

Developing creative designs strategy for social media campaign (A Case Study in Egypt)

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Abstract:

We can say that the roots of a creative society are in education. Among undergraduate students are “potential philosophers, artists, writers, entrepreneurs, craftsmen and women, people who will create, who will constitute, who will continue our culturally rich and unique traditions”.

The goal of this research is to highlight that there is a need to recognize and value the learning methods in a creative and innovative way, raising the visibility of skills acquired outside the formal system and fostering complementarity between active and traditional learning. Researchers have argued that creative potential can be realized, as one of the educational goals in the universities remains a key question. The answer must be reform in our educational methods. So the argument, therefore, is not about changing young people education methods, instead the emphasis is on their potential contribution to improvements in social and economic conditions.

This stud was part of the activities that contributed to the achievement of the UN women Strategic Objective: Eliminating Violence Against Women (EVAW) which relied on four principal concepts: survivor-centered, rights-based, systems-based, and community-based/participatory approaches. Showing first, how to use these strategies to develop creativity in teenage students (between 17-25); second, the importance of developing teaching methods and environments that can bring out the best in students, and third, showing the effect of mind mapping in creative campaigns ideas.

Research problems:

- First there is a need to recognize and value the learning methods in a creative and innovative way.
- Second is to raise the visibility of skills acquired outside the formal system and fostering complementarity between active and traditional learning.

Research hypotheses:

Using learning methods in a creative and innovative way will help students to create better social media campaigns.

Using in-group activities such as brainstorming and mind mapping will help students in a creative and innovative way.

The most important results of the research were using creative strategies like brainstorming and mind mapping. Those tools proved to be very effective in establishing communication with the community and conveying messages, and the volunteers mastered those tools.

Keywords:

Creative problem solving- Active learning - Mind mapping - Critical thinking - innovative teaching - personalized learning.

المخلص:

يمكننا القول أن جذور المجتمع الإبداعي تكمن في التعليم. ومن بين الطلاب الجامعيين "فلاسفة وفنانون وكتاب ورجال أعمال وحقوقيون ونساء محتملون ، وأشخاص سوف يشكلون وسيواصلون تقاليدنا الغنية ثقافيًا والفريدة من نوعها". وجدت الباحثة ان هناك حاجة للتعرف على أساليب واستراتيجيات التصميم وتقديرها بطريقة إبداعية ومبتكرة ، وزيادة وضوح المهارات المكتسبة خارج النظام التقليدي وتعزيز التكامل بين التعلم النشط والتقليدي. وقد تناول الباحثون بأنه يمكن تحقيق الإمكانيات الإبداعية ، حيث يظل أحد الأهداف التعليمية لذا فإن الحجة لا تتعلق بتغيير أساليب تعليم ، بل التركيز على مساهمتهم المحتملة في تحسين الظروف الاجتماعية والاقتصادية.

تعد هذه الدراسة جزءًا من الأنشطة التي ساهمت في تحقيق الهدف الاستراتيجي للأمم المتحدة للمرأة: القضاء على العنف ضد المرأة الذي اعتمد على أربعة مفاهيم رئيسية تحدد المستهدف من الحملة الاعلانية: التعامل مع الناجين ، توضيح الحقوق، وتوضيح القوانين، ودور المجتمع.

يهدف البحث الي اولاً: توضيح كيفية استخدام هذه الاستراتيجيات لتطوير الإبداع لدى الطلاب المراهقين (بين ١٧-٢٥) ؛ ثانيًا: توضيح أهمية تطوير طرق التدريس والبيئات التي يمكن أن تبرز الأفضل لدى الطلاب ، وثالثًا: إظهار تأثير الخرائط الذهنية والعصف الذهني في أفكار الحملات الإبداعية.

الكلمات المفتاحية:

حل المشكلات الإبداعي؛ التعلم النشط؛ رسم الخرائط الذهنية؛ التفكير النقدي؛

1. Introduction

Creativity and cultural development concern the whole of education. They are influenced by much more than the shape and content of the formal training outcome. These influences include methods of instructing; the ethos of the training, including the relationships between the tutor and learners; and the national priorities that underpin the education service. Creativity is one of the key desired educational outcomes in the 21st century as the world's economic growth is increasingly innovation-driven [20, p.179]. Some people argue that creativity cannot be taught at all as it is a natural capacity, which is not easily developed through education. In 1999 The National Advisory Committee on Creative and Cultural Education published an outstanding piece of work entitled, "All our Futures: Creativity, Culture and Education" which sets out proposals to support the development of creativity in education [11, pp. 108–119]. So we can say that an education where every young person is given the opportunity to make the most of their talents in order to enjoy education and achieve success. There are many misconceptions about creativity. For example; " (1) some people associate creative teaching with a lack of discipline in education. (2) Others see creative ability as the preserve of a gifted few, rather than of the many; (3) others associate it only with the arts". According to the author view, creativity is possible in all areas of human activity and all young people and adults have creative capacities.

This paper presents how active teaching methods including; critical thinking, mind mapping, and case study can play an important supporting role in social media campaign. The paper will summarize through case study how creative thinking supports the upper level adult student's self-direction learning and design knowledge transfer. Definition and concepts of active learning critical thinking, mind mapping and case study will be introduced.

2. Background:

Creative design concepts and definitions

Creativity is obviously to do with producing something original. But there are different views of what is involved in this process and about how common the capacity for creativity is. The National Advisory Committee on Creative and Cultural Education reports in (1999) made a distinction between teaching creatively and teaching for creativity in its characterization of creative teaching. The former is defined as 'using imaginative approaches to make learning more interesting and effective'. Creative processes do draw from knowledge and practical skills. It is also the case that there are various techniques to facilitate creative thinking. But this does not mean that students are taught creatively by direct instruction [3, pp. 177–182].

The Author defines creative teaching in two ways: first, teaching creatively, and second, teaching for creativity. Many teachers see creative teaching in terms of the first. By teaching creatively it means teachers using imaginative approaches to make learning more interesting, exciting and effective. Teachers can be highly creative in developing materials and approaches that fire student's interests and motivate their learning. This is a necessary part of all good teaching. Teaching for creativity involves teaching creatively, by teaching for creativity we mean forms of teaching that are intended to develop young people's own creative thinking or behavior. Young people's creative abilities are more likely to be developed in an atmosphere in which the teacher's creative abilities are properly engaged. So, "teachers cannot develop the creative abilities of their pupils if their own creative abilities are suppressed". Teaching for creativity is a demanding process which cannot be made routine. In order to understand the teaching methods, the author divided the tasks into three categories: encouraging, identifying and fostering.

Learning is not an automatic consequence of teaching. Effective teaching entails identifying what students gain by doing problems, and using content, process and criteria directed toward learning. Design Learning is about developing skills, acquiring knowledge and remembering techniques. To be a part of the design community, learning to innovate and change with the focus on self-expression, reflection and integration [16, pp. 195–166]. Knowles 1970 presents pedagogy and Andragogy in learning practices. And he addressed various Andragogical models for helping adults learn. 'Andragogy' learning-by-doing is based on self-directed learning theories approach reinforces a traditional pedagogical approach of teaching based on teacher-directed learning theories. Knowles defined andragogy as the art and science of helping adults to learn [21, pp.82-89].

“Table.1” Knowles assumptions about the characteristics (andragogy) that are different from the (pedagogy)

Learning practices	Pedagogical model	Andragogy model
Concept of learning	Dependent personality	Increasingly self-directional
Role of learners experience	To be built more than used as a resources	A rich resource for learning by self and others
Readiness to learn	Uniform by age level and curriculum	Develops from life tasks and problems
Orientation to learn	Subject cantered	Task or problem centered
Motivation	By external rewards	By internal incentive curiosity
Planning	Primarily by teachers	Mutually by learners and facilitators
Learning activities	Transmittal techniques assigned ready	Inquiry projects independent study Experimental techniques
Evaluation	By instructors	By learners – collected evidence – validated by peers- experts criterion- referenced

To design the creative curriculum, we can include four characteristics of creative processes. First, they always involve thinking or behaving imaginatively. Second, overall this imaginative activity is purposeful: that is, it is directed to achieving an objective. Third, these processes must generate something original. Fourth, the outcome must be of value in relation to the objective.

“Table.2” Four Features of Creativity

Using Imagination	Imaginative activity is: (1) the process of generating something original: providing an alternative to the expected, the conventional, or the routine. This activity involves processes of thinking or behaving. (2) It is a mode of thought which is essentially generative: in which we attempt to expand the possibilities of a given situation; to look at it afresh or from a new perspective, envisaging alternatives to the routine or expected in any given task. “Creative insights often occur when existing ideas are combined or reinterpreted in unexpected ways or when they are applied in areas with which they are not normally associated”.
Pursuing Purposes	Creativity carries with it the idea of action and purpose. It is, in a sense, applied imagination. The imaginative activity is fashioned, and often refashioned, in pursuit of an objective. This can be a highly dynamic process, whose eventual outcomes can be quite different than from those anticipated at the outset. Sometimes the objective changes as new ideas and

	possibilities come into view: sometimes, as with inventions and discoveries, new purposes are found when an initial product or idea has emerged.
Being Original	Creativity always involves originality. But there are different categories of originality ³ . (1) Individual: A person's work may be original in relation to his or her own previous work and output. (2) Relative: It may be original in relation to their peer group. (3) Historic: The work may be original in terms of anyone's previous output in a particular field: that is, it may be uniquely original.
Judging Value	The outcome of imaginative activity can only be called creative if it is of value in relation to the task at hand. 'Value' here is a judgment of some property of the outcome related to the purpose. There are many possible judgments according to the area of activity: effective, useful, enjoyable, satisfying, valid, tenable. The criteria of value vary according to the field of activity in question.

Active learning

Active learning can be defined as "any instructional method that engages students in the learning process" [22, pp. 223-231]. Anything a teacher might ask students to do work individually or in small group like answer questions in class, complete assignments and projects outside class, carry out lab experiments, or anything else other than sitting passively in a classroom in other word in-class activities [19, pp.56–100]. There are many reasons why is active learning important in teaching? 1) In active learning Students are involved in activities more than passive learning, Students do not learn much just by sitting in class, They must talk about what they are learning, write about it, apply it and relate it to past experiences [8, pp. 3-7]. 2) Students are involved in activities more than passive learning, knowing" is different from "doing." When they have an opportunity to apply their knowledge, the lesson typically becomes much more real. Students learn what they care about and remember what they understand [17, pp.30-31]. 3) There is less emphasis on information transmission, greater emphasis placed on developing student skills, strategy of design educators should be aware of important factors in professionalism, designer jobs require various qualifications. 4) There is greater emphasis placed on the exploration of attitudes and values. 5) Student motivation is increased (especially for adult learners) 6) Students can receive immediate feedback from their instructor. 7) Students are involved in higher order thinking (analysis, synthesis, and evaluation) in the context of the college classroom. 8) In active learning a conceptual framework encompassing active learning might be a continuum that moves from simple tasks on one end to complex tasks on the other. Edgar Dales 'Cone of Experience' expresses how learners remember using each approach in his Efficacy of Learning Methods as described in "diagram.1" [14, p.108].

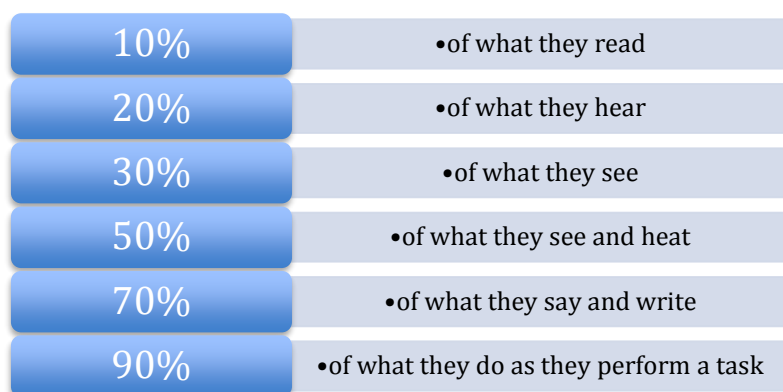


Diagram 1: Edgar Dale's "Cone of Experience"

Source: Adapted from E. Dale, *Audiovisual Methods in Teaching*, 1969, NY: Dryden Press.

Problem-Solving

Problem solving is now a key skill in education. Developing young people's abilities to solve problems is fundamental to preparing them for an independent life [13, pp. 489-499]. Creative education can contribute directly to problem-solving abilities in all disciplines and fields of work. We can say that not all problems call for creative solutions or original thinking. Some can be solved routinely and logically. And not all-creative thinking is directed to solving problems, in the conventional sense. Composing poetry, painting pictures or 'playing' with abstract ideas in science or mathematics is not always problem-solving. The value of creative thinkers is not only that they solve problems we know we have, but that they find problems we hadn't imagined and lead us on to new horizons. According to that more opportunities should be given to young students to sense and define problems for themselves, as well as identifying solutions to given problems. More opportunities should be given to the generation of ideas; looking at the world in different ways and playing with different possibilities and alternative solutions.

3. Creativity in Education

There is considerable debate about, skills of creative thought and production that apply in different domains of creative activity. The literature and many of the practical programs on creative thinking certainly suggest that there are general skills that can be used across many different fields. The experience and research suggested three themes are important in planning policies and strategies for creative education. (1) "Creative processes involve many different mental functions combinations of skills and personality attributes". They involve special purposes for familiar mental operations⁶ and the more efficient use of our ordinary abilities, not 'something profoundly different' [6, pp. 125-163]. (2) Some creative abilities are 'domain specific'. (3) The creative strengths of any one person may be specific to particular fields or types of activity.

There is much debate about methods of teaching in universities, and in particular about the effectiveness of teaching methods. These include methods that encourage exploratory learning activities; case study, group work and 'learning from experience'. This paper suggest that if there is a balance in all good teaching between formal instruction of content and of skills, and

giving young students the freedom to inquire, question, experiment and to express their own thoughts and ideas. Then this balance is a matter of necessity.

According to the study of Davies, Jindal-Snape, Collier, Digby, and Howe (2012) [15, pp.80–91] reviewed the creativity literature and found pedagogical practice being one of the key environmental features in shaping student creativity. The facilitative pedagogical practices include designing learning tasks that are novel to stimulate students' creativity, planning for a structured yet flexible, self-directed learning experience, setting a mutual respect atmosphere, open dialogue, and collaborative activities. Some of the issues faced by teachers include (1) conflicts in policy and practice [23, pp.549–572]; (2) tensions in meeting the subject matter requirements and designing learning tasks to foster student creativity [4, pp. 142–171]; (3) the fear of curricular design [10, pp.113–127]; and (4) the call for subject-content-based curriculum to teach for creativity [12, pp.321-334].

All these dilemmas impede teachers' understanding of creativity, and attitudes towards creativity. In the study of Woods and Jeffrey (1996) document ways in which a small group of teachers operate creatively in the face of a wider context, which arguably suppresses the creativity of the teaching profession [25, pp.97-98]. Craft (2003) [10, pp.113–127] has called for the need for teachers to know what creativity is all about, so that they know how to teach for creativity. Also he points to the need for teachers to know more about creativity and the best ways to teach for its growth, others have highlighted important strategies such as the disciplined improvisation, creative thinking, action, and behavior and creative problem solving.

Mind Mapping

Mind mapping (or “idea” mapping) has been defined as ‘visual, non-linear representations of ideas and their relationships’ [5, pp.72-86]. Mind maps comprise a network of connected and related concepts. However, in mind mapping, any idea can be connected to any other. Freeform, spontaneous thinking is required when creating a mind map, and the aim of mind mapping is to find creative associations between ideas. [7, pp.1-19]. These techniques involved using line thicknesses, colors, pictures and diagrams to aid knowledge recollection. Mind mapping has been used in a variety of disciplines, including Finance [5, pp.72-86], Economics, Marketing Executive Education, Optometry and Medicine [18, pp.426-431]. It is also widely used in professions such as Fine Art and Design, Advertising and Public Relations.

Brainstorming

For achieving aims and objectives of teaching social studies teachers are supposed to use different techniques like group work, class discussion, role play and brainstorming etc. Technique of brainstorming is depending on the capability of human brain to make association. Brainstorming is an modern conference with particular scenery in order to create a list of ideas that can be used as clues guide students to the growth of the problem while giving every student the possibility to articulate her ideas and share those ideas with others and support new ideas [1, pp.30-31].

Approach of brainstorming in the education of the modern methods that persuade creative thinking and let go the potential when educated in an atmosphere of liberty and security allows the appearance of all views and ideas so that the learner at the top of the communication and

interaction with the circumstances and fit this approach in the issues and topics open that have no answer [2, pp.361-366]. In the study of Al-Maghrawy, (2012) defines Brainstorming as a “group creativity forum for general ideas”. According to Zayton (2001), brainstorming was developed by Alex Osborn to create ideas without inhibition [26, p.61]. Brainstorming technique engage oral and prewriting exercises for helping the learner and for articulating ideas by the teacher. Brainstorming techniques has a great importance in the teaching process.

Referred to its importance for students in as follows: 1. Helps students to solve problems, an innovative solution. 2. Helps students to benefit from the ideas of others through the development and build on them. 3. Helps the cohesion of the students and build relationships among them and assess the views of others [24, pp. 370-410].

4. Research Methodology

4.1 The case study

The project established a team of volunteers in each project site through a systematic recruitment process based on explicit selection criteria. The project's team of volunteers was recruited and deployed in 4 batches throughout the life cycle of the project.

All 4 batches of selected volunteers participated in a foundation training and gender camps to acquire the basic knowledge about the concept of gender and gender based violence. The project has undergone a Mapping of available psycho social, legal and health service providers in the project implementation sites (Ezbet El Haggana, Imbaba, Beni Sueif, Assiut and Minya).

In the other project governorates (Minya, Beni Sueif and Alexandria) the process was more complicated, and entailed several brainstorming sessions, communications as well as meetings with various governmental entities including officials at the Governor's Office, Health Directorate, as well as Local Universities to identify and locate potential providers of services (including health services) to victims and survivors of violence.

4.2 Gender Training

The training focused on building participants' knowledge on concepts related to gender equality. This also focused on understanding terminologies and definitions as well as the concept of gender within a legal and rights-based context. The camp also tackled several topics that were intended to contribute to attitude and behavior change such as:

- Gender roles and stereotypes are socially constructed and not biologically determined
- Gender stereotypes that promote dominant masculine roles and practices that may have implications for men and boys, as well as for women and girls.
- Different forms of violence particularly violence against women and girls.
- Existing national and international policies, laws, and legislations that promote and aim to enforce ending violence against women.
- Recognition and acceptance of others with all their differences/diversities.

4.3 Social Empowerment Trainings :

Volunteers were selected from each intervention area to be trained as trainers on social empowerment. This training aimed at empowering the volunteers and equipping them with the needed skills to conduct social empowerment sessions to the beneficiaries. During the training, volunteers understood the importance of assertiveness as one of the factors in the success of one's personality. In addition, further discussions were held about their fears and the different questions that they may be asked by the trainees while conducting the sessions.

The training boosted the volunteers' self-esteem and their understanding of their own self-value. It also provided them with the technical skills on how to transfer this training to others. After they completed the training, volunteers started conducting interactive theater sessions for the community in their areas. Although the sessions were first primarily targeting women, volunteers from Ezbet El Haggana started to feel confident enough about their skills and abilities to face and interact with the whole community. They decided to take the activity to a second level and volunteers started taking their sessions to the street and target what they felt were the most important agents in the circle of violence against women, the men in their lives. The most important outcome of the project was the team of volunteers in the 5 partner who are equipped with the tools necessary for implementing community awareness sessions using innovative and interactive tools including sports, theatre. Those tools proved to be very effective in establishing communication with the community and conveying messages, and the volunteers mastered those tools. Involving the volunteers and equipping them with the necessary knowledge and skills represented the first step in community behavioral change, when those volunteers who are also members of the community started to experience attitudinal and behavioral changes due to the knowledge and skills they acquired.

4.4 Campaign design and idea

This section presents the results of the social campaign design. The attention to the subject of social media strategy has been scarce. Nevertheless, our literature-selection was categorized into two separate lenses to present findings. Social media strategy is a new and emerging field as the systematic literature review revealed. Social media applications have become the newest wave of e marketing and are making personal websites more interactive and engaging. Tools such as Facebook, Twitter, blogs, and photo- and video-sharing sites have become accepted communication channels in the public sector.

Campaign (1):

The social campaign idea based on the effect of early marriage

Goals: to raise awareness

Target audience: girls from 12-17

Social media: Facebook (figure, 1/2/3/4)



Figure 1: the final poster



Figure 2: first scene



Figure 3: second scene

Social media campaign page on Facebook



Figure 4: the first campaign page on Facebook

Campaign (2):

The social campaign idea based on the effect of early marriage

Goals: to raise awareness

Target audience: girls from 12-17

Social media: Facebook (figure, 5/6)



Figure 5: the page banner



Figure 6: the page ads

Campaign (3):

The social campaign idea based on the violence against women

Goals: to raise awareness, this campaign was published in Facebook for 3 months each month with different theme as described in figure 7,8 and 9.

Target audience: girls from 18-35

Social media: Facebook (figure, 7/8/9/10)



Figure 7: first theme



Figure 8: second theme



Figure 9: third theme

Social media campaign page on Facebook



Figure 10: the third campaign page on Facebook

The research results:

The most important outcome of the project was using creative strategies like brainstorming and mind mapping. Those tools proved to be very effective in establishing communication with the community and conveying messages, and the volunteers mastered those tools. Connecting to an active online audience can help an agency in times of budget cuts to determine the public impact of and support for sequestration of government programs and services. Depending on the content, chosen social media channels (or mix-and-match of tools), we should constantly observe the online interactions and measure both with the help of quantitative (such as followers, numbers of re-tweets), as well as qualitative measures (sentiments and feedback) their online impact.

Conclusion:

It's more difficult to distinguish between formal and informal communication. A good strategic approach regarding social media can help to address these challenges in both commercial and non-profit domains. During this case study we can identify three aspects to assume that a strategic approach of social media is beneficial: First, the strategic approach contributed to the success of the campaigns. Second, we have found empirical indications from our studies that campaigns that designed strategies prior to their social media campaigns experienced more positive outcomes. Third, investments in social media should to some extent have a predictable return on investment.

There are of course plenty of examples where social media experiments had beneficial outcomes without any underlying strategy. Instead it is important to understand how issues are currently discussed among the audience(s), where and how issues are emerging, and how favorably the agency is discussed in the context of mission-related issues.

Our case study needs to consider relying on volunteers to implement community awareness activities. Relying on volunteers proved to be a more effective means of implementing those activities than contracting an external consultant. Interactive theater, sports days, social empowerment sessions were better perceived to help achieve the project results than the art therapy or story telling workshops. Volunteers in planning and implementing their activities usually take into consideration the overall project framework of results and tailor the activities based on the local communities needs which makes those activities more effective in achieving the project intended results.

REFERENCES

1. Al-bwli, Q. (2006). The effectiveness of using brainstorming strategy in developing creative thinking in Islamic Education among Third secondary students in Tabouk City. Master Thesis. Mut'a University, Krak. Jordan, pp.30-31
2. Al-maghawry, A. (2012). Effectiveness of Using the Brainstorming Technique to Learn Some Basic Skills and Collection of Knowledge for Beginners in Volleyball. *World Journal of Sport Sciences* 6 (4): 361-366
3. Armbruster, B.B. 1989. Metacognition in Creativity in J. A. Glover, R. R. Ronning and C. R. Reynolds (eds.), *Handbook of Creativity*, New York: Plenum Press, pp. 177-182.
4. Beghetto, R.A.; Kaufman, J.C. (Eds.) *Nurturing Creativity in the Classroom*; Cambridge University Press: New York, NY, USA, 2010, pp. 142-171
5. Biktimirov, E. N., & Nilson, L. B. (2006). Show Them the Money: Using Mind Mapping in the Introductory Finance Course. *Journal of Financial Education*, 32(Fall), 72-86.
6. BODEN, M.A. 1990. *The Creative Mind: Myths and Mechanisms*. London: Weidenfeld and Nicholson, pp. 125-163
7. Buzan, T., & Buzan, B. (2013). *The Mind Map Book*. London: BBC Books, 14(2), 1-19
8. Chickering, A.W. & Gamson, Z.F. (1987). Seven principles for good practice. *AAHE Bulletin*, 39(7), 3-7.
9. Craft, A.; Jeffrey, B. Creativity and Performativity in Teaching and Learning: Tensions, Dilemmas, Constraints, Accommodations and Synthesis. *Br. J. Educ. Stud.* **2008**, *34*, 577-584.
10. Craft, A. The Limits to Creativity in Education: Dilemmas for the Educator. *Br. J. Educ. Stud.* **2003**, *51*, 113-127.
11. *Creative Education*, Vol.2 No.3, August 9, 2011, pp. 108-119.
12. Cox, C.B.; Dyson, A.E. *The Black Papers on Education: A revised edition*; Davis-Poynter: London, UK, 1971, pp . 321-334
13. CUMMINGS, L.L., HINTON, B.L. & GOBDEL, B.C. 1975. Creative behavior as a function of task environment: Impact of objectives, procedures and controls, in *Academy of*

Management Journal, vol. 18, pp. 489-499.

14. Dale, Edgar. *Audio-Visual Methods in Teaching*, 3rd ed., Holt, Rinehart & Winston, New York, 1969, p.108.

15. Davies, D.; Jindal-Snape, D.; Collier, C.; Digby, R.; Hay, P.; Howe, A. Creative Learning Environments in Education: A Systematic Literature Review. *Think. Skills Creat.* **2012**, 8, 80–91.

16. Dorst, K. and Reymen, I. M. M. J. 2004. Levels of expertise in design education. 2nd International Engineering and Product Design Education Conference, Delft University of Technology, Delft, pp. 195–166.

17. Ericksen, S.C. (1984). *The essence of good teaching*. San Francisco: Jossey-Bass, pp. 30-31

18. Farrand, P., Hussain, F., & Hennessy, E. (2002). The Efficacy of "Mind Map" Study Technique. *Medical Education*, 36(May), 426-431.

19. Felder & Brent, Fall 2003, ACTIVE LEARNING: AN INTRODUCTION, ASQ Higher Education Brief, 2(4), 56–100.

20. Florida, R. *The Rise of the Creative Class: And How It's Transforming Work, Leisure, Community, and Everyday Life*; Basic Books: New York, NY, USA, 2004, p. 179.

21. Knowles, M.S. (1970). *The Modern Practice of Adult Education; Andragogy versus Pedagogy*. New York: The Association Press, pp.82-89.

22. Prince, M. 2004. Does Active Learning Work? A Review of the Research, *Journal of Engineering Education*, 93, 223-231

23. Troman, G.; Jeffrey, B.; Raggl, A. Creativity and Performativity Policies in Primary School Cultures. *J. Educ. Policy* **2007**, 22, 549–572.

24. Wickmore, M. (2009) Proposed Collective Outreach Program to Assist Parents with Talented and Excellent Children in Dealing with their Children, The Sixth Arab Scientific Conference for the Care of the Gifted, The Arab Council for the Gifted and Outstanding, Conference No. 6, Volume 10, Amman, Jordan pp. 370-410.

25. Woods, P.; Jeffrey, B. *Teachable Moments: The Art of Teaching in Primary Schools*; Open University Press: Buckingham, UK, 45 (1): 97-98 (1997).

26. Zeitoun, A . (2001). *Methods of Teaching Science*, Amman: sunrise house for Obada, A. (1992). *Creative Solutions of Problems: Theory and Practice*. Bahrain: Dar Al-hikma Press. 2007, 61(2) Oxford University Press.