Thinking, Life-Long Learners, Teaching, Learning

INTRODUCTION

Studies have shown that many fashion design graduates of the Technical Universities were finding it difficult to establish their own fashion design businesses or secure jobs with the garment industry largely due to creative skills gaps. Cursory observation and discussion with some fashion design professionals in the Western Region revealed the lack of creativity in the fashion graduates. Creativity is a talent that almost everyone has to some degree but the extent to which it is developed makes a lot of the difference. The ability to recognize and creatively exploit opportunities has become an essential skill (Florida, 2002a). Of course, it takes hard work, creativity and true passion for fabulous designers to achieve success as fashion designers (Lauren, 2007). To be successful in the dress-making industry, it is very critical for the students

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of fashion to have adequate and appropriate training in all facets of the industry with greater focus on acquiring dexterity in idea and inspirations development techniques, critical thinking and creative design skills. In the ever changing world of the fashion industry, creative skills are imperative (Karpova, Marcketti & Barker, 2009). The highly competitive nature of the fashion industry requires that students of fashion are trained to become life-long learners who can think critically and solve problems. The sophisticated tastes of consumers have compelled many fashion institutions to re-design their curricula to focus on subjects like critical thinking, problem solving and fashion marketing to adequately prepare students for the competitive fashion market. It is imperative for fashion designers and students of fashion to be creative and original in their designs to become successful in their professions; having the ability to use imagination to make original patterns and outfits.

Concept of creativity

There are many definitions of creativity as there are researchers in this field. The range of scholarly interests in creativity includes a multitude of definitions and approaches involving several disciplines: psychology, cognitive science, education, philosophy, sociology etc. Guilford (1950) defined creativity exclusively as a mental process. Sternberg (2006) indicated that creativity overlaps with intelligence, cognitive style and personality or motivation. He added that intellectual dimension of creativity deals with problem finding and problem definition. Boden (1994) defines creativity as producing something that is novel or different. He also said in order for this new idea to be interesting it needs to be intelligible and easily understood. Court (1998) presented another definition stating that the ability of human intelligence helps individuals to use their imagination to produce original ideas and solutions. To be a successful fashion designer, one needs broad talents including artistic and creative skills. A designer should be able to visualize an outfit before sketching a single stitch, possess a range of style and have the ability to constantly dream up fashion ideas.

The problem solving process should be kept democratic and keep the students' energy level high by keeping them engaged and alert by watching the size of the group. Ballie (2003) says it is better to have a group size that does not exceed three people. Students should be made to solve problems that mean something to them.

Creative process

Theories that focus on the creative process aim to understand the nature of the mental mechanisms that occur when a person is engaged in creative thinking or creative activity. All creative professionals have different workflows and systems leading to successful end point but the general sequence of processes is usually the same ranging from three (3) to seven (7) stages. Being able to develop a valuable and unique idea is the most important activity in the fashion design process. How do you keep ideas flowing? How do you create a wealth of ideas to choose from? How do you make sure that you generate a fascinating idea that will hit the headlines or stand out from the rest? Some people like to wait for inspiration to strike whilst most professionals use a generic formula or model to produce ideas. One such model is the Wallas' five stage formula. Wallas (1926), presented one of the first models of the creative process. In the Wallas stage model, creative insights and illuminations may be explained by a process which consists of 5 stages:

Preparation- preparatory work on a problem that focuses on the individual's mind and explores the problems' dimensions.

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Incubation - where the problem is internalized into the unconscious mind and nothing appears externally to be happening.

Intimation - the creative person gets the 'feeling' that a solution is on its way.

Illumination or Insight - this is where the creative idea bursts forth from its preconscious processing into conscious awareness.

Verification- where the idea is consciously verified, elaborated and then applied.

Another alternative critical thinking model is the 7 stage-model of the creative process formulated by Raphael Diluzio as follows:

1. State the problem to be solved, i.e. making a dress for a Muslim woman.
2. Research it- gather relevant data or information on the problem.
3. Reflect on the problem ("Basta stage").
4. Gestation period-detach yourself from the problem and give it sometime while reflecting on the problem while apply divergent thinking.
5. "Eureka moment" - write down, draw or capture the ideas that come as you reflect.
6. "Bring into being"-once you have the ideas, bring them down and share with others for their views.
7. Testing and criticizing- Finally invite criticisms of your ideas and feed it into the creative process to refine the idea (Simpson, 2012).

The 7 Stages theoretical model is much simpler and is highly recommended among others for use by both tutors and students as a tool for creative problem solving and critical thinking.

Creativity is an essential element of problems (Mumford et al, 1991) and of critical thinking (Abrami, 2008). We all solve problems on daily basis in academia, at work, church and in our day to day lives. Problem- solving has been defined in several ways. One simple yet meaningful definition describes a problem as a need which must be met (Ritz et al 1986). This need could come from agriculture, sanitation, fashion or health.

How important is problem solving in creativity? Few would argue that teaching problem solving is unimportant in any field. Problem solving is a higher level of thinking skill. We need to be able to evaluate data or information, break them down into key components, consider various ways of approaching and resolving them in the most appropriate way. Problems can also be opportunities: they allow you to see things differently and to do things in a different way and perhaps to make a fresh start. There are many creative problem solving (CPS) models ranging from four to eight stages. Some of these models have already been examined under the creative process. The process of critical thinking requires a complex combination of elements that include cognitive flexibility, memory control and analogical thinking, enabling the mind to free- range and analogize as well as to focus and test. It allows individuals to gain a more complex understanding of information they encounter and provide good decision-making and problem solving in real world applications (Butler, 2002). Ennis (2003) defines critical thinking as a reasonable reflective thinking focused on deciding what to believe or do while Raiskum

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(2008) says it is thinking about thinking. Facoine (2011p.26) says it is a "purposeful, self-regulatory judgment which results in interpretation analysis, evaluation and inference, as well as explanation of the evidential, conceptual, methodological, criteria logical or contextual considerations upon which that judgment is based". Sumner (1906) has explored the notion that critical thinking can occur whenever one judges, decides or even solves a problem. Sumner further says that, in general, whenever one must figure out what to believe or what to do, and do so in a reasonable and reflective way. Speaking, writing, reading, and listening can all be done critically or uncritically. He says further that critical thinking is a way of taking up the problems of life. Critical thinking and problem solving skills are key skills that students in higher institutions must acquire and constantly apply in solving problems in various fields. Critical thinking which links to heightened individualism which Le Cornu (2009) considers is not so prevalent and suggests that education at all levels should train people in three principal types of thinking and reflection namely: receptive, appreciative and critical. The ability to think critically involves three elements (Glaser, 1941):

- An attitude of being disposed to consider in a thoughtful way the problems and subjects that he says come within the range of one's experiences
- Knowledge of the methods of logical inquiry and reasoning
- Some skill in applying those methods. Allow time for creative thinking-Most creative insights however do not happen in a rush (Gruber, 1986). We need to understand a problem and to toss it around. If you want to encourage creativity, you need time to do it well.

THEORETICAL FRAMEWORK ON CREATIVE TEACHING AND LEARNING

In order to meet the ever increasing needs of the modern society, higher institutions have to produce competent innovators and critical thinkers for the future. These institutions need to give creativity "their full attention". The world needs creative and forward –looking individuals who can produce creative solutions for the challenges of society and industries. The importance of creativity has therefore increased in education programmes and economic development activities and in industries such as those related to fashion design (Bill, 2013). Novelty, originality and usefulness are elements of creativity (Parkhurst, 1999). The ever-increasing demand for novel and original fashion ideas call for effective teaching and training of fashion students in Ghana to become successful in their field. If higher institutions of learning are challenged to produce creative individuals, the question then is how does a student learn to be creative? How do teachers use creative techniques and learning environments to teach students? This research will attempt to provide answers to these critical questions. For a student to acquire dexterity in creative thinking and problem solving techniques, he or she has to pass through an equally good teacher who will provide the required guidance, tools and practice.

Teaching and learning are opposite sides of the same coin, for a lesson is not taught until it has been learned (Farrant.1980). "Learning is the process by which we acquire and retain attitudes, knowledge, understanding, skills and capabilities that cannot be attributed to inherited behaviour pattern or physical growth" (Farrant, 1980 p.105). Teaching and learning is an activity of imparting knowledge, skills, attitude and idea from one person to another (Banahene and Sarfo, 2010). Banahene and Sarfo explained that the person engaged in the act of

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impartation are the teacher and the person receiving the knowledge, skills, and attitude is the learner. It is expected that once the teaching activity takes place, there should be change in the knowledge base of the learner, in other words, teaching is said to result in learning. Teaching is a skill tutors should have, to be able to transfer knowledge effectively and efficiently. Hence, a teacher needs the skills to be able to deliver his/her lessons. The American Psychological Association (2011) defines the term teaching skills as contained in the 'ready to teach Act', H R 2211 as "skills that are based on scientifically based research; enable teachers to effectively convey and explain subject matter content; lead to increased academic achievement; uses strategies that are specific to the subject matter; include on- going assessment of students learning, focus on identification and tailoring of academic instruction to students specific earning needs; focus on classroom management". Classroom management also called classroom discipline has been a priority for teachers. Amoakohene (2008) said, classroom management involves the direction of human activities and since teachers direct the teaching and learning activities, they are considered managers and they need to organize, co-ordinate, control, communicate and lead the students

Farrant (1980) further explained that each type of learning goes by a different name: Affective learning- has to do with feeling and values and therefore influences attitudes and personalities. Cognitive learning-is achieved by mental process such as reasoning, remembering and recall. It helps in problem solving, new ideas development and evaluation.

Psychomotor learning- has to do with development of skills which require efficient coordination between our brain and muscles. Farrant (1980) says teaching can be thought of as a process that facilitates learning. He explains further that in the process, the teacher has an important role to play because he acts like a catalyst stimulant. He further explains that by giving careful considerations to such issues like teaching methods and by supplementing direct teaching in indirect support, the teacher can achieve a total effect that can extremely be enjoyable of his or her student. With regards to skills acquisition, Murphy and Moon (1990) are of the view that for a student to be able to understand and remember anything taught, there should be a connection between practices and teaching of the students. Wareign Drew and Shreeve (2008) reasoned that there are a number of ways skills acquisition can be eased. These are as follows: -Budding -In an open studio, students can learn from more experienced students in a buddy system. Students can either be paired up with a buddy from a year above or groups can be created from all years of the course. The tutor has to initiate this but once social bonds are in place, students can teach each other new skills like computer programs, coral draw, photo-shop and Auto card.

Group working- To achieve practical outcomes, group collaboration can lead to more understanding of processes due to plain, explicit and articulate steps forward. This is particularly important for art and design which traditionally emphasis trends on group working.

Deconstruction of artefacts -This can be undertaken as a group or as an individual. It involves an illustration of picking up a jacket and noting or describing the methods discovered in its construction. This can improve understanding of how its layers of linings, interlinings, padding and stitching were physically constructed to maintain its shape.

The use of visual resources to explain processes -Traditionally, hand-outs have been used but step by step procedural diagrams can be replaced by digital photographs in interactive power point for technical skills. This can be assessed by students in the workshops and can be built by the students themselves as they encounter technical problems that require inventive solution.

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Kolb (1984) proposed a four-stage learning process(concrete experience, observation and reflection, abstract conceptualization and active experimentation).With a model that is often referred to in describing experiential learning (McGill & Beaty, 1995). The process can begin at any of the stages of the cycle and is continuous. This theory asserts that without reflection, we would continue to repeat our mistakes

Types of teaching models

Teaching models are methods of teaching. Effective teaching will normally integrate different teaching models and methods depending on the students that are being taught and the learning goals. A few of the models are examined as follows:

Lecture - This is used in the college classroom. In the lecture method, the teacher presents information and examples; sometimes along with visual presentations. There is not much emphasis on this practice. This is the most commonly used method of instruction at most institutions throughout the world. .

Co-operative learning - With this teaching method, the students work in a group setting where each member has a different skill or view about a subject matter and also capitalizes on each other's resources to work as a team and comes out with a collective result.

Viewings-listening- With the use of educational media equipment associated with inter-disciplinary approach, lessons are more interesting for students to view and listen attentively.

Inquiry training- It is the goal of aiding the teacher or student in the choice of a desired and effective learning technique. It should be noted however that, each of the theory has its strengths and weaknesses. Burns (1995) conceives learning as a relatively permanent change in behaviour including both observable activity and internal. This requires students to develop skills in searching for and processing data and to develop concepts as well as logic and causality. The ultimate goal is an autonomous learner.

Practice and drill- This model relies on practice used extensively to enable students to acquire a skill or a proficiency in doing some overt act.

Learning Theories

There are many and varied theories of learning. This study discussed a few of them with the goal of aiding the teacher or student in the choice of a desired effective learning technique. Each of the theory has its strengths and weaknesses.

Burns definition simply looks at how an individual observes an object or achieving and processing the information through critical thinking which then affects his/her attitude or behaviour to the activity observed. Learning can be an in-born trait or an acquired art by the individual, leading to the postulation of many theories of learning. One of the learning Models that are employed in many Institutions of Learning is the Facilitation theory (the humanist approach). Carl Rogers and others have developed the theory of facilitative learning. The basic premise of this theory is that learning will occur by the educator acting as a facilitator; that is by establishing an atmosphere in which learners feel comfortable to consider new ideas and not threatened by external factors (Laid, 1985). This theory is predicated on the belief that a person has the natural tendency to learn and this is enhanced by a facilitative teacher who provides the necessary guidance and right environment for the learner to acquire knowledge.

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The facilitative teacher listens to learners, especially to their feelings. They pay much attention to their relationship with the learner, apt to accept feedback, both positives and negatives and to use it as "constructive insight into themselves and their behaviour." This model or learning strategy promotes students' self-confidence and willingness to explore new areas, projects or ideas on their own. The advantage of this model is that, learners are encouraged to take responsibilities for their own learning, providing much of the input for the learning which occur through their own investigation and concentrate on factors that contribute to solving problems. Tutors and students could adopt the facilitation theory or use other learning models to teach and learn fashion creativity.

It is pertinent to state that the teacher who fosters critical thinking fosters "reflectiveness" in students by asking questions that will stimulate thinking; essential to the construction of knowledge. For students to learn, intellectual engagement is crucial; in that all students must do their own thinking and make their own construction of knowledge. In summary, it is pertinent to reiterate that creative work requires applying and balancing three abilities that can all be developed (Sternberg 1985).

Synthetic ability is what we typically think of as creativity. It is the ability to generate novel and interesting ideas. Often the person we call creative is a particularly good synthetic thinker who makes connections between things that other people do not recognize spontaneously.

Analytic ability is typically considered to be critical thinking ability. A person with this skill analyses and evaluates ideas. Without well-developed analytical ability the creative thinker is likely to pursue bad ideas. The creative individual uses analytic ability to work out the implications of creative idea and to test it.

Practical ability is the ability to translate theory into practice and abstract ideas into practical accomplishment. The creative person uses practical ability to convince other people that an idea is worthy. Practical ability is also used to recognize ideas that have a potential audience. Creativity requires a balance among synthetic, analytic and practical ideas. The person who is only synthetic may come up with innovative ideas, but cannot recognize or sell them. The person who is only analytical may be an excellent critic of other people's ideas but is not likely to generate creative ideas. The person who is only practical may be an excellent sales person, but is likely to sell ideas or products of little value. Encourage and develop creativity by teaching students to find a balance among synthetic, analytic and practical thinking. Creative attitude is at least as important as are creative thinking skills (Schank, 1988).

The aim of this research is to promote and encourage teachers to use critical thinking and practice-drill instructional methods and models to help students become creative thinkers and innovators.

METHODOLOGY

The researchers employed descriptive design survey; using both qualitative and quantitative research approach. Descriptive design is a method that is used to obtain information on social and behavioural variables and this design very much suited the purpose of this research. The research was basically a fact finding exercise and the researchers relied largely on the verbal and written responses of the respondents who were mostly teachers and students of the Fashion Department and some fashion designers in the Takoradi Metropolis as data for the study. This

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information is translated into numeric data and analysed using statistical procedures (Polit & Hungler 1995). In applying the quantitative design, questionnaire, observation and interview methods were used to conduct the research.

The interview method is used to solicit the views, experiences and beliefs of individuals on an issue through questioning. Interview questions are structured, unstructured and standardized. In this study the researchers used both the structured and unstructured interview to solicit for information. Structured interview is verbally administered with a list of predetermined questions and unstructured interview is followed- up questioning to clarify issues or to obtain more and better information on the topic. In the case of the questionnaire, two separate questionnaires were administered; one set for tutors and the other for the students. The two sets of questionnaires contained both open and closed ended questions covering the main thrust of this research. In the process, one hundred and twenty-six students comprising seventy (70) HND one (1), seventeen (17) HND two (2) and thirty-nine (39) HND three (3) students representing 76.3% of the population returned the completed questionnaires. On the part of the tutors, thirty-nine (39) out of the population of eighty tutors representing 37.5% returned the questionnaires duly completed. The low return from the tutors was as a result of an industrial action by the Polytechnic Teachers Association of Ghana (POTAG) for which many of the respondents were out of campus.

The researchers also used the observation method to validate some of the data in the questionnaire. Observation, according to Agyedu, Donkor & Obeng (2011) is a means of using one's senses to see, smell, touch, taste and to listen to what is going on at a given social setting. The researchers undertook critical observations of teaching and learning of fashion design in the school with greater interest in the teaching and learning methods, teachers and students' attitude towards the teaching and learning of creative design, the classrooms conditions and how appropriately and efficiently the teaching and learning aids were used to impact knowledge

Despite the low returns on the part of the tutors, very useful information was obtained from those who completed the questionnaires. The data captured in the questionnaire, interview and observation were converted into percentages and analysed to provide relevant information for interpretation and discussion thereof.

DISCUSSION OF RESULTS

To investigate the effectiveness of the teaching and learning methods used in the Technical University to train students to become creative in fashion, a number of research questions were verified and the responses of the respondents were discussed as follows:

Table 1: Teaching and learning creative drawing

Questionnaire item	**Responses**							
		Frequency (Fq)			**Percentage (%)**			
		Yes		No		No response	Total	
	Level	Fq	%	Fq	%	Fq %	Fq	%

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1. Should the method of teaching and learning creative art drawing be improved?	100	30	42	34	49	6	9	70	100
	200	16	94	0	0	1	6	17	100
	300	33	85	2	5	4	10	39	100

In Table 1, the students were asked to indicate whether the methods of teaching and learning creative art drawing in the Technical University be improved. The majority of the students in Level 100, 200, 300 comprising 42%, 94% and 85% respectively indicated that there was the need for improvement in the methods of teaching art drawing whilst 49%, 0% and 5% thought the teaching and learning methods were adequate and effective. The results indicated that the majority of the students advocated eloquently for the strengthening of the teaching and learning methods of creative art drawing. This outcome showed that most students were not satisfied with the teaching methodology. This could be that the tutors were not presenting themselves as role models for students to emulate or they lacked the requisite knowledge and competence to effectively impart knowledge to the students. It could also be that the tutors were not making the lessons interesting. In the case of the Level 100 students the low percentage of 42% could be attributed to the students either not receiving better tuition from the tutors or that they were yet to undertake in-depth study of art drawing. This research finding is supported by Schank (1988) who is of the view that teachers should teach students by encouraging and developing their creativity to find a balance among systematic, analytic and practical thinking and that creative attitude is as important as creative thinking. Further, Schank (1988) "model creativity" recommends that the most powerful way to develop creativity in students is to be a role model by showing and not by telling the students how to develop creativity. Everyone has the capacity to be creative and to experience the joy associated with making something new. In this connection, Schank, (1988) states that teachers should not limit what the students can do but help them believe in their own ability to be creative.

Table 2: Strengthening teaching and learning of fashion design

Questionnaire item		**Responses**							
		Frequency (Fq) Percentage (%)							
		More projects to perfect skills in drawing		Use of computers and projectors for teaching		Less take-home assignment and more class assignment		Attend exhibitions and shows (fashion and art)	Total
	Level	Fq	%	Fq	%	Fq	%	Fq %	Fq %
Sub question to item 2 -If yes how?	100	14	46.48	5	16.66	7	23.43	4 13.43	30 100
	200	5	31.3	7	43.8	1	6.3	3 18.6	16 100
	300	14	42.4	6	18.3	8	24.2	5 15.1	33 100

In Table 2, the students were requested to select from four options which method they thought could enhance the teaching and learning of creative art drawing. The survey revealed that the majority of the target population comprising 46.48%, 31.3% and 42.4% of the students in level

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100, 200 and 300 respectively advocated for more projects to perfect their skills in drawing, 16.66%, 43.8% and 18.3% respectively opted for the use of teaching aids like computer and projectors to support teaching and learning, 23.43%, 6.3% and 24.2% of the students respectively preferred less take-home and class assignments whilst the rest consisting 13.43%, 18.6% and 15.1% preferred attending exhibitions and fashion shows as the most effective method of acquiring skills in creative drawing. The results indicated that all the options were useful and desirable. With regards to the use of more projects and class assignments for perfecting design skills, it was observed that the large class size of 70 students and above did not allow the regular use of this method since the tutors could not give due attention to each student on one-on- one basis. In this connection, Ballie (2003) proposed that problem solving process should be kept democratic to keep the student's energy level high and alert by watching the size of the group. He added that the group size must not exceed three for effective coaching and supervision. It is expedient to indicate that each method of teaching has its strengths and drawbacks and the most effective method depends on the knowledge and delivery ability of the tutor, the subject matter, teaching aids and contribution of the students in the class.

Table 3: Rating the knowledge of tutors

Questionnaire item	**Responses**													
		Frequency (Fq)						**Percentage (%)**						
		Excellent		Very Good		Satisfactory		Unsatisfactory		Poor		No response		Total	
	Level	Fq	%	Fq	%	Fq	%	Fq	%	Fq	%	Fq	%	Fq	%
3. Students were asked to rate the knowledge and competence of teachers.	100	34	49	20	29	13	19	2	2	0	0	1	1	70	100
	200	2	12	7	41	7	41	0	0	0	0	1	6	17	100
	300	19	49	12	31	7	17	1	3	0	0	0	0	39	100

In Table 3, the students were asked to rate the knowledge and competence of their tutors in the subjects they taught; using the scale of excellent, very good, satisfactory, unsatisfactory and poor. The survey revealed that 49%, 12% and 49% of level 100,200 and 300 students reported that the tutors were excellent, 29%, 41% and 31% of level 100,200 and 300 respectively indicated the tutors were very good whilst 19%, 41% and 17% respectively responded that the tutors were satisfactory while only 2% and 3% of the level 100 and 300 of the students reported that the tutors were unsatisfactory and none was rated poor. Rating some of the tutors as "excellent" and "very good" was indicative that some tutors were knowledgeable and competent in their fields and must be delivering well. During observation and interviewing of some students, it was confirmed that those who rated very good and excellent made their lessons interesting and they also encouraged the students to participate actively in class. In consonance with this finding, it is opined that "effective teaching will normally integrate different teaching models and methods depending on the students that are being taught" (Burn, 1995). Aggregately however, only 34 % of the tutors were rated above satisfactory and this included those rated as excellent and very good. This generally low rating manifestly revealed

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the weak knowledge and competence of the tutors in their respective fields and this could explain the general unsatisfactory performance of the fashion graduates of the Technical University. The tutors should be encouraged to upgrade not only their skills but also to give adequate time and resources to assisting the students acquire in-depth knowledge and practice of fashion design skills.

Table 4: Problem solving and critical thinking skills

Questionnaire items	Responses							
		Frequency (Fq)				Percentage (%)		
		Yes		No		No response	Total	
	Level	Fq	%	Fq	%	Fq %	Fq	%
4. Is problem solving and critical thinking skills part of the fashion design course?	100	54	77	12	17	4 6	70	100
	200	13	76	2	12	2 12	17	100
	300	33	85	6	15	0 0	39	100
If No, will you recommend that they are included in the programme?	100	10	83	2	17	0 0	12	100
	200	2	100	0	0	0 0	2	100
	300	6	100	0	0	0 0	6	100
If Yes, is the teaching effective enough to assist you in developing innovative ideas?	100	48	89	6	11	0 0	54	100
	200	13	100	0	0	0 0	13	100
	300	33	100	0	0	0 0	33	100

Item 4 in Table 4. sought to know if problem solving and critical thinking skills were taught in the fashion design course and if not, should those skills be taught and learnt. The survey revealed that the majority of the respondents comprising 77%, 76% and 85% of the students of level 100, 200 and 300 respectively confirmed that problem solving and critical thinking skills were taught while 17%, 12% and 15% respectively answered in the negative. However, some Level 100 and 200 students' representing 6% and 12% respectively did not respond to the question. The non-response rating of these students of level 100 and 200 was not significant enough to negatively affect the outcome of the findings on this issue. On the question of whether problem solving and critical thinking skills be taught in the Technical University if it is not being taught, the students by a rating of 83%, 100% and 100% in level 100, 200 and 300 respectively overwhelmingly agreed and recommended that problem solving and critical thinking skills be taught whiles 17% of the level 100 students did not think inclusion in the curriculum was critical. On the question of whether the teaching of problem solving and critical thinking was effective to strengthen the students in idea development and innovative techniques, 89%, 100% and 100% of the students in level 100, 200 and 300 respectively agreed that the teaching of problem solving and critical thinking skills was effective. However, a further probe by the researchers into the effectiveness in the teaching and learning of problem solving and critical thinking skills, revealed that the tutors just scratched the surface of these critical skills and that could not equip the students' well enough to become versatile in applying problem solving and critical thinking skills to creativity. There are a number of problem solving and critical thinking skills models which the tutors could adopt to guide the students to develop proficiency in the application of these skills. One such model is the McGill & Beaty (1995)

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who proposed Kolb Experimental learning cycle which comprises four-strategies: concrete experience, observation and reflection, abstract conceptualization and active experimentation. The process can begin at any of the stages of the cycle and is continuous. This theory asserts that without reflection, teaching and learning would continue to repeat mistakes. On whether the students would recommend that problem solving and critical thinking skills be included in the programme of fashion design, majority of the students responded in the affirmative. This outcome is supported by Glaser (1941) who agreed that the ability to think critically involves three elements namely: an attitude of being disposed to consider in a thoughtful way, the problems and subjects that he says come within the range of one's experience, knowledge of the methods of logical and reasoning and some skill in applying those methods. If a student is equipped to think critically, he/she will be well predisposed to develop his/her own innovative and creative knowledge and ideas. However, in an interview, the students complained of tutors saddling them with too much take-home assignment leaving with too little time not only to study but to practice ideas and innovative skills. In this connection, Sternberg & Williams (1996) disagree with the students comment and they suggested that creative works require applying and balancing their abilities that can be developed which are: synthetic ability which is typically thought of as creativity, it is the ability to generate novel and interesting ideas. Analytic ability, this is typically considered to be critical thinking ability, a person with these skills analyses and evaluates ideas. Practical ability is the ability to translate theory into practice and abstract ideas into practical accomplishment.

Is critical thinking, analysis and creativity relevant in Fashion Design Studies? Items 24 to 26 in Table 5 addressed these issues.

Table 5: Practice drill

Questionnaire item	**Responses**							
		Frequency Fq				**Percentage %**		
		Yes		No		No response		Total
	Level	Fq	%	Fq	%	Fq	%	Fq %
5. Do you think the schools internship programme in terms of duration and content is sufficient to help students acquire practical industrial experience with professional designers?	100 200 300	51 12 32	73 71 82	15 3 7	21 18 18	4 2 0	6 11 0	70 100 17 100 39 100
6. Will you recommend the employment of an expert fashion designers or establishment of fashion studio or apprenticeship department to aid knowledge and practical skills acquisition?	100 200 300	42 5 20	60 29 51	25 10 16	36 59 41	3 2 3	4 12 8	70 100 17 100 39 100

ISSN 2055-0863(Print), ISSN: ISSN 2055-0871(Online)

7. Are you satisfied with the effectiveness of the current teaching methodology of the school?	100	42	60	25	36	3	4	70 100	
	200	5	29	10	59	2	12	17	100
	300	20	51	16	41	3	8	39 100	

Item 5 in Table 5 sought to find out whether the school's internship programme in terms of duration and content were sufficient to aid students acquire practical skills with professional designers, 73%, 71% and 82% of the students in level 100, 200 and 300 respectively indicated that the internship programme was satisfactory while 21%, 18% and 18% respectively disagreed. Even though the majority of the students were satisfied with the school's internship programme, a followed- up discussion with the students revealed that the internship programme needed to be improved by upgrading the facilities and also increasing the duration of the internship programme during and after graduation.

In the case of whether it was needful to employ an expert fashion designer or the establishment of a fashion studio or apprenticeship department to aid knowledge and practical skills acquisitions, item 6 in Table 5 has the response as 60%, 29% and 51% of the students affirmed the need for the school to employ an expert and also to establish a fashion studio to strengthen practical skills acquisition while 36%, 59% and 41% of the students did not see the need to employ an expert and were satisfied with the status quo. The above outcome showed that the students were split on whether to have an expert to guide them acquire and consolidate their creative abilities or they were satisfied with what was available. It cannot be gainsaid that the services of an experienced designer to provide practical guidance to the students was paramount and should be considered to ensure that at all-time experts were available to assist students improve on their practical skills. Additionally, for demonstration and practical skills acquisition purposes, the Technical University should have a well-stocked and furnished fashion studio especially since currently, it is woefully inadequate.

Item 7 in Table 5 sought to know whether the students were satisfied with the effectiveness of the current teaching methodology. In an answer to this question, 60%, 29% and 51% of the students in level 100, 200 and 300 respectively indicated they were satisfied whilst 36%, 59% and 41% of the students respectively were not satisfied with the teaching methods. In further discussions with the students, they complained of tutors giving them overload of take-home assignments and this affected the time allotted to studying and undertaking practical skills acquisition. Sequel to the above, the number of hours allocated to each subject on the time-table did not allow for in-depth coverage of the subjects by the tutors. It is expedient to caution that if due attention and patience were not provided to guide the students in problem solving and critical thinking skills, their creative abilities may not be identified and developed. This caution had been collaborated by Sternberg and Williams (1996) suggestions which have already been discussed.

Table 6: Enhancing teaching methods

		Responses	
		Frequency (Fq)	**Percentage (%)**

ISSN 2055-0863(Print), ISSN: ISSN 2055-0871(Online)

Questionnaire item		More project and class assignment		One-on-one tutor-student tuition.		Modern and up dated books and equipment		Field trips, excursions and fashion shows		Total	
	Level	Fq	%	Fq	%	Fq	%	Fq	%	Fq	%
8. Sub-question; If No what should be done to improve on the teaching methods?	100	10	40	5	20	2	8	8	32	25	100
	200	8	80	0	0	0	0	2	20	10	100
	300	9	56.25	3	18.75	0	0	4	25	16	100

In Table 6 sub -item 8, the students were requested to suggest which method of teaching could enhance teaching and learning and were provided with a number of options, namely; projects and assignments, one-on-one tuition, modern textbooks and equipment, and field trip and fashion exhibitions. In response to this question, 40%, 80% and 56.25% of the students in level 100, 200 and 300 respectively indicated that giving them more projects and assignments will improve their creative design skills, 20%, 0% and 18.75% of the students respectively felt they needed a one-on-one tuition relationship with the tutor, 8% of the level 100 group opted for this option, the Levels 200 and 300 students scored 0% for this option, the availability of modern and up to date textbooks on fashion was likely to enhance the teaching and learning of fashion whilst 32%, 20% and 25% of the students respectively opted for the use of field trips, excursions and fashion shows and exhibitions. The above outcome amply demonstrated that the majority of the students felt that giving them more projects and assignments was considered the most preferred teaching and learning techniques followed by field trips and fashion show. Notwithstanding this finding, it will be recalled that the students complained in previous encounters that they were loaded with too many assignments which negatively affected the time allotted for other course works. Tutors should be encouraged to apply various teaching and learning strategies to ensure that the students were well groomed and trained to become successful fashion designers.

Table 7: The use of teaching aids

Questionnaire item		Responses					
		Frequency (Fq)			Percentage (%)		
		Projectors, computers and designing		Drawing instruments and materials		Total	
	Level	Fq	%	Fq	%	Fq	%
9. What teaching aid/equipment will you recommend to enhance creative proficiency in creative design?	100	40	57.1	30	42.9	70	100
	200	12	70.6	5	29.4	17	100
	300	30	70.9	9	23.1	39	100

In Table 7 Item 9, the students were requested to recommend appropriate teaching Aids/Equipment that could enhance creative proficiency in creative design. The students were given two options; namely Projectors and computers and Drawing instruments and materials. Majority of the students consisting of 57.1%, 70.6% and 70.9% in level 100, 200 and 300

ISSN 2055-0863(Print), ISSN: ISSN 2055-0871(Online)

respectively opted for projectors, computers and designing software whilst 42.9%, 29.4% and 23.1% respectively recommended drawing instruments and materials to aid teaching and learning. Despite the majority of the students opting for projectors and computers to enhance teaching and learning, is expedient to state that the use of drawing instruments and materials were equally critical in skills acquisition and all the required instruments and materials be adequately provided and effectively utilized by both tutors and students.

Part two-tutor questionnaire

Response from tutors of the fashion design department were recorded in the tables below and analysed accordingly.

Table 8: Teaching critical thinking and problem solving skills

Questionnaire item	Responses					
	Frequency (fq)			Percentage (%)		
	Yes		No		Total	
	Fq	%	Fq	%	Fq	%
10. Should students in Higher institutions be trained to become critical thinkers and innovators?	39	100	0	0	39	100

In Table 8, the tutors were asked whether they agreed with the statement that students in higher institutions be trained to become critical thinkers and innovators. There was a unanimous agreement of 100% that students should be trained to become critical thinkers and innovators. In further discussion with some of the tutors, they indicated that since the world has become a global village and highly competitive and if Ghana was to be competitive in the local and international market, it needed to produce great innovators and creative thinkers. This finding collaborated with (Ford & Gioia, 2000) who indicate that it is critical to prepare students to live, to work and to be successful in the competitive global fashion market. The ability to recognize and creatively exploit opportunities has become an essential skill (Florida, 2002). It has become expedient for the tutors to teach critical thinking and problem solving skills in order to produce creative thinkers and innovators. However, our formal educational system and culture do not teach or nurture such cognitive skills" (Basadur, Wakabayashi, & Graen, 1990).

Table 9: Teaching methods in the Takoradi Polytechnic

Questionnaire item	Responses			
	Frequency (fq)		percentage (%)	
	Traditional method (Lecture and text books)	Evidence based-statistical critical thinking and problem solving	A combination of both the Traditional and evidenced-based.	Total

ISSN 2055-0863(Print), ISSN: ISSN 2055-0871(Online)

	Fq	%	Fq	%	Fq	%	Fq	%
11. What is the main method of teaching?	12	31	4	11	23	58	39	100

In Table 9, the tutors were requested to indicate the main method of teaching students in the Takoradi Technical University. Majority of the tutors revealed that 31% of the respondents indicated they used largely the traditional method of lectures and textbooks (Partitioned method), 11% used the evidenced –based method (statistical, critical thinking and problem solving) and 58% of the tutors indicated they combined both the Traditional and evidenced based methods. There are many traditional based teaching methods including Lecture, Discussion- questioning, Viewing-listening, Inquiry training, and Instructional systems design which when properly combined with evidence-based methods will produce critical thinkers. However, further discussions with the students and tutors of the Technical University and observations carried out by the researcher revealed that the lecture method was largely used and the students were saddled with too many assignments leaving very little time and space for the acquisition of problem solving and critical thinking skills. Tutors should be encouraged to use more of the statistical and evidenced –based models than the traditional methods in teaching creativity and creative design skills The tutors could adopt the Wallas (1926) five stage model to assist the students acquire dexterity in creativity. In the ever-changing world of the fashion industry, creative skills are imperative and it is therefore essential that colleges and universities focused more on the use of evidenced-based teaching and learning models such as critical thinking and problem solving than the traditional methods.

Table 10: Teaching models and creativity

Questionnaire item	**Responses**					
	Frequency (fq)		**Percentage (%)**			
	Yes		No		Total	
	Fq	%	Fq	%	Fq	%
12. Can the main methods of teaching produce creative thinkers and innovators?	25	64.10	14	35.90	39	100

In Table 10, the tutors were requested to state whether the main method of teaching students at the Technical University could produce creative thinkers and innovators. The majority of the tutors representing 64.10% of the target population answered in the affirmative while 35.90% disagreed. This finding collaborates with the general knowledge that critical thinking and problem solving skills in higher institutions produce creative thinkers and innovators. A combination of some of the traditional methods of teaching and the evidenced- based models coupled with in-depth knowledge of the subject by the tutors greatly support the development of creative thinkers and innovators. This finding collaborates with Le Cornu (2009) who considers and suggests that education at all levels should train people in three principal types of thinking and reflection namely: receptive, appreciative and critical thinking.

Table 11: Tutors preferred teaching methods

ISSN 2055-0863(Print), ISSN: ISSN 2055-0871(Online)

Questionnaire item	Responses									
	Frequency (Fq)						Percentage (%)			
	Trends in the fashion industry		Evidence based Teaching models		Problem identification and solution.		Hands-on teaching and learning.		Total	
	Fq	%	Fq	%	Fq	%	Fq	%	Fq	%
13. If "No" to item 12 which methods of instruction will you recommend?	1	7	10	71	2	15	1	7	14	100

In a related question in Table 11, the tutors were asked to recommend a teaching method they thought could produce creative and innovative graduates and 71% of the tutors recommended the use of evidence-based statistical, critical thinking and problem solving methods, 15% and 7% respectively recommended problem solving and trends in the fashion industry. This result is in tandem with Jackson and Sinclair (2006) who are of the view that tutors should encourage students to articulate and construct their own meaning of creativity in the context of what they the students are studying and learning. In view of that, students should be given challenging problems to make them think creatively and by asking "what" "if" and "how" questions to enable them become critical evaluators of their own creative works. Additionally, tutors should use less of lecturing and other traditional methods of teaching and use more of evidenced-based methods particularly in the area of creative skills acquisition.

Table 12: Adequacy of teaching time and materials

Questionnaire item	Responses					
	Frequency (fq)				Percentage (%)	
	Yes		No		Total	
	Fq	%	Fq	%	Fq	%
14. Do you think the time and materials allotted for creative and hand-on training of students are adequate to enhance students' proficiency in their various fields?	12	30	27	70	39	100

In Table 12, the tutors were to indicate whether the time and materials allotted for creative and hands- on training of students were adequate to enhance student proficiency in their various fields. The majority of the tutors consisting 70% of the respondents admitted that the time and materials were inadequate while 30% said they were adequate. These results confirmed the students' earlier position that time and materials provided were inadequate and needed to be upped. A further enquiry by the researchers revealed that more often than not the materials supplied by the department were not only inadequate but were also often time inappropriate for the intended purpose; negatively affecting the tutors and students planned training programme.

ISSN 2055-0863(Print), ISSN: ISSN 2055-0871(Online)

CONCLUSION

This study examined the effectiveness of the methods and models used in teaching and learning creativity in fashion in the Technical University and how that could be enhanced to prepare students to become innovative and creative fashion designers. The research revealed a number of key gaps in the teaching and learning of creativity. Key amongst them is the use of largely the traditional methods of lecture, hand-outs and textbook to teach and learn creativity in fashion rather than the use of evidenced- based critical thinking and problem solving models. The study also recognized poor students approach to learning creativity; specifically, the non-application of analytical, conceptual and synthesiscal skills in solving problems. It is expedient to re-iterate that tutors are foremost in the education sector and they make the most difference in knowledge acquisition. Tutors should therefore continuously improve on their professional knowledge and practice by exploring creative applications and nurturing students' creativity at every opportunity. It is widely believed that tutors who vary their instruction possess more professional expertise and produce more learning in their students than do tutors who use the same approach to meet all their learning goals. Research confirms this belief (Good & Brophy, 2008), and professional organizations endorse the need for instructional alternatives (Interstate New Teacher Assessment and Support Consortium, 2009; National Board for Professional Teaching Standards, 2006).

RECOMMENDATIONS

To strengthen the teaching and learning of creativity, the following steps could be followed: -

- **Model creativity**-The most powerful way to develop creativity in your students is to be a role model. Students develop creativity not when you tell them to, but when you show them.

- **Build self-efficacy: -** All students have the capacity to be creators and to experience the joy associated with making something new. Tutors should not limit what the students can do but help them believe in their own ability to be creative.

- **Question Assumptions**: - Creative people question assumptions that can lead to positive or new ways of doing things. Tutors can be role models for questioning assumptions and should teach students to question assumptions. Tutors should help students to learn how to formulate good questions and how to answer them. Make questioning a part of the daily classroom exchange.

- **How to define a Problem-**Promote creative performance by encouraging students to define and redefine problems and projects. Encourage creative thinking by encouraging students choose their own topics for papers or presentations or choose their own ways of solving problems.

- **Encourage idea Generation**-Once the problem is defined or redefined, it is time for students to generate ideas and solutions. The environment for generating ideas should be relatively free of criticism. Aim to identify and encourage any creative aspects of

ISSN 2055-0863(Print), ISSN: ISSN 2055-0871(Online)

the ideas presented and suggest new approaches to any idea. Praise the students for generating many ideas, regardless of whether some are silly or unrelated.

- **Allow time for creative Thinking-**Most creative insights however do not happen in a rush (Gruber, 1986). We need to understand a problem and to toss it around. If you want to encourage creativity, you need time to do it well.

- **Instruct and asses creativity-**If you give multiple –choice tests, students quickly learn the type of thinking that you value. If you want to encourage creativity, you need to include at least some opportunities for creative thought in assignments and tests. The tutor should ask questions that require factual recall, analytic thinking and creative thinking.

- **Encourage sensible Risks-**Creative people take risks and defy what is the norm. Creative people take sensible risks and produce ideas that others ultimately admire and respect as trend setting. Nearly every major discovery or invention entails some risk.

- **Allow Mistakes-**When your students make mistakes, ask them to analyze and discuss these mistakes. Often, mistakes or weak ideas contain the germ of correct answers or good ideas.

- **Encourage creative Collaboration-**Collaboration can spur creativity. Encourage your students to collaborate with creative people because we all learn by example. Students benefit from seeing the techniques, strategies and approaches that others use in their creative process.

- **Teach self-Responsibility**-Part of teaching students to be creative is teaching them to take responsibility for both success and failure. Teaching students how to take responsibility means teaching students to understand their creative process, criticize themselves and take pride in their best creative work.

- **Grow creativity**-Once we have a major creative idea, it is easy to spend the rest of our career following up on it. Being creative means stepping outside the boxes that we and others have created for ourselves.

- **Reward creative Ideas**-Remember to reward creative ideas. Assign a Project and remind students that you are looking for them to demonstrate their knowledge, analytical and writing skills and creativity and reward them accordingly.

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