Abstract:
This paper introduces a new approach to creativity in design education based on puzzle solving activity in a world where ambiguity and change is essential with the innovations of 21st century. Design as puzzle solving activity makes it possible to generate new ideas, to think something different, to be able to integrate knowledge and imagination which gives rise to generation of form – creative thinking. Accordingly puzzle solving activity can be considered as choreography emerged in dialectics of multiplicity which leads us mythical stage between the real and virtual, between the possibilities and limitations creating shifting balances. In this paper we come up with a broader network relationship for understanding creativity which cannot be taught, but learned through the notion of narrative referring to Visual Design Course’s (VDC) intellectual atmosphere created by discussions on narrative workouts. VDC is structured according to the design practices based on narratives in order to help students to constitute a flexible thinking and also to develop more unified mind by which both open the doors for creativity. The theme of the each workout designed as a narrative reveals a puzzle solving activity which involves thinking something different, imagining unrelated structures of consciousness, questioning assumptions, and discovering connections among various phenomena.

Keywords: Creativity, Creative Thinking, Puzzle-Solving, Narrative, Choreography.

“Creativity is the ability to illustrate what is outside the box from within the box” – The Ride

Introduction
Creativity coming from the Latin word ‘creatus’- literally to have grown, is a mental process involving the generation of new ideas and concepts, or structuring new associations between existing ideas or concepts. ‘Creativity, by its very nature is a complex topic of many facets – something that remains a ‘slippery concept’; that is difficult to pin down, nebulous and awkward to define’ (Spendlove, 2005). On the other hand, creativity can be considered as production of sensation which is aimed to be gained throughout design education, has more priority than anything else due to the rapid flow of knowledge in the present day. There has been lots of research
about design education based on new models and methods which refer to problem solving activity. But for today’s condition – as a medium where everything is interlocked with each other within the general flow - we can talk about a paradigm of creativity which requires puzzle solving instead of problem solving. It consists of flexible thinking where the state of ‘multiplicity’ of being multi-disciplined and multi-layered is required. Because of ambiguous and multi-layered nature of design, creativity emphasizes the ability of defining and transforming a puzzle instead of solving problems separately while establishing a web of connections. In other words, a model for creativity in design education based on problem solving will be inadequate for establishing a web of connections which consist of complexities and contradictions. Considering today’s design education agenda, discussions are focused on developing new strategies and tactics for learning creativity rather than teaching it. In this context, a new strategy and tactics for learning creativity have been developed for Visual Design course (VDC) in which an intellectual atmosphere is created by an interplay between the theoretical issues and practices based on discussions of narrative workouts. As Reid and Petocz (2004) put it, ‘learning’ is no mere acquisitions of facts, but a process of involving an interplay between the students’ individual intentions, experiences and reflections, a body of professional knowledge, institutional expectations and intended outcomes, cultural and social expectations and the students’ own particular interests. Intellectual atmosphere created at VCD consists of setting up a learning environment which can be described as Reid’s following statement: a learning environment that encourages students to see the essence as well as the detail of the subject, to see the connectedness between diverse areas, to take in and react to new ideas and to include the element of surprise in their work’ (Reid et.al., 2004). Within this atmosphere as a new strategy, students are asked to create new entities in the form of narratives referring to the theoretical issues discussed during the lectures; and some tactics are developed by tracing some clues during the discussions for transformation the knowledge into new ideas and possibilities.

The main argument of this paper is that; “creativity” is not a skill that can be easily taught by fulfilling tasks, but can be learned within an intellectual atmosphere by experiencing and producing sensation and reasoning the existing environments. ‘The development of different perspectives in describing creativity has been traced, from the concerns of the 1950s to 1970s in areas of personality, cognition and the stimulation of creativity in individuals, to the awareness in the 1980s and 1990s of the influence of environments, social contexts on the creativity of individuals. (Rhyammar et.al., 1999). The concept of creativity is so personal that it has to be produced, cultivated by the person - the creator, himself/herself. Csikszentmihalyi postulates that; in order to understand creativity one must enlarge the conception of what the process is, moving from an exclusive focus on the individual to a systematic perspective that includes the social and cultural context in which the ‘creative’ person operates (Csikszentmihalyi, 1990). Csikszentmihalyi also identifies a common characteristic of creative people as ‘flow’ – the automatic, effortless, yet highly focused state of consciousness when engaged in activities, often painful, risky or difficult, which stretch a person’s capacity whilst involving an element of novelty or discovery (Csikszentmihalyi 1996). He elaborates the description of this characteristic in identifying nine elements which such activity provides: clear goals, immediate feedback, balance between challenges and skills, merging of action and awareness, elimination of
distractions, lack of fear of failure, lack of self-consciousness, distortion of sense of time, autotelic activity (enjoyment for its own sake) (Loveless, 2002).

Visual Design Course (VDC) is based on theoretical and practical design issues that develop critical thinking by asking “what if?” questions in the form of puzzling and puzzle solving activity. Both the verbal / conceptual and visual / representational expressions of narrative workouts activate students’ critical thinking which emerges through pragmatic, semantic and syntactic reasoning with different backgrounds. That’s why VDC is open to all the students of the Faculty of Architecture and each year students from Industrial Product Design, Architecture, Urban and Regional Planning, Interior Architecture and Landscape Architecture Departments attend the course. Such a multiplicity among the ideas, images and feelings of students nourishes the intellectual atmosphere of the course.

The aim of VDC is to encourage the students to take the path to creativity on their own. Two roads diverged in a wood, and I — | I took the one less traveled by,| And that has made all the difference, as it is put in the lines of “The Road Not Taken” by Robert Frost, students are directed to make journeys to the design territories which are ‘less traveled by’ where in each instant and experience they will form their own pathways while answering the same question, the same puzzle which is asked. Thinking metaphorically, VDC aims to show the door but the student is the one – the decision maker - who walks through it.

During the course, which is nothing but a 14 week journey, both sides; the students and the lecturers discuss students’ designs, sometimes conflict with each other but most importantly both sides learn from each other on behalf of experiencing the ‘new’.

An approach to creativity in design education:
VDC can be considered as an “examplar” which implies an intellectual atmosphere produced by both products and processes nourishing each other for understanding creating activity in design education. Creating activity in VDC is encouraged by sensible and mental domains at each level and potential of narration that affect each other as a network system, creating multiple new paths and new connections. VDC as an “examplar” consist of such multiplicities that open up into new paths in the complication of our ways of being. These multiplicities have juxtaposing and superimposing many different layers, some has contradictions, in a form of narrative which can be directly and indirectly transmitted. Therefore creating activity in other words creativity exhibits both the capacity of an empathetic
description of phenomena and the circumscribed realm of inquiry which lead to puzzle solving activity.

Considering this approach to creativity, the course is designed with theoretical lectures and discussions on narrative workouts interwoven into a whole which embraces the practical, reflecting and informing the praxis of life. Within this interwoven whole, it is possible to be in-between ground of spontaneity and predictability, of sequentiality and randomness, of preconceived solutions and observed facts that make one’s mind to think something different and to create a narrative. Thus, VDC as an “examplar” is structured according to strategic approach in which several tactics can be used according to contextual issues in which creativity emerges. This approach takes its roots from post-structuralist theories which focus on non-linear processes where every end has a potential to become a new beginning. In the case of learning creativity as puzzle solving activity, similar non-linear structure is required to create interplay between theory and practice. This type of interplay occurs when the theoretical knowledge can be shifted to conceptual experiential knowledge throughout the web of design issues in the form of narratives. This shifting balance makes the system open-ended and flexible having ambiguous borderline between theory and practice. Where the theory ends and where the praxis begins becomes uncertain. This dynamic structure of the course is constituted by theoretical lectures and discussions on narratives which are interwoven through intellectual atmosphere created within the course. Discussions on narrative workouts are nourished by theoretical lectures based on concepts such as: visual literacy, visual culture, language and meaning, narrativity and design paradigms which articulate each other and create shifting balances between theory and practice. In relation to these topics, students first begin with Three Image Narrative, following to Book Cover, Digital Poem, Paradigmatic Miniature and Child Book narrative workouts by which they experience and express a different level of narrativity consecutively.

For The Three Image Narrative workout, students are asked to work with only three specifically chosen images to design a narrative of a well-known story by which viewers have the chance to make their authentic guesses about what the story is by decoding these three images and their compositional arrangement as if in the act of puzzle solving.

For The Book Cover workout, revealing the interchangeable relationship between a certain existing text (a published novel) and its visual expression becomes important. As discussion and evaluation processes go on, people in the class begin to grasp a clue about the narrative that has been represented. They get an opportunity to re-think, re-define and re-tell an existing narrative in the form of a novel where in some way, first they deconstruct it and then they combine the fragments of their authentic understanding of this certain narrative.

As students transform a poem – a verbal narrative into a multimedia presentation – an audio-visual narrative for the Digital Poem Workout; the shifting balance between ‘verbal’ and ‘visual’, ‘poetic’ and ‘digital’ forces the students to define a new level of narrativity and directs them to a new level of puzzle solving activity.

Throughout Paradigmatic Miniature Workout, students considering their own everyday life as a paradigm, express their own narrative of ‘being’, literally
deconstruct and reconstruct their own life cycles by combining images in a multi-layered and interlocked structure of a miniature.

For Child Book workouts, visual images and verbal text are designed in such a way that they can complete and articulate each other. The open-endedness of visual images and the relationship of these images with the on-going text direct the viewer to regenerate new narratives on and on where such an act can easily be considered as a puzzle-solving activity.

As it is put with a straightforward manner in the title of this paper, design has been considered as a puzzle-solving process instead of a problem-solving process for building the content of VDC. Such a preference is done due the inner characteristics of problem-solving and puzzle-solving activities. When a problem and a puzzle are compared; a problem can be defined as a question for inquiry, consideration or solution whereas a puzzle can be defined as a problem or an enigma that challenges ingenuity. For problem-solving, the result is the most important aspect where in puzzle-solving, the process gets more importance. Structurally, problem-solving can be evaluated as a linear action. You start from one definite point in order to find the result. Going back and forth during problem-solving does not change its linear nature but emphasizes it.

However for puzzle-solving, it can be said that it has an expansive structure. You can start from any point and go on connecting the parts. As ways of solving a puzzle differ from person to person, the process of solving it becomes more unique and creative. Getting lost, randomness and coincidence are not cons but pros for puzzle-solving. They generate new and different possibilities and force the problem solver think creatively.

By framing and solving a puzzle, students have used a variety of concepts that could be directly applied in experiential circumstances (Aydınlı, 2007). Puzzling and puzzle-solving process begin right in the beginning of VDC. Actually, the first lesson begins with a crossword puzzle, as seen in Figure 2, which students are expected to solve. The puzzle includes the important concepts which will be discussed throughout the course. Problem-solving approach focuses on the question of “What?” whereas puzzle-solving approach focuses on the question of “How?”. Instead of just giving the subjects as the outline and asking the question of “What?”, the meaning of concepts behind the subjects are given as the parts of the puzzle where in an indirect way the student is expected to think the inner and deeper meaning of the concepts and answer the question of “How?”.

VDC may be considered as a platform in which an intellectual atmosphere is created where having a flexible mind, tolerating
ambiguity, viewing things metaphorically, challenging one's assumptions and reversing one’s expectations, asking questions within a comprehensive and open-ended structure have always been welcomed. A productive and active medium is generated where the notion of narrative, which will be discussed later on, becomes a medium for the course itself as well as forming the essence of it.

‘Narrative’ as a medium for creative thinking in design education
Creative thinking may be considered as the leading one among other ways of thinking. “Creative thinking requires an outlook that allows the individual to search for ideas and play with his/her knowledge and experience. With this outlook, the individual tries to find different approaches, first one, then another, often not getting anywhere. S/he uses crazy foolish and impractical ideas as stepping stones practical new ideas. S/he breaks the rules occasionally and explore for ideas in unusual outside places and in the end. This enables him/her to come up with new ideas. (Oech,1998).

Creative thinking involves imagining things in a fresh light, questioning assumptions and discovering connections among various phenomena. Thus it is supported by observation, perception, discrimination and imagination. The essence of creativity is to be found in the integration on a new layer of previously unrelated structures of consciousness since it is an act of puzzle-solving. It generally consists of the shifting attributes of layers from one thing to another. These layers are the result of a combination of previous mental images.

Creative thinking, which is mentioned here, is such a skill that it coincides with critical thinking where a network of co–existing dialectical relations occurs. For such a way of thinking; superimposition of different concepts emerging from different layers of culture, knowledge and lived experiences, juxtaposition of the ‘real’ and ‘virtual’ - ‘visible’ and ‘invisible’- ‘tangible’ and ‘intangible’ in a simultaneous way for making the world outside meaningful for us, experiences of the tension between these dichotomies in a dynamic way, get priority in today’s design education.

In this context, understanding and interpreting the fact introduced as a problematic as ‘narrative’, becomes important because of its comprehensive multidisciplinary potential and multilayered meaning structure. The notion of narrative explains the problematic of adapting the existent situation to the current situation. Put differently, the prefix re- as it is combined with -thinking, -designing, -interpreting, gets more active and functional when the problematic is handled by the help of it in that sense.

“For Lyotard (1984, 1992) narrative is a mode of knowledge, from the Latin root ‘gnarus’ to know. Knowledge is articulated and communicated in society in the forms of narratives. Therefore, narratives define the possibilities of knowledge and, hence, action in any given society” (Mcquillan, 2000).

What 'narrative' does is nothing but to understand and sometimes regenerate the relationship between the ‘real’ and ‘virtual’; “What is real?” and “What is not real?” In multilayered and complex formations the concept of time and space sequentiality are turned upside down and judged.

Narrative presents the multi-layered meaning structure of both visible and invisible dimensions of any phenomenon by a paradigmatic / nonlinear
explanation. A narrative requires a situational togetherness and a total interrelatedness of the subject / perceiver and the object / perceived. Narrative can be considered as a network which has taken its meaning structure from the tension between the conflicting but complementary concepts such as ‘real and fictitious’ or ‘perceived and imaginative’. The communication net, consisting of this kind of conflicts, presents a spiral relation profile proceeding with the comings and goings between mind and intuition; the dialogical questioning and answering of the subject / man and environment / object.

Referring to the notion of narrative, perception and interpretation that reflect the relationship between the fragments and the whole in an unexpected way and the mental construction of them always have the potential of being reshaped and redefined.

Image as narrative, includes the knowledge of a new evaluation of a pre-examined work by a “multiple reading”; with a similar approach of an “open work” in Umberto Eco (1989). What makes the image a narrative is its holistic nature that consists of a dynamic interplay between its objectivity and subjectivity. This dynamic interplay makes the whole system flexible and open to change.

As Dondis (1973) states;” Using the image to communicate is the nearest we can get to the true nature of ‘reality’. “Since prehistoric cave paintings, humans have used the image to deliver their message to the world. And regardless of the fact, that over time, the image has evolved, first into the pictogram and then in turn into the alphabet, (which subsequently has seen the ascendancy of the world in terms of a communicative tool), we are still, today, using images as primary source of information and communication” (Hugo, 1996, p.4). As we consider each image and the combination and composition of images in each work, the fact is what lies beneath them.

"Husserl, as he considers the image, mentions about two types; one is physical image and the other is mental or psychic image. The physical image is the pictures, photographs and drawings which represents the object in the absence of the object. There are two types of intentionality here, one towards the paints, colors, textures and etc. of the visible, and the other is towards the meaning in the represented. Both of these set up their own intentional experience. The mental image that is constituted by the direct perception of the object is the product of the intentionality towards the
focused object in its own time, space and aura.” (Alemdar & Aydınılı, 2007). The images which the students create and use for designing their work can be evaluated as physical images such as photographs, drawings, illustrations etc. on one hand but on the other, the whole consisting of these images stands for the mental image which owes its existence to these physical images but is something more than their sum.

As Cobley (2001) says; there can be little doubt that the single image in such sequences are ‘mimetic’ in their orientation; they show events. Yet, their juxtaposition is not simply a matter of showing two separate and unconnected events; instead new meanings are connotated.

So, “Understanding and interpreting image as narrative refer to the idea of the horizons of understanding, of the possibility of discovering new meanings in a live tradition of fused horizons that we share over time” (Alemdar & Aydınılı, 2007).

Narrative, which occurs differently in each workout, in each application leads us to a mythical stage between the ‘real’ and ‘virtual’. Throughout the process, virtual and further more non-existing elements are constructed in
such a way that they define a new form of reality, they become ‘real’ due to the power of narrative.

The term ‘narrative’ within its potential of forming the mental construction of intuition and thought directing the design action itself with a flexible and mutable awareness in some way may stand for the word ‘scenario’.

Awareness, which is mentioned here, “refers both the objectively defined variables and individual’s subjective knowledge based on intuition. In this respect, awareness in design issues can be considered as a matter of “both” the actual and physical properties of a setting “and” the perceived and experienced phenomena” (Aydiñlı, 2007).

Figure 5. Paradigmatic Miniature Workouts designed by Phil Bridge *(a), Christie Bradford* (b), Analies Wisse* (c) and Merve Devecioglu (d). Everyday life is interpreted where the art of miniature is used as a narrative tool.

The term choreography, maybe, connotates narrative more since it can be stated as a web of time and event. In this respect, what is choreography? Other than ‘the art of making structures in which movements occur’ it is the web of body and movement- web of movement and music- web of sound and space- web of body and sound – web of body and space. Actually, all of these compose a construction as a network and so narrative structurally fits with the term choreography more within respect to its potential for revealing and understanding the network connections, defining, interpreting and redefining various possibilities.

Digital Poem is one of the workouts which acquire choreographic characteristics in its very nature. For digital poem, students have been supposed to transform a poem into a digital poem. They have been asked; How can a poem be expressed other than just using words? In order to do that, they have been expected to tell the chosen poem in the form of a multimedia application by using images and sounds rather than just using the text
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and the benefactions of verbal art. It has been quite challenging in that sense as they are experiencing the tension between the poetic and digital concepts while they are forming their web of relations as a narrative.

According to Sommers and Gibson (1994), there are four main principles of a narrative. They are; relationality of parts, casual emplotment, selective appropriation and temporality, sequence and place for the writer.

‘Relationality entails that is impossible to make sense of an isolated event, and that for an event to be interpreted, it has to be conceived as an episode, one part of a larger configuration of events: “narrativity demands that we discern the meaning of any single event only in temporal and spatial relationship to other events” (Somers and Gibson, 1997:82) and “renders understanding only by connecting (however unstably) parts to a constructed configuration or a social network (however incoherent or unrealizable) composed of symbolic, institutional and material practices” (Somers and Gibson, 1994:59).

So, on behalf of narrativity, we get the ‘big picture’ because of its sense of relationality. For VDC, different forms of relationality occur in the students’ workouts. For three image narrative, the students (‘narrators’) have been limited to use just three images together in order to tell a story. At this point, they have had to decide about the most appropriate three images which tell the story in the most comprehensive way. Here, the force of the narrative and so is the design, lie beneath in juxtaposing images in such relationality that narrative is reconstructed again and again by ‘weaving together relatively and considerably new configurations’ (Baker, 2005) in each reading. For some workouts, like Paradigmatic Miniature, where students have been expected to tell their own everyday life paradigm or child book where they have to make up a story and design it both visually and verbally; ‘sky is the limit’ for students in choosing the ‘right’ images to generate and to use. For such workouts, students are the ones deciding what is to be told as well as how it is to be told.

‘As relationality means that every event has to be interpreted within a larger configuration of events, casual emplotment “gives significance to independent instances and overrides their chronological or categorical order”

Figure 6. Digital Poem Workout designed by Christie Bradford. Poem: I am Very Bothered by Simon Armitage
(Somers 1997:82). It is casual emplotment that allows us to make moral sense of events, because it enables us to account for why things happened the way a given narrative suggests they happened' (Baker, 2005).

Figure 7. Child Book Covers: Peter Dawson * (a), Nilüfer Çalışkan (b), Nina Fenateu*(c)

For child book examples, the students have told their own authentic stories in a way that they have a moral sense. The plot and this moral sense are interlocked in some of their stories. Students have defined some set of events and weaved them verbally and visually in their narratives.

Figure 8. Tom’s Blue Day by Christie Bradford *

‘Emplotment clearly also means that constructing a narrative can only be proceed by selective appropriation of a set of events or elements from the
vast array of open ended and overlapping events that constitute experience. Thus, to elaborate a coherent narrative it is inevitable that some elements of experience are excluded and other privileged (Baker, 2005).

As the narrator, the students have constructed their narratives from their own selection of experiences and they have expected the ‘reader’s to get the story by recalling their own experiences at that instant. "In both Ricoeur (1984, 1985, 1988) and Derrida (1992b, 1993) narrative is the necessary form for the expression of human temporality. Human beings understand the construction of an idea of the present, past and future through their use of narrative. Therefore, narrative is fundamental expression of the question of being as a moment of presence (narratives help humans to imagine themselves existing in a ‘now’ because narratives claim to relate in the present a ‘past now’ recovered through the narrator’s telling). Narrative is both the process and the consequence of this temporal structuration.” (Mcquillan, 2000). Other than having “at that moment” effect, narrative’s embedding into time and space—which can be evaluated as its temporality—have worked as a layer shaping the narrative, itself. As all the mentioned principles come together, students have formed a framework for narrative as a medium for generating and experiencing creativity in VDC.

Concluding remarks
When the design is considered as linear, syntagmatic and well-defined process which is based on problem solving activity; it is possible to teach creativity in relation to some principles and methods. Whereas design issues are ill-defined, nonlinear, ambiguous and paradigmatic having complexities and contradictions structured within a network relations that require puzzling and puzzle-solving activity. A new way of creativity in design education can be based on creative thinking that requires not only a problem-solving approach but a puzzle-solving approach, which is more crucial in design. This paper outlines a conceptual framework for developing puzzle solving activity which is essential ingredient of creativity in design education; and emphasizes that creating activity can be learned by experience which leads to creativity. Creativity, therefore, can be learned as a medium of narrative which provides an important means to explain the puzzle solving activity and to bring together the fragmented parts in a possible whole. Visual memory, the power of image, perceptual emergence, cultural values and social configurations referring to both virtual and actual issues in design are interdisciplinary investigations of creativity and they all together constitute its multiplicity. Reading and designing the meaning of these multi-layered issues as a narrative requires puzzle solving activity which forces students to think something different and to change the way they think for being flexible in creative thinking. As a series of experiments, the workouts mentioned above are all about narrative configurations based on different theoretical issues of VDC.

The mutual relation between the narrative configuration and all the meaning layers of design issues arise from its ordering ideas in other words its choreography. Choreography, because of its dialectical nature and inexhaustibility of its contrast, encourages students to transform their existing knowledge into new ideas in a way of generating narrative. It also helps students to be aware of all design issues that can relate to each other with juxtaposed semantic and syntactic and pragmatic variety. As an alternative approach to creativity, motivating students to create a narrative will increase their possibilities to puzzle their solutions. Because of its
complexity and its contradictions, a correlation between mapping and applying a concept to design issues is established by post-structural relationships referring to the narrative which requires the puzzle solving activity. According to this approach awareness is necessary for creativity which can be learned within an atmosphere where puzzle solving activity can be developed by creating narratives and doing choreographies for design.

References

Söz konusu makale, muğlaklık ve değişim kavramlarıyla kendi gerçekliğini sergileyen 21. yüzyılın tasarım dünyasında, yeni fikirler üretmeye yönelik bulmaca çözüm edimi üzerine temellenen yeni bir yaratma eyleminden söz eder. Olagelen ve süregiden bir modu tanımlayan yaratıcılık olgusunu artıрапsal bir yaklaşımla anlamanın olasılığıdır.