



UGSEAD

Uluslararası Güzel Sanatlar Eğitimi Araştırmaları Dergisi
International Journal of Research in Fine Arts Education

<http://ugsead.penpublishing.net>

PENACADEMIC



The Effects of Visual Arts Education upon Literacy¹
Görsel Sanatlar Eğitiminin Okuryazarlık Üzerine Etkileri²

Kani ÜLGER

Cumhuriyet Üniversitesi Eğitim Fakültesi

Received: 06.06.2020

Accepted: 30.11.2020

Anahtar kelimeler:

Critical thinking, Creative thinking,
Problem solving, Advanced literacy

ÖZET

ABSTRACT

Schools generally force students on the solution of problems to give right answer as *yes* or *no* which cannot be improved the literacy skill of them as advance literacy. Whereas the non-routine problem solving process seen frequently in the Visual Arts Education may give many opportunities for students to think alternatively using literacy skill regarding advanced literacy.

Although there have been many study findings about the effect of the Visual Arts Education upon the literacy in terms of the 'writing' and the 'reading' as basic level of the literacy, it has not been found any study findings in terms of the advanced literacy. With this aim, this research determines the role of the visual arts education in the advanced literacy regarding the critical thinking, creative thinking, and problem solving outcomes of this education discipline. Hence, the research questions were as followed: "What requires of advance stage of literacy from critical thinking, creative thinking, and problem solving?" and "What the role of the visual arts education in the advanced literacy?" The method of this study is based on literature review. A *keyword search* was used as the data collection tool. Accordingly, this study analyzes the literacy skills in terms of the effect of the Visual Arts Education upon the advanced literacy. Consequently, the study reveals the important role of the Visual Arts Education for the advanced literacy.

© UGSEAD All rights reserved

Geliş Tarihi: 06.06.2020

Kabul Tarihi: 30.11.2020

Keywords:

Eleştirel düşünme, Yaratıcı düşünme,
Problem çözme, İleri okuryazarlık

ÖZET

Okullar genellikle, öğrencileri cevabı evet ya da hayır olarak verilebilen sorulara odaklayarak, öğrenenlerin "ileri okuryazarlık" becerilerini ne yazık ki yeterince geliştirememektedir. Buna karşın, Görsel Sanatlar Eğitiminde sıkça görülen rutin olmayan problem çözme süreci, *ileri okuryazarlık* adına öğrencilere alternatif düşünme yolları gibi birçok fırsat sunabilmektedir. Görsel Sanatlar Eğitiminin ilgili alan yazında 'okuma' ve 'yazma' gibi temel okuryazarlık üzerine etkisi ile ilgili birçok çalışma bulgusu olmasına rağmen, Görsel Sanatlar Eğitiminin ileri okuryazarlık üzerine etkisi konusunda herhangi bir çalışma bulgusuna rastlanılmamaktadır. Bu araştırmanın amacı; Görsel Sanatlar Eğitiminin kazandırdığı problem çözme, eleştirel düşünme ve yaratıcı düşünme yollarının öğrencilerin ileri okuryazarlıktaki rolünü belirlemektir. Buna göre, araştırma soruları şu şekilde belirlenmiştir: "İleri okuryazarlık aşamasında eleştirel düşünme, yaratıcı düşünme ve problem çözme becerilerinin katkısı nasıldır?" ve "Görsel Sanatlar Eğitiminin ileri okuryazarlık üzerindeki etkisi nasıldır?" Bu çalışma literatür tarama tekniğinde betimsel tarama yöntemiyle yapılmıştır. Bu çalışmada veri toplama aracı olarak *anahtar kelime* araması kullanılmış, veriler anahtar kelimeler üzerinden yapılan tarama sonuçlarından oluşmuştur. Araştırmanın ulaştığı bulgular incelenerek, değerlendirilmiştir. Sonuç olarak, Görsel Sanatlar Eğitiminin ileri okuryazarlık üzerine önemli bir etkisi olduğu ortaya konmuştur.

¹ Some parts of this paper were presented orally by the author at the 21st National Congress of Educational Science, September 12–14, 2012, Marmara University, İstanbul, Turkey.

² Bu yazının bazı kısımları, 12-14 Eylül 2012, Marmara Üniversitesi, İstanbul, Türkiye 21. Ulusal Eğitim Bilimleri Kongresi'nde yazar tarafından sözlü olarak sunulmuştur.

Introduction

Literacy is the most important ability of individual as reading and writing in order to communicate with the world. However, this communication has started to collapse in last decades because of the literacy ability has been becoming a broadened activity beyond the solution of alphabetical code as print literacy (Walsh, 2010; Cervetti, Damico & Pearson, 2006). Previously, it was thought that literacy was understood clearly and it was well defined (Buschman, 2009, 95). There is no doubt that rapid technological development has been an important effect on the individuals' literacy through changing daily lives. As a result of this situation, people and societies have been shaped with adapting to this change (OECD, 2000). This situation has caused of redefinition of the literacy. Although the 'reading' and 'writing' still play important role in the communication of the world as components of the literacy, they are not enough to understand on what happens around of individual in today's world. Thus, the final report of *International Adult Literacy Survey* (e.g. OECD, 2000, p. 10) announced that literacy definition was broadened as follows: "The ability to understand and employ printed information in daily activities, at home, at work and in the community-to achieve one's goals, and to develop one's knowledge and potential". According to this definition, literacy can be evaluated as the way of *assessing information* and *understanding the world* with the development of thinking skills of individual to achieve of goals. Because, in today individuals do not accept information immediately without they understand it in many different ways (*Reflecting*, 2005) and in this context, the arts help us to construct and expand of our meaning with understanding the world (Albers, 1997).

Due to rapid technological development with fundamental changes bring us new and complex problems besides the ease of use this definition was also necessary. The communication with the world is possible when these problems are solved. Therefore, the literacy is separated towards advance stage from the basic stage in order to communicate with the world as follows:

Level 1 indicates that unable to determine the information printed; *level 2* respondents can deal only with material in which the tasks involved are not too complex; whereas, *level 3* requires the ability to integrate several sources of information and solve more complex problems (e.g. OECD, 2000). Although the studies about the literacy and visual arts are not the new especially upon improving children' literacy skills, these studies generally approach this issue in terms of alphabetical forms of the literacy (Barton, 2014). Undoubtedly, visual arts affect the literacy strongly in terms of the reading and writing (Jordan & DiCicco, 2012). However, the art, through image- making, graphic action and imagination also constructs children' knowledge with reading, writing and numbering (McArdle & Wright, 2014). Accordingly, it can be said that the *level 3* as advanced literacy is related to assess the information to solve the new and complex problems logically and creatively. These problems are *non-routine problems* due to they have unknown solution ways previously. In other words, these problems should be needed to possess the advanced literacy that requires the ability to integrate thinking skills as *critical thinking*, *creative thinking*, and *problem solving* for assessing several sources of the information. Although children's literacy in terms of vocabularies and ability of narratives increases with the linking between objects and symbols as visually (Einarsdottir, 2014), the purpose of this research is to determine the role of the visual arts education in the advanced literacy regarding the critical thinking, creative thinking, and problem solving. Perhaps, by this way, it can be developed new approaches in the education with integration of both literacy and the arts on the interaction between literacy and the arts (Freebody, 2014). So, the research questions were as followed:

- What requires of advance stage of literacy from critical thinking, creative thinking, and problem solving?

What the role of the visual arts education in the advanced literacy?

Method

This study is based on literature review on the publications related to literacy, creativity and visual arts education. The literature review contains to search and evaluate present publications in the literature (*What is a literature review?..*, 2020). The literature review debates the information published in a subject area and it usually contains both Summary of the sources and synthesis. Therefore, the literature review evaluates the most relevant sources (*Literature Reviews*, t.y.).

The Data Collection

A *keyword search* was used to review these publications, which may consist of words or phrases (Köroğlu, 2015, p.63). The key words were the *literacy*, *critical thinking*, *creative thinking*, *problem solving* and *visual arts education* terms. As a search strategy, a set of *inclusion/exclusion* criteria was conducted (Garg, 2016) on these publications and direct sources relation with research question was selected the data.

Results

The Integration of Critical Thinking and Problem solving

The prominent researchers stated that today's changing world demands from the students to develop the critical thinking, decision making, and problem solving as *higher-order thinking* skills beyond the building of the knowledge (Aizikovitsh-Udi & Amit, 2011). The critical thinking is assessed as important factor in education to prepare students for today's complex and rapidly changing world (Kek & Huijser, 2011b). Facione (2009) characterized the strong critical thinkers who have specific thinking approach on issues, questions, or problems. That is, critical thinking is accepted as a skill of increasing the possibility of solving of a problem (Higgins, 2008) due to it includes problem solving ability (Chance, 1986; Halpern, 1996). Also, critical thinking could be activated upon any subject, content, or problem through the development of thought (Paul & Elder, 2008), thus, it is necessary for individuals to analyze a situation before making a decision or to solve a difficult problem (Glassner & Schwarz, 2007). That is, the lack of critical thinking skills few students were able to solve novel problems (Mckendree, Small & Steinning, 2002). Due to higher-order thinking such as critical thinking and problem solving is too difficult to learn, it is the most valuable the new situations (Peterson & Madsen, 2010). In view of that, critical thinking is seen as an individual activity focusing on achieving for real-world problems' solution (Hammer & Green, 2011).

According to Freire and Macedo (1998) the critical thinking tries to resolve the world through the literacy. In this way of a problem solving, it is required to be a critical thinker for individual. The integration of critical thinking and problem solving in this context is necessary for the development of the literacy. From this time, the problem solving was also added in *Adult Literacy and Life Skills Survey*; ALL (Statistics Canada & OECD, 2005) because a critical thinker has higher-order thinking skills and she / he uses these thinking skills in problem solving (Kek & Huijser, 2011b; Yang, Gamble, Hung & Lin, 2014). As Freire and Macedo (e.g. 1998) stated that understanding the world is to resolve this non-routine problem to begin thinking critically in accordance with the ability of literacy. Therefore, Freire and Macedo claimed that the critical thinking is the basic for the literacy.

The Integration of Creative Thinking and Problem solving

The *problem* is defined as a difficult position and individuals must deal with this difficulty to attain their goals (Runco, 2014). In this position, creativity helps for individual to become a better problem solver (Plucker, Beghetto & Dow, 2004). As Besemer and O'Quin (1999) stated that a product is not a creative, if it is not to solve a problem. That is, *problem solving* is main aspect of creative thinking (Scott, Leritz, & Mumford, 2004). On the other hand, 'problem solving' is classified as well-defined and real world. The definition of the problem solving is accepted that it is related to conditions of real world (e.g. Statistics Canada & OECD, 2005) as non-routine problem which requires the open goals (Runco, 1994). According to

Florida (2014), openness to experience is consisted of the lack of borders in concepts, beliefs, perceptions and hypotheses. As Lubart (2001) emphasized, the routine problem solving tends to search for ready-made solutions most related with convergent thinking, whereas new solutions are needed to involve both divergent and convergent thinking. Hence, the natural environment of non-routine problems is different apart from the routine problems (e.g., Runco, 2014), with including more creativity in solving process than routine problems (Mumford et al. 1991).

The Integration of Critical Thinking and Creative Thinking

Rudd, Baker, Hoover, and Gregg (1999) proposed the clarification about critical thinking and creative thinking. According to them, critical thinking is a reasoned approach to solve problems or address the questions for solution. Critical thinking cooperates with many thinking skills especially, in complex problem-solving circumstances (*Reflective Thinking*., n.d.). Creative thinking is also described as the problem solving. To many researchers, the nature of the critical and creative thinking has two characteristics typically. Some of them believed that the critical thinking; analytic, convergent and, the creative thinking; generative, divergent are contrasted mutually. According to the others, creativity is essential for all logical thinking and it is not possible to draw a border line between critical and creative thinking (e.g. Glassner & Schwarz, 2007). Similarly, Elder and Paul (2006) stated that there is no border between creative thinking and critical thinking. Based on prominent researchers, Yang and Lin (2004) also stated that critical thinking is not only logical, but it also includes creativity. That is, the creative thinking develops along with the development of the critical thinking as just like the two sides of a coin (Chang, Bei-Di Li, Chen, & Chiu, 2015). As Runco (2003) indicated, the divergent thinking and judgmental thinking should work together for creative thinking. According to integrated theories, the gap between creative thinking and critical thinking has been narrowed as follow; creative thinking has *reflective* and *non-reflective* parts; the reflective part meets the critical thinking when individual consciously proposed hypotheses to the questions (Chang, et al., 2015). As supported these theories, it was found that adaptive aspect of creative thinking was related with critical thinking more than innovative aspect of creative thinking in previous study (Author, 2016). Based on Kirton's (1976, 1978, 1987, 1989) theory, Kim (2006) stated that creative thinking has also adaptor and innovator factors; innovator aspect tends to change the paradigm, in contrast adaptor aspect tend to change the paradigm by working within the existing paradigm. That is, creative and critical thinking can be integrated within problem solving condition accepting problem condition which points out both similar parts of the adaptive and reflective parts of creative and critical thinking. Hence, as Piawa (2010) reported, the creative and critical thinking are concerning with problem solving easily. Because, *reflective thinking*, is a part of the critical thinking process for analyzing and making judgments about what has happened and it is most important in learning during complex problem-solving with providing learners opportunity to think about how they actually solve problems and how a particular set of problem solving strategies is appropriated for achieving their goal (<http://www.hawaii.edu>). Since the learners may have also lost out on a moment to deepen their own understanding of sustainability without the opportunity for critical and reflective thinking (Tilley, Marsh, Middlemiss & Parrish, n.d.). Therefore, although literacy is associated with reading and writing, it must be included more inclusive practices as the reflective and practical level to enhance student development (Parr & Campbell, 2012). According to Dewey, reflection moves a learner from one experience into the next with understanding of its relationships, thus, reflection is a tool used in transformation of raw experience into meaning (Rodgers, 2002). At this point, creative thinking and critical thinking in problem solving process can be integrated by this openness of awareness and understanding to what happens in the world perceived as non-routine problem.

The Integration of Critical Thinking, Creative Thinking and Problem Solving

Critical thinking and creative thinking are the most important elements as higher-order thinking skills (Chang, et al., 2015). These thinking skills are interdependent in the processes of problem solving (e.g. Schwarz, 2007). In essence, creative thinking is not different from critical thinking and problem solving as thinking activities in cognitive process of human brain (Engelhart et al. 1956; Burke & Williams, 2008). Hence, creative professionals can analyze problems from many different perspectives (CIDA, 2015). Already, Integrative Thinking is to generate a creative resolution and a holistic model instead of choosing one model and so, it requires a high tolerance for change, innovation, openness and chaos (Karakas & Kavas,

2008). That is, it can be said that the creative thinking and critical thinking easily integrate in the non-routine problem solving process.

Higher-Order Thinking Skills and Literacy

Florida (e.g. 2014) stated that when individuals are open to all their experiences, ones expect connection creativity and writing because *openness* is important factor of constructive of creativity. As *reading* is a key to nurturing creativity in *writing* (Sturgell, 2008), it was found a correlation between creativity and reading achievement (Lopez, Esquivel & Houtz, 1993). On the other hand, the development of ‘writing’ skills also correlate with the creativity (McVey, 2008). Accordingly, it was reported that literacy as ‘reading’ and ‘writing’ can encourage creative thinking (Wang, 2012) as well. Also, previous studies revealed that critical thinking develops the literacy in terms of reading and writing stage (Bayat, 2014; Kettler, 2014; Yang et al., 2014; Chapple & Curtis, 2000; Davidson, 1994). However, this developmental effect of both critical thinking and creative thinking upon literacy was only held in terms of the reading and writing. Whereas, it cannot be solely bordered by reading and writing when considering the advance stage of literacy. Literacy is not only a social practice rather than a set of reading and writing skills (Cervetti et al., 2006), but it also involves higher-order thinking skills. Especially higher-order thinking skills such as critical thinking and problem solving are most valuable regarding to be useable in new or novel situations (e.g. Peterson & Madsen, 2010). Therefore, *reflective thinking* helps learners develop higher-order thinking skills to apply specific strategies in novel tasks, for example, students build an integrated understanding of the process of reflection on specific problems. This learning environment helps students to develop their ability to reflect on their own learning (<http://www.hawaii.edu>). From this perspective of problem solving, it is possible for the assessment of the information with the existence of critical thinking regarding usefulness for the solution of non-routine problem creatively. This situation is very important for advance stage of literacy as *level 3*. According to Zohar and Dori (2009), the advanced literacy (*level 3*) is considered by recent educational approaches as it is essential for dealing with the difficulties of modern life. That is, the integration of creative thinking and critical thinking within the problem solving process can be possible to attain the advance stage of the literacy as *level 3*.

Regarding Higher-Order Thinking Skills and Literacy

Although the critical thinking is the ability of focusing for achieving the solution of real-world problems as non-routine problem, schools impose absolute certainties to students directing them to focus on the solution of problems to give right answer as *yes* or *no* (Freire & Macedo, 1998; Gartenhaus, 2000). The way of such thinking relates to the convergent thinking that is contradictive to the creative thinking and critical thinking which are approaching to problems with suspiciously on based query. Siegler (1989) claimed that the most effective method for the acquisition of intellectual skill was to come across with new problems. According to him, while previously encountered problems activate the ready solution mechanisms, new problems undertake the role of the force for the development of new mechanisms. The new mechanism in cognitive process is activated by the solving process of non-routine problems and it is maintained by ambiguity to be open all alternative ways. In other words, this openness includes of ambiguity in cognitive process (e.g. Freire and Macedo, 1998), and it is also important to support of creative thinking (e.g. Runco, 2014). Thus, it can be said that the *openness* is significant component to improve of the higher-order thinking skills such as creative thinking and critical thinking within the solving process of the non-routine problem for supporting the advanced literacy of the level 3.

Higher-Order Thinking Skills, Literacy and Visual Arts Education

In today, the visual arts products as typography can develop literacy in in terms of the communication (Sarıkavak, 2006, p.82). In this context, the problems in communication as well can be tackled from the aspects of design by creative process in the visual arts (Yurdakul, 2012). So, the visual arts are very important area to gain the tolerance of ambiguity in terms of the non-routine problem solving process. As Yolcu (2018, 2) stated, these kind of non-routine problems revealed with industrialization development in today's world can be solved by the arts. In the perspective of education, visual arts develop creative skills of individuals (Ayaydın, 2017, 12) and the arts education provides students creative

expression, communication and aesthetically understanding to connect with the world around them (Shenfield, 2015) to awareness of the problems.

From this perspective, in the visual arts education, it is also high possibility of encountering the non-routine problems frequently originating from the nature of art during thinking, designing and production stages of artwork. By this way this education discipline leads up the students indirectly to solve today's non-routine problems creatively as well. As a matter of fact, Chishti and Jehangir (2014) found that the visual arts education has a positive effect on the problem solving ability of the students. This finding can be very meaningful for the development of literacy skill of students to consider the multi ways of solution process for the non-routine problems through higher-order thinking skills. Freire and Macedo (e.g., 1998) stated that reading a picture as an artwork takes us to comprehend the critical area followed by directing us to understand how a human work resolves the world. As Knight (2010) emphasized, the art education constructs on a basis for students to generate the idea of using the critical thinking. This situation is also valid for the creative thinking that can be developed by the visual arts education (Furnham et al. 2011). Based on researchers' views, The College Board (2012) reported that there was a contribution of arts to academic skills and creative thinking skills of students in terms of cognitive development. This situation shows us that advanced literacy skill of students can be developed by the Visual Arts Education. Although there are many clues on this issue, unfortunately, it has been observed that studies in past decade have been still simply related to the Visual Arts Education's effects upon the basic level of literacy as *Level 1* as reading and writing in the literature, as follow:

A Rapid Review of Related Studies

For the investigation of the visual arts' effects upon the literacy, both students and teachers participated in previous studies. Some of the previous studies were briefly summarized below.

Purnel, Ali, Nurun and Carter (2007) held the visual art activities in order to develop the literacy skills of preschool children. Three dimensional materials were used during the teaching of alphabetical letters which is the basic of literacy. Student got used to the letters through art activities as shaping the letters in the form of three dimensional. According to the result of the study, it was concluded that the art had a positive effect on the literacy of student. In other study (Grant et al. 2008) investigated the effect of visual art activities on 5-6 years old students' literacy. The art activities were put into practice with 400 students. Consequently, it was observed that students were open to build up multi relations in thinking, understanding and in pronouncing about the reading. Also, it was concluded that the application of the art activities may have strong effects in the development of literacy of students. It was also investigated on how preschool students express their literacy skills through visual art activities. Story books with pictures were read to students nine weeks using of the interpretative method. During the study process, the students were asked to draw their thoughts before writing. As the data collecting tool, printed and visual materials were used. Accordingly, it was concluded that the visual art was a strong component during the teaching of literacy (Binder & Kotsopoulos, 2011).

The relation of literacy and visual art was investigated by Feret and Smith (2010). In this previous study, primary and intermediate school teachers were asked to give the training of art as one of the material used in the teaching of literacy for listening, reading, speaking and writing. During the listening activity, the students were told to make a process of a design. At the reading activity, the art of Renaissance was read. At the activity of speaking, students were encouraged to express their thoughts about art. As last activity of writing, students were asked to prepare an investigation paper on the art of sculpture. At the end of each activity, teachers were asked to report the lecture and they had handled these reports to the art trainer. The research data were obtained from these reports which were graded by art trainers. Accordingly, it was found that listening, reading, speaking and writing as the materials of literacy had increased the creativity of the students.

Opinions of art trainers on literacy and art were studied by Maniaci and Chadler-Olcott, (2010). They found that participants had discovered the similarities between the two disciplines. Art trainers reported that literacy teaching for students could be planned supporting by visual materials. Thus, it was concluded that there was highly necessary to make a plan in education programs in order to use the art in teaching of the literacy.

In other investigation, the relation of critical literacy and art education was studied. Teaching art within a critical literacy framework gives a chance to experience for student to write and discuss social event. As a result, it was found that art supports students to learn in different types with using their language skills in different ways. Consequently, it was concluded that the art had quite a lot portion in teaching of language with the experience of critical literacy (Millmann, 2009).

The relation between the art and literacy was also investigated by Watts (2010). As a result of this previous study, it was found that there is a strong relationship between the visual world capacity and word capacity of students who were six years old. Accordingly, it was concluded that there is a positive relationship between line learning and literacy skill of students. That is, the visual arts can be the best tool for the teaching of literacy of students.

Moody-Zoet (2014) investigated relationship between literacy and art education and it was found that the literacy in terms of reading and writing in the visual arts education could improve creative thinking skills of students in middle school level.

Renish (2016) also examined students' literacy skills within 10 weeks in art education and it was found that art education develops the language skills of students.

Tucker (2017) investigated the effects of arts-based literacy instruction on literacy skills of fifth grade students. For that, it was implemented the pre-test and post-test model to measure literacy skill during the learning process. According to the result, the researcher found that art education affected fifth grade students' literacy positively in terms of reading.

Discussion

When an individual reviews of related literature, s/he can observe that previous studies focused only the effect of the Visual Arts Education on the reading and writing as basic literacy. According to overall conclusions of these studies, the Visual Arts Education possess positive effect upon the literacy in terms of visuality as writing and reading which is basic *level 1* of the literacy. Beyond this, it is not existing any findings about the effects of the Visual Arts Education upon the literacy. In this situation, the effect of the Visual Arts Education upon the literacy regarding the advanced literacy of *level 3* -which is supported of the higher order thinking skills as creative thinking, critical thinking, and problem solving- appears an important subject to investigate. In the changing world, it is impossible to look developing concepts with previous inferences. In today's world, it is necessary to possess new perspectives, especially in learning processes. Hence, present situation points out an important gap in related literature. In summary of the related literature, the advanced literacy can be defined as the way of assessing information to understand the world through the development of higher-order thinking skills of individuals. Due to reading and writing are not enough to communicate with the today's world, the literacy of the individual should be improved through assessing the information for realizing the goals of individuals as the advanced literacy. Therefore, the definition of the literacy was extended as advanced literacy for necessary communication with the world. For the advanced literacy, assessing information for solving of the non-routine problems (as real world problems) creatively is a necessary ability. Hence, individuals have to possess thinking skills in the today' world such as the creative thinking, critical thinking and problem solving skills. Therefore, as an answer of this research's first question, it was found that the advanced literacy of the individual requires of *critical thinking, creative thinking, and problem solving* to communicate with the world. Today's world, true communication of individuals with the world can be solely realized by *advanced literacy* beyond the reading and writing literacy abilities. Hence, according to Freire and Macedo (e.g., 1998), the critical thinking is the basic for the literacy. Also, the critical thinking is accepted to focus on achieving the solution of real-world problems (Hammer & Green, e.g., 2011). In this situation, both critical thinking and creative thinking can play important role in the solving process of non-routine problem involving new solutions logically.

On the other hand, the creative and critical thinking may be integrated into solution process of [the](#) non-routine problem easily. Although this approach, the findings of the previous studies emphasized that critical thinking and creative thinking only develop the literacy in terms of reading and writing as *level 1* of literacy (e.g. Chapple & Curtis, 2000; Davidson, 1994; McVey, 2008; Sturgell, 2008; Wang, 2012). Whereas, the Visual Arts Education has the highest potential of encountering the non-routine problems in terms of giving students significant opportunities to solve these problems through critical thinking (e.g.

Freire & Macedo, 1998; Knight, 2010) and creative thinking (Furnham et al., 2011). Unfortunately, it can be said that this situation was ignored as regard to development of the literacy skills as the advanced literacy level. To this point, it must be reminded that Visual Arts Education plays significant role as mentioned above to development of the advanced literacy of students during the thinking and designing of an art-work. Therefore, it can be said that the Visual Arts Education has significant role in the development of the advanced literacy as an answer of this research's second question.

Implications

In related literature, it was suggested further research to reveal the role of the arts in developing various literacy types (Meekums & Daniel, 2011) to broaden frame of the literacy as necessarily (Ashley, Jarman, Varga-Atkins & Hassan, 2012). The implication of this study is coming from this being the first view in the related literature in terms of the large impact of the visual arts education upon the literacy as advanced level. Therefore, this study can be a guidance for future research on this subject.

Conclusion

Although the previous studies revealed the effects of the Visual Arts Education upon the literacy regarding visual dimension of literacy as reading and writing (level 1), the effects of the Visual Arts Education upon literacy cannot be just limited in the level 1 of the literacy. The literacy in the world of 21th Century is associated with the individual's understanding of the new age in which s/he lives. Thus; the individual's reading skill evolves from what is written to what is livable. Accordingly, it can be concluded that this kind of the literacy can be based on *query thinking approach* which may define as mutual integrated of the creative thinking and critical thinking in solving process of the non-routine problems. In this manner, it can be claimed that the Visual Arts Education is an important area for the development of the advanced literacy. Consequently, it can be suggested that future study should be conducted for the investigation of the Visual Arts Education's effects upon the advanced literacy as an experimental study.

References

- Albers, P. (1997). Arts as literacy. *Language Arts*, vol.: 74(5). Retrieved October 30, 2020 from <https://www.jstor.org/stable/pdf/41482883.pdf>
- Aizikovitsh-Udi, E. & Amit, M. (2011). Developing the skills of critical and creative thinking by probability teaching. *Procedia Social and Behavioral Sciences* 15, 1087–1091. Published by Elsevier Ltd. Doi:10.1016/j.sbspro.2011.03.243
- Ashley, J., Jarman, F., Varga-Atkins, T. and Hassan, N. (2012). Learning literacies through collaborative enquiry; collaborative enquiry through learning literacies. *Journal of information literacy*, 6(1), pp. 50-71. Doi: 10.11645/6.1.1655 Retrieved October 29, 2020 from <https://ojs.lboro.ac.uk/JIL/article/view/LLC-V6-I1-2012-1>
- Ayaydın, A. (2017). Görsel sanatlar eğitimi ve günümüzde estetik çevre algısı. *Milli Eğitim Dergisi*, 46 (213). 5-14. Retrieved October 29, 2020 from <https://dergipark.org.tr/tr/download/article-file/441206>
- Barton, G. (2014). Literacy and the arts: interpretation and expression of symbolic form, pp: 1-39, in *Literacy in the Arts*. Georgina Barton (Ed.). Retrieved October 31, 2020 from <https://www.springer.com/gp/book/9783319048451>
- Bayat, N. (2014). The Relationship between Prospective Teachers' Levels of Critical Thinking and Their Success in Academic Writing. *Education and Science*, 39; 173. 155-169.
- Besemer, S. P. & O'Quin, K. (1999). Confirming the Tree – Factor or Creative product analysis matrix model in an American sample. *Creativity Research Journal*, 12, 287-296 Doi:10.1207/s15326934crj1204 6
- Binder, M., & Kotsopoulos, S. (2011). Multimodal literacy narratives: Weaving the threads of young children's identity through the arts. *Journal of Research in Childhood Education* 25, 339-363 Doi:10.1080/02568543.2011.606762
- Burke, L.A. & Williams, J.M. (2008). Developing young thinkers: An intervention aimed to enhance children's thinking skills. *Thinking Skills and Creativity*, 3, 104 – 124.
- Buschman, J. (2009). Information literacy, "new" literacies, and literacy. *Library Quarterly*, Vol.; 79(1), 95-118. Doi: 10.1086/593375 Retrieved October 29, 2020 from https://www.jstor.org/stable/10.1086/593375?seq=1#metadata_info_tab_contents
- Cervetti, G., Damico, J. & Pearson, P. D. (2006) Multiple Literacies, New Literacies, and Teacher Education, *Theory Into Practice*, 45:4, 378-386 Doi: 10.1207/s15430421tip4504_12
- Chance, P. (1986). *Thinking in the classroom: A survey of programs*. New York: Teachers College, Columbia University.
- Chang, Y., Bei-Di Li, Chen, H.-C. & Chiu, F-C. (2015) Investigating the synergy of critical thinking and creative thinking in the course of integrated activity in Taiwan, *Educational Psychology: An International Journal of Experimental Educational Psychology*, 35:3, 341-360 Doi: 10.1080/01443410.2014.920079
- Chapple, L. & Curtis, A. (2000) Content-based instruction in Hong Kong: Student responses to film. *System*, 28, 419-433. Retrieved October 17, 2014 from <http://www.elsevier.com/locate/system>
- Chishti, R. & Jehangir, F. (2014) Positive Effects of Elementary Visual Art on Problem Solving Ability in Later Years of Life. *FWU Journal of Social Sciences*, 8:1, 83-88

- CIDA; Council for Interior Design Accreditation (2015). *Professional-Standards-2014*. Retrieved May 16, 2015 from <http://accredit-id.org/wp-content/uploads/2015/03/Professional-Standards-2014.pdf>
- Davidson, B. (1994). Critical thinking: A perspective and prescriptions for language teachers. *The Language Teacher*, 18(4), 20-26.
- Elder, L., & Paul, R. (2006). Critical thinking: The nature of critical and creative thought. *Journal of Developmental Education*, 30, 34–35.
- Einarsdottir, J. (2014). Play and literacy: A collaborative action research project in preschool, *Scandinavian Journal of Educational Research*, 58(1), 93-109. Doi:10.1080/00313831.2012.705321
- Engelhart, Max D., Furst, J.E., Hill, W.H. & Krathwohl, D.R. (1956) *Taxonomy of Educational Objectives, Handbook 1 Cognitive Domain*. (Bloom, S.B., ed.), New York: David McKay Company Inc.
- Facione PA (2009). *Critical thinking: what it is and why it counts*. Retrieved October 30, 2014 from http://www.insightassessment.com/pdf_files/what&why98.pdf
- Feret, A.J. & Smith, J.J. (2010). Literacy and art: Collage for pre-service teachers. *A Journal of Scholarly Teaching*, 5, 37-53. Retrieved March 11, 2013 from <http://files.eric.ed.gov/fulltext/EJ902862.pdf>
- Freebody, P. (2014). The Arts and Literacy, ‘Amplified Right’: Hearing and Reading J.S. Bach, pp.269-285 in *Literacy in the Arts*. Georgina Barton (Ed.). Retrieved October 31, 2020 from <https://www.springer.com/gp/book/9783319048451>
- Furnham, A., Batey, M., Booth, T. W., Patel, V. & Lozinskaya, D. (2011). Individual difference predictors of creativity in Art and science students. *Thinking Skills and Creativity*, 6, 114-121 Doi: 10.1016/j.tsc.2011.01.006
- Florida, R. (2014). *The rise of creative class*, New York: Basic Books.
- Freire, P., & Macedo, D. (1998). *Okuryazarlık [Literacy]*. (S. Ayhan, Trans.) Ankara, Turkey: İmge Kitapevi.
- Garg, R. (2016). Methodology for research I. *Indian J Anaesth*, 60(9): 640–645. <http://dx.doi.org/10.4103/0019-5049.190619>
- Gartenhaus, A. R. (2000). *Yaratıcı Düşünme ve Müzeler. [Minds in motion-using museums to expand creative thinking]*. (R. Mergenci - B.Onur, Trans). Ankara, Turkey: Ankara University Press.
- Glassner, A. & Schwarz, B. B. (2007). What stands and develops between creative and critical thinking? Argumentation? *Thinking Skills and Creativity*, 2, 10–18 Doi:10.1016/j.tsc.2006.10.001
- Grant, A., Hutchison, K., Homsby, D., Brooke, S. (2008). Creative pedagogies: “Art full” reading and writing. *English Teaching: Practise and Critique*, 7, 57-72. Retrieved March 17, 2013 from <http://education.waikato.ac.nz/research/files/etpc/2008v7n1art4.pdf>
- Halpern, D. F. (1996). *Thought and knowledge; an introduction to critical thinking* (3rd edition). New Jersey: Lawrence Erlbaum.
- Hammer, S. J. & Green, W. (2011) Critical thinking in a first year management unit: the relationship between disciplinary learning, academic literacy and learning progression, *Higher Education Research & Development*, 30, 303-315 Doi:10.1080/07294360.2010.501075
- Higgins, S. E. (2008). Critical Thinking in the Context of Information Literacy and Information Systems: The Online Class. 181-182. In Malpica, F; Tremante, et al., Ed., 2nd Int. Multi-Conference on Society, Cybernetics and Informatics Location: Orlando, FL., Jun. 29 – Jul. 02, 2008 Retrieved October 27, 2014 from <https://apps.webofknowledge.com>

- Jordan, R. M. & DiCicco, M. (2012) "Seeing the Value: Why the Visual Arts Have a Place in the English Language Arts Classroom," *Language Arts Journal of Michigan*: Vol. 28: Iss. 1, Available at: <https://doi.org/10.9707/2168-149X.1928>
- Karakas, F. & Kavas, M. (2008). Creative brainstorming and integrative thinking: skills for twenty-first century managers. *Development and Learning in Organizations*, 22(2), 8-12.
- Kek, M.Y.C.A. & Huijser, H. (2011). The power of problem - based learning in developing critical thinking skills: preparing students for tomorrow's digital futures in today's classrooms, *Higher Education Research & Development*, 30, 329–341 Doi:10.1080/07294360.2010.501074
- Kettler, T. (2014). Critical Thinking Skills Among Elementary School Students: Comparing Identified Gifted and General Education Student Performance. *Gifted Child Quarterly*. 58, 127-136 Doi: 10.1177/0016986214522508
- Kim, K. H. (2006). Is creativity unidimensional or multidimensional? Analyses of the Torrance tests of creative thinking. *Creativity Research Journal*, 18,251–259. http://dx.doi.org/10.1207/s15326934crj1803_2
- Knight, L. (2010). Why a child needs a critical eye, and why the art-classroom is central in developing it. *International Journal of Art & Design Education*, 29, 236-243 Doi: 10.1111/j.1476-8070.2010.01655.x
- Köroğlu, S. A. (2015). Literatür taraması üzerine notlar ve bir tarama tekniği. *GiDB Dergi*, Sayı:1, 61-69. Retrieved June 14, 2020 from <https://gidbdergi.itu.edu.tr/sayilar/01/0107.pdf>
- Literature Reviews* (t.y.). Retrieved July 04, 2020 from <https://writingcenter.unc.edu/tips-and-tools/literature-reviews/>
- Lopez, E.C., Esquivel, G.B., & Houtz, J.C. (1993). The creative skills of culturally and linguistically diverse gifted students, *Creativity Research Journal*, 6, 401-412 Doi: 10.1080/10400419309534495
- Lubart, T.I. (2001). Models of the creative process: Past, present and future. *Creativity Research Journal*, 13, 295-308 Doi: 10.1207/S15326934CRJ1334_07
- Maniaci, K. & Chandler-Olcott, K. (2010). Still building that idea preservice art educators' perspectives on integrating Literacy across the curriculum. *International Journal of Educations and the arts*. 11, 1-41. Retrieved June 15, 2013 from <http://www.ijea.org/v11n4/>
- Meekums, B. & Daniel, J. (2011). Arts with offenders: A literature synthesis. *The Arts in Psychotherapy*, 38(4), 229-238. Doi:10.1016/j.aip.2011.06.003 Retrieved October 29, 2020 from <https://www.sciencedirect.com/science/article/pii/S0197455611000487>
- McArdle, F. & Wright, S.K. (2014). First literacies: Art, creativity, play, constructive meaning-making, pp: 21-37 in *Literacy in the Arts*. Georgina Barton (Ed.). Retrieved October 31, 2020 from <https://www.springer.com/gp/book/9783319048451>
- Mckendree, J., Small, C. & Steinning, K. (2002). The role of representation in teaching and learning critical thinking. *Educational Review*, 54, 57-67 Doi:10.1080/00131910120110884
- McVey, D. (2008) Why all writing is creative writing. *Innovations in Education and Teaching International*, 45, 289-294 Doi:10.1080/14703290802176204 Retrieved October 16, 2014 from <http://www.tandfonline.com/doi/abs/10.1080/14703290802176204>
- Millman, J. (2009). Critical literacy and art education: Alternatives in the school reform movement. *Perspective on Urban Education*, 6, 68-71. Retrieved June 11, 2013 from http://www.urbanedjournal.org/sites/urbanedjournal.org/files/pdf_archive/PUE-Fall2009-V6I2-pp68-71.pdf
- Moody-Zoet, E. (2014). *Integrating art education and literacy education: A curriculum for the secondary level*. (Master's Theses). 530. Retrieved October 31, 2020 from https://scholarworks.wmich.edu/masters_theses/530

- Mumford, M. D., Mobley, M. I., Reiter-Palmon, R., Uhlman, C. E., & Doares, L. M. (1991). Process analytic models of creative capacities. *Creativity Research Journal*, 4, 91–122 Doi: 10.1080/10400419109534380
- OECD (2000). *Literacy in the Information Age; Final Report of the International Adult Literacy Survey* Organisation for Economic Co-Operation and Development Statistics, Canada. Retrieved October, 22, 2014 from <http://www.oecd.org/edu/skills-beyond-school/41529765.pdf>
- Parr, M. & Campbell, T. A. (2012). Understanding literacy as our world inheritance: Re-visioning literacy discourse and its implications for teaching practice. *Int Rev Educ.*, 58. 557–574. Doi: 10.1007/s11159-012-9297-1
- Paul, R. & Elder, L. (2008) *Defining Critical Thinking*, Retrieved [November 03, 2014] from <http://www.criticalthinking.org/pages/defining-critical-thinking/766>
- Peterson, C. W. & Madsen, C. K. (2010). Encouraging Cognitive Connections and Creativity in the Music Classroom *Music Educators Journal December 97*, 25-29 Doi: 10.1177/0027432110386613
- Piawa, C.Y. (2010) Building a test to assess creative and critical thinking simultaneously. *Procedia - Social and Behavioral Sciences*. 2, 551-559 Doi:10.1016/j.sbspro.2010.03.062
- Purnell, P.G., Ali, P., Nurun, B. & Carter, M. (2007). Windows, bridges and mirrors: Building culturally responsive early childhood classrooms through the integration of literacy and the arts, *Early Childhood Education Journal*, 34, 419-424 Doi: 10.1007/s10643-007-0159-6
- Reflective Thinking: RT* (n.d.). Retrieved October 29, 2020 from <http://www.hawaii.edu/intlrel/pols382/Reflective%20Thinking%20-%20UH/reflection.html>
- Reflecting* (2005). Retrieved October 29, 2020 from <http://www.cotf.edu/ete/teacher/reflect.html>
- Rodgers, C. (2002). Defining Reflection: Another look at John Dewey and reflective thinking. *Teachers College Record*, 104(4), 842-866. Retrieved 14 July, 2016 from http://www.bsp.msu.edu/uploads/files/Reading_Resources/Defining_Reflection.pdf
- Renish, A. J. (2016). *Art education, literacy, and English language learners*. MA in Art Education. Philadelphia, Pennsylvania. Retrieved October 30, 2020 from <https://files.eric.ed.gov/fulltext/ED567781.pdf>
- Runco, M. A. (2014). *Creativity*. (2nd Ed.) USA: Elsevier.
- Runco, M.A (1994). *Problem finding, problem solving, and creativity*. “Part V- Conclusion concerning problem finding, problem solving, and creativity”. (Ed. M.A. Runco). Greenwood Publishing Group. NJ: Alex Publishing Corporation.
- Runco, M. A. (2003) Education for Creative Potential, *Scandinavian Journal of Educational Research*, 47:3, 317-324 Doi: 10.1080/00313830308598
- Rudd, R.D., Baker, M.T., Hoover, T.S., & Gregg, A. (1999). Learning styles and critical thinking abilities of College of Agriculture students at the University of Florida. Proceedings of the 49th Annual Southern Region Agricultural Education Research Meeting. Memphis TN. 123-134.
- Sarıkavak, N. K. (2006). Typographic education in Hacettepe University, Faculty of Fine Arts, Department of Graphic. Retrieved October 29, 2020 from <https://dergipark.org.tr/tr/download/article-file/28877>
- Scott, G., Leritz, L. E., & Mumford, M. D. (2004). The effectiveness of creativity training: A quantitative review. *Creativity Research Journal*, 4, 361–388 Doi: 10.1080/10400410409534549
- Shenfield, R. (2015). Literacy in the Arts. *Literacy Learning: The Middle Years*, Vol.:23(1). Retrieved October 30, 2020 from <https://www.alea.edu.au/documents/item/1074>.
- Siegler, R. S. (1989). How domain-general and domain-specific knowledge interact to produce strategy choices. *Merrill-Palmer Quarterly*, 35, 1-26. Retrieved February 12, 2014 from Wayne State University, <http://www.jstor.org/stable/23086423>

- Statistics Canada & OECD (2005) Learning a Living First Results of the Adult Literacy and Life Skills Survey. Ottawa –Paris: Statistics Canada, OECD Publishing. Retrieved November 8, 2014 from <http://www.oecd.org/edu/innovation-education/34867438.pdf>
- Sturgell, I. (2008) Touchstone texts: Fertile ground for creativity, *Reading Teacher*, 61, 411-414 Doi:10.1598/RT.61.5.5
- The College Board (2012). *Child Development and Arts Education: A Review of Recent Research and Best Practices*, New York, N.Y., January 2012. Retrieved September 6, 2016 from <http://www.advocacy.collegeboard.org/preparation-access/arts-core>
- Tilley, F., Marsh, C., Middlemiss, L. & Parrish, B. (n.d.) Critical and Reflective Thinking, 1-5. Retrieved 14 July, 2016 from http://arts.brighton.ac.uk/__data/assets/pdf_file/0013/6304/Critical-and-Reflective-Thinking.pdf
- Tucker, S. D. (2017). *The Effects of Arts Integration on Literacy Comprehension Achievement*. (Doctoral dissertation). Retrieved October 30, 2020 from <https://scholarcommons.sc.edu/etd/420>
- Walsh, M. (2010). Multimodal literacy: What does it mean for classroom practice? *Australian Journal of Language and Literacy*, 33, 211 - 239. Retrieved February 10, 2014 from <http://www.alea.edu.au/documents/item/63>
- Wang A.Y. (2012) Exploring the relationship of creative thinking to reading and writing. *Thinking Skills and Creativity*, 7, 38-47 Doi: 10.1016/j.tsc.2011.09.001
- Watts, R. (2010). Responding to children’s drawings. *Education 3-13: International Journal of Primary, Elementary and Early Years Education*, 38, 137-153 Doi: 10.1080/03004270903107877 Retrieved 14 July, 2016 from www.hawaii.edu/intlrel/pols382/Reflective%20Thinking%20-%20UH/reflection.html
- What is a literature review? (2020). Retrieved July 04, 2020 from <https://www.rlf.org.uk/resources/what-is-a-literature-review/>
- Yang, Y. T. C., Gamble, J. H., Hung, Y. W., & Lin, T. Y. (2014). An online adaptive learning environment for critical-thinking-infused English literacy instruction, *British Journal of Educational Technology*, 45, 723–747 Doi:10.1111/bjet.12080
- Yang, S. C. & Lin, W. C. (2004). The Relationship among Creative, Critical Thinking and Thinking Styles in Taiwan High School Students. *Journal of Instructional Psychology*, 31, 45-56. Retrieved May 28, 2015 from <https://www.questia.com/library/journal/1G1-115034762/the-relationship-among-creative-critical-thinking>
- Yolcu, E. (2018). Sanat eğitimi kuramları ve yöntemleri, (3.Baskı). Ankara: Pegem Akademi. Retrieved November 01, 2020 from <https://www.pegem.net/dosyalar/dokuman/20112018164928Pages%20from%20BASKI%20Sanat%20E%C4%9Fitimi%20Kuramlar%C4%B1%20ve%20Y%C3%B6ntemleri-2.pdf>
- Yurdakul, İ., (2012). *Creative strategies and their contribution to social consciousness in social responsibility campaigns: a course model proposal*. 4th World Conference on Educational Sciences (WCES) (pp.5573-5580). Barcelona, Spain.
- Zohar, A. & Dori, Y. J. (2009). Higher order thinking skills and low-achieving students: Are they mutually exclusive? *Journal of the Learning Sciences*, 12, 145-181 Doi: 10.1207/S15327809JLS1202_1