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Investigation of High School Students' Visual Literacy Levels

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Abstract

This study was conducted to determine the visual literacy levels of high school students and to reveal whether visual literacy levels are affected by some variables. In this context, the visual literacy levels of the participants were examined according to gender, class and achievement level on the basis of comparative relational screening method. The study group consisted of 299 high school students studying in Sivas, Konya and Mersin city centers. Personal Information Form and Visual Literacy Scale were used to collect the data of the study. As a result of the study, it was discovered that the visual literacy levels of high school students were moderate in some dimensions but generally high. In the study, a partially significant difference was found according to the gender variable. In the study, it was observed that the level of visual literacy increased in parallel with the grade level. Finally, as the success level of the students increases, their visual literacy increases significantly.

Introduction

Today we live in a complex information age where we are under the influence of visuals and are constantly guided visually. In this age we live in, people are bombarded with visuals more than ever before, so the relationships established with visuals are also undergoing development and changes. In daily life, we are always faced with the efforts of the visuals that surround us to communicate with us at home, at work, at school and on the street. Being able to read and understand images correctly depends on the relationship we have with them. The environment is full of as diverse, complex, visual images as possible. Whether we want it or not, we see these images and are influenced by them (Arnheim, 2004; Kırışođlu, 2009). In particular, children grow up with the effects of the cultural environment they live in without realizing it (Akın, 2012). Recognizing what people see, turning them into symbols in their minds, using them for communication and writing them down enabled them to transfer knowledge and culture from generation to generation (Avgerinon & Pettersson, 2011; Pettersson, 2013; Popoola & Ayodeji, 2022).

Among disciplines at all educational levels, students interact with images and visual materials throughout their education. Although students are expected to understand, use, and create images in academic work, students are not always ready to do so. Scientific work with images requires further research, interpretation, analysis and evaluation skills specific to visual materials. These abilities cannot be underestimated and must be taught, supported and integrated into the curriculum (Cellan-Jones, 2016; Gilbert, 2008; Sünbül, 2000; Sweller, 2018). Specifically, some K-12 standards include visual literacy as one of the few essential literacy skills necessary for

success in contemporary society. The majority of discussions of transliteration, meta-literacy, and multimodal literacy include visual literacy among the literacy that is important to today's students. There is also a diverse literature on visual literacy and visual studies. Nevertheless, standards summarizing student learning outcomes around interdisciplinary visual literacy in higher education have not been articulated. Visual Literacy Competency Standards for Higher Education fill this gap in the literature and provide tools for educators who want to pursue visual literacy with college and university students (ACRL Visual Literacy Competency Standards for Higher Education, 2011; Benoit, 2016; Deetsch et al., 2018).

Visual perception is a dynamic process in which responses to visual stimuli are created, the individual understands what is happening in the outside world, establishes the connection between his own body and the outside world, and combines all the senses of the individual. The fact that 70% of the total sensory receptors of the individual are in the eye shows the importance of visual perception in the child's perception of the outside world. The most significant of the different references about visual perception is that visual perception is in a developmental process in early childhood. This developmental process involves learning by observing and experiencing visual stimuli. In addition, many researchers agree that there is a correlation between the development of visual perception and literacy, geometry, science and technology, art history, geography and similar tasks (Bozdoğan & Sünbül, 2016; Kramer & Hinojosa, 2010; Yang et al., 2020). In modern computing, a visualization in which complex calculations are presented graphically makes it easy for us to understand very difficult numbers and data. Visualization helps make sense of previously incomprehensible data (Mohan & Poobal, 2020). The increasing number of visual messages surrounding individuals has created visual information processing needs and has led to a movement to develop visual literacy and related skills.

Visual literacy is one of the prerequisite factors associated with visual perception. Visual literacy refers to the set of visual competencies that people can develop by observing and integrating with other sensory experiences at the same time” (Fransecky & Debes, 1972; Cited: Örs & Baş, 2018). Visual literacy is a type of literacy that is always developing because it includes continuity. “Visual literacy requires the ability to understand, produce and use culturally significant images, objects and visible actions.” (Felten, 2008:60). Visual literacy can be defined as the ability to critically understand, interpret and create visual images (pictorial and graphic) (Brown, 2004; Lopatovska, Hatoum, Waterstraut, Novak, & Sheer, 2016).

In a world teeming with images, visual literacy is critical to engaging more deeply with images. Visual literacy skills equip the individual to realize the production of visual materials, to understand and analyze the cultural, ethical, aesthetic and technical components of the visuals. Therefore, visual literacy is an important skill that enables individuals to navigate the world of visual media. In this context, students should be equipped to create, interpret and question images (Brown, 2004; Roblyer & Bennett, 2001). There has been and still is considerable disagreement between researchers and practitioners on the definition of visual literacy. There is no consensus so far (Petersson, 2002). Several researchers from different disciplines have expressed and written articles about visual literacy from different perspectives. Visual literacy, advertising, anatomy, art, biology, business presentations, communications, education and engineering can be applied in almost all fields (Petersson, 2002).

The presence of visual elements in today's teaching and learning is increasing as the integration of visuals and visual presentations with text in textbooks, instruction manuals, classroom presentations, and computer interfaces expands (Benson, 1997; Branton, 1999). Although the education community has embraced visual improvements in teaching, the link between visual and verbal information is clear throughout history. According to the poet Simonides, "Words are images of things" (as quoted in Benson, p. 141), the difficulty and inadequacy of the process of thinking without images was emphasized (cited in Benson, 1997). The characters in the alphabets started as pictures with meaning (West, 1997). These symbols depict a man-made language with no distinction between words and pictures, just as musical notes convey the language of music. But after the printing press was invented, pictures and types diverged, and pictures often fell by the wayside. Recent history shows a reversal in this distinction, with greater reliance on visual-oriented approaches.

Wileman (1993) defines visual literacy as "the ability to read, interpret and understand information presented in pictorial or graphic images". Visual thinking, associated with visual literacy, is defined as "the ability to transform any information into pictures, graphics or forms that help convey information" (Wileman, 1997). A similar definition for visual literacy is "the learned ability to correctly interpret and create visual messages" (Heinich, Molenda, Russell, & Smaldino, 1999). The ERIC definition of visual literacy is "a set of competencies that allow people to distinguish and interpret the visible natural or constructed actions, objects, and/or symbols they encounter in the environment" (<http://searcheric.org/>), which defines visual literacy as "a regulative force that encourages understanding, retention, and recall of the many academic concepts that students have to contend with". And lastly, Sinatra defines visual literacy as "the active restructuring of past visual experience with incoming visual messages to gain meaning" (p. 5), emphasizing the learner's act of creating recognition. The use and interpretation of images is a specialized language in the sense of using images to convey messages that must be decoded to have meaning (Branton, 1999; Emery & Flood, 1998). If visual literacy is accepted as a language, there is a need to be alert to visual messages and to know how to communicate using this language, which includes critically reading or viewing images as the language of messages. Visual literacy, language literacy, is culturally specific, although there are universal symbols or visual images that are understood globally.

"A visually literate person can: (a) distinguish and make sense of visible objects as part of visual acuity, (b) effectively create static and dynamic visible objects in a defined space, (c) comprehend and evaluate visual wills, (d) be good at interpreting, understanding and evaluating the meanings of visual messages, (e) communicate more effectively by both applying and analyzing the basic principles and concepts of visual design, (f) produce effective visual messages by using computer and other technological tools together with traditional methods, (g) use visual thinking effectively to produce conceptual solutions to the problems encountered (Avgerinou, 2001; Brill & Kim, 2007; Jobs, 2002; Kedra, 2018). The qualities related to visual literacy mentioned above can be accepted as a guide in the planning of the educational process in this field. In addition, it is seen that the same qualifications play a key role in today's communication and teaching process.

As technology progresses, all students should be given skills in teaching visual literacy skills. Two ways to develop image literacy skills are suggested: 1) helping students read or decode images by applying analysis techniques, 2) helping students write or encode images as a communication tool (Buğday & Sari, 2022;

Brumberger, 2011; Metros, 2008; Sünbül, Yılmaz & Küçüküktüglü, 2009). Visual literacy requires the acquisition of some skills to correctly interpret and create such messages. Therefore, the development of interpretation and creation skills in visual literacy is especially important for high school students. However, both in Turkey and internationally, visual literacy failed to attract enough attention from the public and enough attention from those responsible for school curricula around the world. When examining subjects in education, communication and all levels of education, we need to consider not only written and verbal messages, but also visual messages together. At this point, message design and its different sub-fields can play an important role for visual literacy. Image actually affects us much faster than words. The word is an abstract referent that often bears no resemblance to what it symbolizes. However, the visual image can be direct and is usually perceived immediately even if it contains embedded symbols (Akdeniz et al., 2016; Liping et al., 2018; Peli, 2005; Yağışan & Sünbül, 2009; Yurt, 2011). Educators have realized that this visual age requires visual literacy skills as well as verbal skills and both need to be developed. For this reason, it is important to examine students' interpretation of visual media on the basis of visual literacy and a much broader and more comprehensive learning and comprehension structure in education. In this context, the visual literacy levels of high school students were examined in terms of some variables. For this purpose, answers to the following questions were sought:

- 1) What are the visual literacy levels of the high school students participating in the study?
- 2) What is the relationship between the visual literacy levels of high school students participating in the scale study, gender, class, and achievement variables?

Method

This study is in the general screening model, and a comparative relational screening was made between the independent and dependent variables of the study. Since the study aims to determine the visual literacy of high school students in terms of different variables, the comparative relational survey method was used in the descriptive survey model in this study. Because screening models are a suitable model for research that aims to describe a past or present situation as it exists (Karasar, 2006). Descriptive survey models are divided into two parts. These sections are cited as general screening and case studies. The relational screening model is a method that falls under the general screening method. General screening models are screening arrangements made on the whole population or a group of samples or samples to be taken from a universe consisting of many elements, in order to make a general judgment about the universe (Karasar, 2006). Relational screening models in this group are considered appropriate for this type of research since they are used for research models aiming to determine the existence or degree of co-variance between two or more variables (Cohen, Manion & Morrison, 2000).

After the determination of the schools and the number of students to be included in the study, written consent was obtained from the people and institutions required for data collection. Data collection was conducted by the researcher. The prepared scales were applied online. The students' consent was obtained in answering the questionnaires, and the students were informed about the purpose of the research and how they would answer the questions in the questionnaire. In this context, 299 students studying at different high schools in Konya, Sivas and Mersin provinces were included in the study. 51.84% (n = 155) of the students included in the study were female and 48.16% (n = 144) were male. Of the students, 82 (27.42%) are in the 9th grade, 75 (25.08%) are in the 10th

grade, 70 (23.41%) are in the 11th grade and 72 (24.08) are in the 12th grade. In addition, 5 high schools were included in the study, and their names were not given in the research upon the request of educational institutions. 83.5% of the students have their own computer and 94.4% have an internet connection at home.

Data Collection Tools

In this study, the "Personal Information Form" developed by the researcher was used to collect information about the personal qualities of the students. A Likert-form scale was used to determine the visual literacy levels of the students participating in the research. Introductory information about these data collection tools used in the research is given below.

Personal Information Form: The form developed by the researcher in order to collect information about the personal qualities of the students included in the research sample, which are considered as the independent variables of the research, and the level and forms of using the mass media, consists of a total of 16 items. In the form, closed-ended questions were asked about the students' gender, the type of place of residence, the type of high school they attended/graduated from, their father's education level, their mother's education level, and their socio-economic level.

Visual Literacy Scale: This measurement tool developed by Kiper et al. (2012) was used to measure the visual literacy levels of high school students. The original scale was prepared as a five-point Likert-type scale and includes 29 positive items. Opposite each scale statement, there are "Strongly Agree", "Agree", "Neutral", "Disagree" and "Strongly Disagree" options. In the validity studies of the scale, professional opinions were sought for face validity and content validity. A 5-point Likert-type scale was applied to refer to the evaluation level of the visual literacy scale, taking into account the professional views. In the validity studies, the first 5 experts to be consulted for face and content validity were determined. A 29-item questionnaire was created to evaluate students' proficiency in visual literacy, and then reliability and validity studies were conducted using this form. Reliability and validity studies were conducted with the research sample. For construct validity, firstly, exploratory factor analysis was applied. The results of the exploratory factor analysis revealed 6 factors. Internal consistency coefficients were calculated for the reliability of the scale. The Cronbach-Alpha reliability coefficient of the scale was calculated as between .78 and .93 for the sub-dimensions and .92 for the total scores.

Data Analysis Techniques

Parametric statistical techniques were used because of the normal distribution of the visual literacy scale data discussed in the study (Küçüküçü, 2022). Visual literacy levels, which are the dependent variable in the study, were found by using total and subscale scores, arithmetic mean and standard deviation values. Independent Samples T-test was performed to determine whether visual literacy levels differ according to the independent variable of gender. One-Factor Analysis of Variance (One-Way Anova) technique was used to determine whether the visual literacy levels differ according to the grade they attend and the success variable.

Results

In this section, descriptive and comparative analyzes, tables and explanations regarding the visual literacy of high school students are included in relation to the sub-problems of the study. When Table 1 is examined, the arithmetic mean of the students' ability to attach importance to visuality using office software subscale scores is 3.59, standard deviation is .75; the arithmetic mean of Describing Printed Visual Materials scores was 4.21, standard deviation was .61; the arithmetic mean of Visual Interpretation scores was 3.57, the standard deviation was .63; the arithmetic mean of Distinguishability of Visual Messages Encountered in Daily Life scores was 4.20, standard deviation was .48; the arithmetic mean of the Visual Production Using Tools subscale scores was 3.33, the standard deviation was .69; the arithmetic mean of Detecting Messages in Images subscale scores was 3.79, standard deviation was .52; the arithmetic mean of total visual literacy scores was 3.78, and the standard deviation was .31. The highest average score that can be obtained from the scale is 5. With these determined findings, it was understood that the scores of the students participating in the study 'Being Able to Give Importance to Visuality Using Office Software', 'Visual Interpretation' and 'Producing Visuals Using Tools' were at moderate levels. On the other hand, it was seen that the scores of 'Perceiving Messages in Visuals' and 'Total Visual Literacy' were high, while the mean scores of 'Defining Printed Visual Materials' and 'Distinguish the Visual Messages Encountered in Daily Life' were very high.

Table 1. The Level of Visual Literacy Scores of High School Students

	N	Minimum	Maximum	Mean	Std. Deviation
Being able to give importance to Visuality by using office software	299	1.00	5.00	3.59	0.75
Ability to Identify Printed Visual Materials	299	2.50	5.00	4.21	0.61
Visual Interpretation	299	1.00	5.00	3,57	0.63
Ability to Distinguish Visual Messages Encountered in Daily Life	299	2.50	5.00	4.20	0.48
Ability to Produce Images Using Tools	299	1.00	5.00	3.33	0.69
Detecting Messages in Images	299	1.75	5.00	3.79	0.52
Total	299	2.75	5.00	3.78	0.31

t-test analysis was used to determine whether the mean scores obtained from the visual literacy scale of high school students differ according to the gender variable. As a result of the analysis, it was observed that the mean scores of 'Visual Interpretation', 'Creating Visuals Using Tools' and Visual Literacy differed significantly according to the gender variable ($p \leq 0.05$; Table 2). On the other hand, no significant difference was observed in the sub-dimensions of 'Embracing Visuals Using Office Software', 'Defining Printed Visual Materials', 'Distinguishing Visual Messages Encountered in Daily Life' and 'Perceiving Messages in Visuals' according to the gender variable ($p > 0.05$). According to the arithmetic average results performed to determine which gender the difference in the relevant sub-dimensions favored, it was seen that female students achieved significantly higher averages than male students in the sub-dimensions of 'Visual Interpretation', 'Creating Visuals Using Tools' and Visual Literacy Total scores.

Table 2. t-Test Results of High School Students' Visual Literacy Averages by Gender

	Gender	N	Mean	Std. Deviation	t	p
Being able to give importance to Visuality by using office software	Female	155	3.58	0.72	-0.29	0.77
	Male	144	3.60	0.78		
Ability to Identify Printed Visual Materials	Female	155	4.25	0.66	1.14	0.26
	Male	144	4.17	0.54		
Visual Interpretation	Female	155	3.64	0.58	2.11	0.04
	Male	144	3.49	0.67		
Ability to Distinguish Visual Messages Encountered in Daily Life	Female	155	4.18	0.50	-0.78	0.44
	Male	144	4.22	0.46		
Ability to Produce Images Using Tools	Female	155	3.51	0.68	4.65	0.00
	Male	144	3.15	0.66		
Detecting Messages in Images	Female	155	3.78	0.55	-0.16	0.88
	Male	144	3.79	0.48		
Total VL	Female	155	3.82	0.30	2.43	0.02
	Male	144	3.74	0.31		

One-way analysis of variance was used to determine whether the mean scores obtained from the visual literacy scale of high school students differ according to the class variable. As a result of the analysis, it was observed that the total mean scores of 'Emphasis on Visuality Using Office Software', 'Visual Interpretation', 'Creating Visuals Using Tools' and 'Visual Literacy' differed significantly according to the class variable ($p \leq 0.05$; Table 3). However, no significant difference was observed in the sub-dimensions of 'Defining Printed Visual Materials', 'Distinguishing Visual Messages Encountered in Daily Life' and 'Perceiving Messages in Visuals' according to the class variable ($p > 0.05$). According to the results of the Post-Hoc (Tukey HSD) analysis performed to determine between which classes the difference in the relevant sub-dimensions was, it was seen that the participants in the 12th and 11th grades achieved significantly higher averages compared to the students in the 9th and 10th grades. According to all these results, it can be said that the visual literacy of high school students differs according to their classes.

One-way analysis of variance was used to determine whether the mean scores obtained from the visual literacy scale for high school students differ according to the achievement variable. As a result of the analysis, 'Emphasis on Visuality Using Office Software', 'Visual Interpretation', 'Producing Visuals Using Tools', 'Defining Printed Visual Materials', 'Distinguish the Visual Messages Encountered in Daily Life' and Visual Literacy Total score averages were found to be significant according to the success variable. It was observed that they differed significantly (see Table 4).

However, no significant difference was observed in the 'Perceiving Messages in Visuals' sub-dimension according to the success variable ($p > 0.05$). According to the results of the Post-Hoc (Tukey HSD) analysis, which was conducted to determine between which achievement groups the difference in the relevant sub-dimensions was, it was seen that students with very high achievement levels achieved significantly higher averages compared to their

peers with medium and low achievement levels. According to all these results, it can be said that the visual literacy of high school students differs according to their success levels.

Table 3. F-Test Results of High School Students' Visual Literacy Averages by Grade Levels

	Class Degree	N	Mean	Std. Deviation	F	p
Being able to give importance to Visuality by using office software	9	82	3.45	0.85	3.350	0.019
	10	75	3.56	0.70		
	11	70	3.54	0.79		
	12	72	3.82	0.58		
	Total	299	3.59	0.75		
Ability to Identify Printed Visual Materials	9	82	4.13	0.58	1.823	0.143
	10	75	4.15	0.60		
	11	70	4.28	0.63		
	12	72	4.32	0.61		
	Total	299	4.21	0.61		
Visual Interpretation	9	82	3.32	0.74	7.864	0.000
	10	75	3.55	0.58		
	11	70	3.65	0.62		
	12	72	3.78	0.44		
	Total	299	3.57	0.63		
Ability to Distinguish Visual Messages Encountered in Daily Life	9	82	4.19	0.48	0.293	0.830
	10	75	4.17	0.44		
	11	70	4.19	0.48		
	12	72	4.24	0.53		
	Total	299	4.20	0.48		
Ability to Produce Images Using Tools	9	82	3.14	0.77	3.374	0.019
	10	75	3.35	0.58		
	11	70	3.46	0.66		
	12	72	3.41	0.70		
	Total	299	3.33	0.69		
Detecting Messages in Images	9	82	3.74	0.53	1.032	0.379
	10	75	3.80	0.45		
	11	70	3.74	0.62		
	12	72	3.87	0.46		
	Total	299	3.79	0.52		
Total VL	9	82	3.66	0.32	9.114	0.000
	10	75	3.76	0.29		
	11	70	3.81	0.31		
	12	72	3.91	0.27		
	Total	299	3.78	0.31		

Table 4. F-Test Results of High School Students' Visual Literacy Averages According to Achievement Levels

	Achievement	N	Mean	Std. Deviation	F	p
Being able to give importance to Visuality by using office software	High	45	3.72	0.74	26.349	0.000
	Middle	210	3.71	0.56		
	Low	44	2.88	1.11		
	Total	299	3.59	0.75		
Ability to Identify Printed Visual Materials	High	45	4.62	0.57	15.885	0.000
	Middle	210	4.18	0.59		
	Low	44	3.96	0.55		
	Total	299	4.21	0.61		
Visual Interpretation	High	45	3.83	0.60	15.780	0.000
	Middle	210	3.60	0.56		
	Low	44	3.14	0.77		
	Total	299	3.57	0.63		
Ability to Distinguish Visual Messages Encountered in Daily Life	High	45	4.44	0.47	11.353	0.000
	Middle	210	4.19	0.46		
	Low	44	3.98	0.48		
	Total	299	4.20	0.48		
Ability to Produce Images Using Tools	High	45	3.56	0.94	6.740	0.001
	Middle	210	3.35	0.62		
	Low	44	3.03	0.63		
	Total	299	3.33	0.69		
Detecting Messages in Images	High	45	3.78	0.60	0.884	0.414
	Middle	210	3.81	0.49		
	Low	44	3.69	0.54		
	Total	299	3.79	0.52		
Total VL	High	45	3.99	0.36	48.218	0.000
	Middle	210	3.80	0.20		
	Low	44	3.45	0.41		
	Total	299	3.78	0.31		

Discussion and Conclusion

In this study, which was carried out to reveal the visual literacy levels of high school students, significant results were obtained according to the gender, class and achievement status of the participants. According to the findings of the study, it was understood that the participant students had different levels of distribution in the six sub-dimensions of the visual literacy scale. It was found that the participants' visual literacy on 'Perceiving Messages in Visuals' and 'Total Visual Literacy', 'Defining Printed Visual Materials' and 'Distinguish the Visual Messages Encountered in Daily Life' was at a high level. On the other hand, it was found that the visual literacy of high school students in the fields of 'Emphasis on Visuality Using Office Software', 'Visual Interpretation' and

'Producing Visuals Using Tools' shows a moderate and below distribution. In Şahin and Kıran's (2011) study, it was observed that most of the participant teacher candidates were at a sufficient level for visual literacy. As Brill, Kim, and Branch (2007) and İşler (2002) revealed in their research, having different perceptions of visual literacy causes participants to have this competence at different levels.

Another finding of the study is the comparison of the visual literacy of the participant high school students according to the gender variable. According to the research findings, significant differences were found between the visual literacy of male and female students. In the study, it was found that female students achieved high averages in 'Visual Interpretation', 'Creating Visuals Using Tools' sub-dimensions and Visual Literacy Total scores. Similar to the results of this research, Erasşan Taşpınar (2017), Kiper, Kırksekiz, and Çam (2014), in their studies investigating the visual literacy competencies of university students, concluded that the sub-dimensions of Identifying Printed Visual Materials and Distinguishing Visual Messages Encountered in Daily Life were high in favor of girls. However, in the literature, most notably in computer software where visual literacy is actively used, it is seen that the visual literacy of boys and girls in daily and traditional communication forms is significantly higher (Deirdre & Dawn, 2021; Sayid & Milad, 2021; Tal Dekel, & Barchana-Lorand, 2021; Yerushalmi, 2021).

Another finding of the study is about the relationships between the class levels of the participants and their visual literacy. As to the research findings, the visual literacy of high school students differs significantly according to the grade level. In nearly all areas of visual literacy, senior students achieved higher levels than those in lower grades. Considering the averages of the groups, it was seen that as the grade level increased, visual literacy increased. It can be said that the parallel increase in visual literacy scores as the grade level increases is due to the excess of content that requires visuals in the high school curriculum. It can increase visual literacy skills proportionally, while providing students with visual thinking ability, visual interpretation, visual comparison, a critical eye and an analytical perspective, especially in visual arts, geography, mathematics, physics, biology, etc. courses in the high school curriculum. Rourke and O'Connor (2009), in their study on design students' dominant learning styles and visual literacy, determined that design students have high visual literacy skills. Similarly, Eraslan Taşpınar (2017), Kędra & Źakevičiūtė (2019), Kocaarslan and Çeliktürk (2013) found the visual literacy of students in upper grades higher in their studies at different school levels. According to Bleed (2005) and Felten (2008) there is a direct and positive relationship between students' academic development and their visual literacy. In this context, as the grade level increases in all disciplines, at least some elements of visual literacy education should be put into practice and benefit from visual information and ways of knowing.

Another relationship examined in the study is between visual literacy and achievement. According to the findings of the study, visual literacy of high school students differed according to their achievement levels. According to the research findings, it was observed that students with very high achievement levels exhibited significantly higher visual literacy. Considering all these results, we can say that as the success levels of high school students increase, their visual literacy increases. These findings are based on Chen & Sun (2012), Cooper (2003), Gülen and Demirkuş (2014), Huilcapi-Collantes, Hernández Martín & Hernández-Ramos (2020), Michelle (2013), Stokes (2002), Türkoğuz & Yayla (2010). According to Eraslan Taşpınar (2017), it has been determined that the

visual materials and activities prepared for students have a positive effect on students' learning, improving their learning and structuring them in their minds. In this respect, while successful students develop their competencies in visual literacy and their academic goals, this situation also improves their visual perceptions. It has been shown that visual and multimedia formats capture students' interests and are easier to understand, allowing students to identify problem-solving steps and focus on higher-level processes of critical thinking (Cooper, 2003). Likewise, Stokes (2002) points out that a greater level of learning is achieved through the use of visuals in teaching. In this respect, the high relationship between visual literacy and academic achievement is supported by the literature. According to Wiggins and McTighe (2005), in the curricula and courses designed to support visual literacy, if the design principles are followed, the skills that support visual literacy are practiced and strengthened, and activities that are compatible with learning goals are carried out, the academic achievement standard will be achieved. In line with the results obtained in the research, suggestions were made on the following subjects. Visual literacy courses can be added to the curriculum to increase students' awareness of visual literacy. Since it develops visual literacy skills, it can be given to the activities on this basis in art classes. Different qualitative and quantitative or art-based studies can be conducted on visual literacy. Finally, in future research, experimental studies can be conducted to test the effects of visual literacy practices on students' academic achievement.

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