

**Visual Artist or Visual Designer?
Visual Communication Design Education**

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ABSTRACT

Design tools and contents have been digitalized, forming the contemporary fields of the visual arts and design. Corporate culture demands techno-social experts who understand the arts, design, culture and society, while also having a high level of technological proficiency. New departments have opened offering alternatives in art and design education such as Visual Communication Design (VCD) and are dedicated to educating students in the practical aspect of using digital technologies in visual design.

The aim of this research is to investigate the current adoption and understanding of VCD education in Turkey and North Cyprus. The marketing and commercialization strategies of various institutes are analyzed to reflect the trends and possible invisible curricula present in VCD. VCD students profiles were examined and interviews were conducted in order to understand the purpose of VCD education from the students' and VCD scholars' perspective. Questionnaires were also administered to VCD students in order to determine if future visual designers are aware of the complexities of the actual elements of visual design.

The cognitive portion of this research demonstrates the difference between vision and perception which is one of the major subjects in VCD. The differences are demonstrated through the use of methods borrowed from critical pedagogy and semiotics in order to analyze this relatively new field in education. Various triangulation approaches were used to analyze the perceptions of students and scholars and synthesize suggestions to improve VCD curriculum.

Keywords: Visual Communication, Design, Artist, Designer, Education.

ÖZ

Çağdaş görsel sanatlar ve tasarım alanlarında, hem tasarım araçları ve hem de içerik olarak sayısal ortamda uygulamalar üretilmektedir. Görsel tasarım alanında kurumsal kültür, sanat ve tasarım, kültür ve toplum aynı zamanda teknoloji becerileri olan tekno-sosyal uzmanlar talep etmektedir. Görsel İletişim Tasarımı (GİT) gibi alternatif sanat ve tasarım eğitimi veren bölümler de, görsel tasarım uygulamalarında sayısal teknolojiler kullanarak bu özelliklere sahip öğrenciler yetiştirmeyi amaçlamaktadır.

Bu araştırmada, Türkiye ve Kuzey Kıbrıs'da GİT eğitiminin benimsenmesi ve anlayışı irdelenmektedir. GİT'deki görünmeyen müfredat ve eğilimlerini yansıtmak için enstitülerin pazarlama ve ticari stratejileri incelenir. Öğrenciler ve akademisyelerin GİT' e bakış açılarını - GİT öğrenci profilleri incelenerek GİT eğitiminin amacı nedir?- yansıtan görüşmeler gerçekleştirildi. Ayrıca GİT öğrencilerine anket uygulanmıştır. Geleceğin görsel tasarımcıları, görsel tasarım unsurlarının karmaşıklığını farkında mı? Araştırmanın bilişsel bölümü ise görme ve algı arasındaki farklara değinerek, görme ve algının GİT'deki önemini yansıtır.

Eğitimdeki bu yeni alan incelenirken, eleştirel pedagoji ve göstergebilim yöntemlerini kullanıldı. Çeşitli nirengi yaklaşımlarla öğrenci ve akademisyenlerin görüşleri GİT müfredatını geliştirmek için öneriler sunmaktadır.

Anahtar Kelimeler: Görsel İletişim, Tasarım, Sanatçı, Tasarımcı, Eğitim.

To My Family

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TABLE OF CONTENTS

ABSTRACT.....	iii
ÖZ.....	v
ACKNOWLEDGMENT.....	vii
LIST OF TABLES.....	xiii
LIST OF FIGURES.....	xiv
1 INTRODUCTION.....	1
2 STATEMENT OF THE RESEARCH PROBLEMS.....	4
2.1 Significance of the Study.....	6
2.2 Limitations of the Study.....	7
2.3 Definitions.....	9
2.3.1 Terms and Concepts used in the Chapters.....	9
Design Tools.....	9
2.3.2 Research Terminology: Why do we need research on the perception of geometrical shapes?.....	10
3 LITERATURE REVIEW: VISUAL COMMUNICATION IN THE DIGITAL AGE.....	13
3.1 Visual Communication Design Education.....	15
3.1.1 The Constitution of Visual Communication Design Departments in the Higher Education System in Turkey.....	15
3.1.1.1 Fine Arts, Design and Communication Faculties in State Institutes... ..	16
3.1.1.2 VCD Education in State Universities.....	16
3.1.1.3 Fine Arts, Design and Communication Education in Foundation Institutes.....	16
3.1.1.4 VCD Education in Foundation Universities.....	17
3.1.2 Commercialization of VCD Education.....	19

3.2 Visual Cognition and Perception: An image	23
3.2.1 Gestalt Theory	24
3.2.1.1 Phi-Phenomenon or Phenomenal Movement.....	25
3.2.1.2 Gestalt Principles of Visual Perception	25
3.2.1.2.1 The Principle of Proximity and the Vertical and Horizontal Processing of Observed Objects.....	26
3.2.1.2.2 The Principle of Similarity	28
3.2.1.2.3 The Principle of Continuity.....	28
3.2.1.2.4 The Principle of Closure	29
3.2.1.2.5 The Principle of Figure-Ground or Prägnanz.....	30
3.2.1.2.6 Some Examples of Gestalt Order of Visual Perception	31
3.2.1.2.7 Criticisms of Gestalt Theory	31
3.2.2 Physical Issues in Visual Perception.....	32
3.2.2.1 Cerebral Processing of Visual Data – Scanning, Matching, and Memory	33
3.2.2.2 Visual Impairment and Visual Perception	33
3.2.3 Interpretation of Visual Data.....	35
3.2.4 The Role of Intuition In The Process of Visual Perception	36
3.2.5 The Role of Semantics and Language in the Process of Visual Perception	37
3.3 Semiotics.....	38
3.3.1 Peirce’s Triadic Model of Semiotics.....	38
3.3.2 Saussure’s Two-Part Model of Semiotics	40
3.3.3 Barthes’ Categorization of Signification.....	41
3.3.4 The Concept of Metaphor	41
3.3.5 Semiotics and Codes	42
3.3.6 Signs and the Representation of Reality	44
3.3.7 Semiotic Models and VCD	44
3.4 Factors Involved in the Visual Perception of Art: Creation or Creator?	44

3.4.1 Historical Sources of Contemporary Perception of Works of Art	45
3.4.2 Contemporary Digital Media Culture	49
3.4.3 Commercial Considerations in the Creation of Artistic Works	52
3.5 Visual Perception in the Digital Age	55
3.5.1 Developing Technologies, Developing Perceptions	55
3.5.2 The Importance of Symbols in Cyber-Culture.....	57
3.5.3 The Creation of Symbolic Operations through Graphic User Interfaces..	57
3.5.4 Absorption of Cyber Realities into General Culture.....	58
3.5.5 The Role of Culture in Digital Visual Presentation	59
3.5.6 Emoticons: Definition and Development.....	60
3.5.7 Impact of Culture on Use of Emoticons.....	62
3.6 The Virtual Culture and Visual Communication	63
3.6.1 Social Networking Sites (SNS).....	63
3.6.2 Facebook™ as a Social Networking Community	64
3.7 VCD Curriculum Problems from Scholars Perspective.....	65
3.7.1 Design Process	68
3.7.2 Visual Designer or Visual Artist.....	69
3.7.3 Tools and Intuition	70
3.8 Critical Pedagogy	72
3.8.1 Concepts of the Critical Pedagogy	73
3.8.2 The Function of the Critical Pedagogy in VCD Education	75
4 RESEARCH DESIGN AND METHODOLOGY	77
4.1 Triangulation Approach	77
4.2 Population Sample	78
4.3 Instrument: Data Collection Techniques	80

4.3.1 Five Point Likert Scale Questions.....	80
4.3.2 Open-Ended Question	81
4.3.3 Object Perception.....	82
4.3.3.1 Recall and Recognition of the Graphical Images	82
4.3.4 Interviews.....	83
5 RESEARCH FINDINGS	84
5.1 Observation from VCD Candidates' Interview	84
Summary of candidates' responses to the interview panel's request to talk about themselves.....	85
5.2 Demographic Profile of Respondents	88
5.2.1 Family's professional interest in the visual arts and design.....	91
5.3 Responses to Likert Scale Questions	92
5.3.1 Role of the Visual Arts and Design in Participants' Daily Lives	92
5.3.2 Teaching Methods.....	92
5.3.3 Types of Visual Images: 2D images- 3D images - Moving Images - Web Designs - Photographs - Artistic Drawings.....	93
5.3.4 The Elements of Design: Color.....	94
5.3.5 Utilizing Design Elements: Color	95
5.4 Open - Ended Question.....	96
5.4.1 Labeling Geometrical Shapes	96
5.4.2 Organization of components in terms of Gestalt Principles	109
5.4.3 Associations Displayed Between Color and Shape	114
5.5 Object Perception.....	122
5.5.1 Recall and Recognition of the Graphical Images.....	122
6 INTERPRETATION OF THE RESEARCH FINDINGS	125
6.1 Profile of VCD Candidates	125

6.1.1 Profile of VCD Students	127
6.1.2 Teaching – Learning	128
6.1.3 Students Perception on Trends.....	129
6.1.4 “Expert” Professionals Perception on Trends.....	129
6.2 Visual Perceptions	130
6.2.1 Classification of the Geometrical Labels	131
6.2.1.1 Conceptual Simplicity and Complexity	134
6.3 Analysis of the Organization of the Components in Terms of Gestalt Principles	137
6.4 Color	139
6.5 Analysis of the Recall and Recognition of the Graphical Images	142
7 CONCLUSION.....	144
REFERENCES	147
APPENDICES	163
Appendix A: Explanatory note for the Contributors.....	164
Appendix B: List of Higher Education Institutes in Turkey.....	165
Appendix C: Research Questions	173
Appendix D: ‘The Identical Twins’ (1967) of Diane Arbus’ Photographs	178

LIST OF TABLES

Table 1: Fine Arts, Design, and Communication studies among state and foundation institutes	17
Table 2: Structure of VCD departments in state and foundation universities.	18
Table 3: Distribution by university affiliation	89
Table 4: Cross tabulation of gender and university affiliation.....	90
Table 5: Cross tabulation of computer ownership and university affiliation.....	91
Table 6: Cross tabulation of family’s professional interest in VCD and university affiliation.....	92
Table 7: Colors schema for the respondents’ two favorite color(s).....	95
Table 8: Frequencies of respondents’ statements of choice of colors.....	96
Table 9: Categorization of the Cube Shape with Other Geometrical Shapes	105
Table 10: Participants’ color choice for the perfume bottle.	115
Table 11: Distributions table of the first perceived items	122
Table 12: Cross tabulation of gender and first perceived items.....	123
Table 13: Distribution table of the first perceived items	124
Table 14: Cross tabulation of gender and first perceived items.....	124
Table 15: Positive and negative associations of the colors.....	140
Table 16: Unity of the illustrated images.....	142
Table 17: Illustration of literal difference	143

LIST OF FIGURES

Figure 1: Face shape (Costa & Cesar, 2000, p. 267).	11
Figure 2: Shape (Costa & Cesar, 2000, p. 267).	12
Figure 3: Row grouping.	26
Figure 4: Unit grouping	26
Figure 5: Horizontal grouping	27
Figure 6: Eye-movements	27
Figure 7: Similarity	27
Figure 8: Similarity - Symmetry	28
Figure 9: Continuity	29
Figure 10: Continuity	29
Figure 11: Closure.....	29
Figure 12: Young Lady / Mother in Law Picture (Gregory R. L., 1970, p. 39).	30
Figure 13: Visual Path Way (Kibiuk, 1994).	33
Figure 14: Saussure’s diagram of a sign (Berger A. A., 1991, p. 8).....	40
Figure 15: Saussure’s diagram of a sign (Berger A. A., 1991, p. 10).....	41
Figure 16: Rogier van der Weyden (c.1450). Beane Altarpiece, interior showing the	45
Figure 17: Raphael (c. 1509-1510). School of Athens.	46
Figure 18: Nam June Paik (1988). The More The Better.	47
Figure 19: Nam June Paik (1995). Electronic Superhighway: Continental US.....	48
Figure 20: Dierick (or Dirk) Bouts (c.1450-1455). <i>The Annunciation</i> .Distemper on linen. 35 7/16 x 29 3/8 in. J. Paul Getty Museum, Malibu, USA.	49
Figure 21: Rogier van der Weyden (c.1437-1440). <i>Dream of Pope Sergius</i>	49

Figure 22: Bill Viola, 'The Quintet of the Astonished' (Perov, 2000).	50
Figure 23: Hieronymus Bosch (c.1490-1500). <i>Christ Crowned with Thorns</i> . Oil on panel 73.8 x 59 cm. Copyright © 2003 The National Gallery, London, UK.....	50
Figure 24: Bill Viola, Nantes triptych. Video Installation (Perov, 1992).....	53
Figure 25: Bill Viola. <i>Emergence</i> (Perov, 2002).	53
Figure 26: Empty recycle bin.....	57
Figure 27: Full recycle bin.....	58
Figure 28. Evli ve Cepli ('Married and Possessing a Mobile Phone) Cartoon strip (Demirci, 2007). <i>Please do not park :</i>).	59
Figure 29: Evli ve Cepli ('Married and Possessing a Mobile Phone) cartoon strip (Demirci, 2006). <i>All reader @ good holiday season :</i>).	59
Figure 30: D-Tower, designed by Nox Company (Spuybroek, D-Tower, 2004).....	71
Figure 31: Color reflection on the D-tower (Spuybroek, D-Tower, 2004).....	71
Figure 32: Research figure: Circle shapes.	81
Figure 33: Research figure: Image of a Salvador Dali perfume bottle.	82
Figure 34: Research figure: Deluce Electronics Company Advertisement, 1996. ...	82
Figure 35: Research Figure - Square shape	96
Figure 36: Descriptions of square shape	97
Figure 37: Research Figure - Lozenge form of square	97
Figure 38: Research Figure - Octagon shape	98
Figure 39: Research Figure - Ellipse shape	99
Figure 40: Research Figure - Triangular shape.....	99
Figure 41: Descriptions of the triangular shape	100
Figure 42: Research Figure - Circle shape.....	100
Figure 43: Chart of the circle shape, N=478.....	101

Figure 44: Research Figure - Parallelogram shape	101
Figure 45: Research Figure - Arc shape	102
Figure 46: Research Figure - Trapezoid shape	103
Figure 47: Research Figure - Pentagon shape.....	103
Figure 48: Research Figure - Cylinder shape.....	104
Figure 49: Research Figure - Cube shape	104
Figure 50: Chart of the cube shape	106
Figure 51: Research Figure - Bevel [rectangle] shape.....	106
Figure 52: Research Figure: Sun figure	107
Figure 53: Research Figure – Disconnection; Rectangle shape.....	108
Figure 54: Research Figure - Ring shape.....	109
Figure 55: Research Figure - Two-different color of the triangle shape	109
Figure 56: Research Figure - Two-different colors of the ring shape.....	110
Figure 57: Research Figure - Two-different direction of the arrow shape	111
Figure 58: Research Figure - Two-different color of the square shape	112
Figure 59: Research Figure - Pattern form from square (diamond) shape.....	113
Figure 60: Research Figure - Two-different color and forms of the square shape ..	114
Figure 61: Gender intention on gender target of the Perfume bottle design.....	115

Chapter 1

INTRODUCTION

Over the last decade, information and communication technology (ICT) has been integrated into the fields of the visual arts and design. Design tools and content have been digitalized, forming the fields of contemporary visual arts and design. Industry culture demands techno-social experts who understand the arts, design, culture and society, while also having a high level of technological proficiency.

Technological development urged digital expertise in the field. This new gap in the industry became a very attractive target for educational entrepreneurs. Following this, the role taken by the educational institutes has been to support industrial demand by creating techno-social experts. The way students are taught in universities is moving art and design education into the digital environment.

Bok (2003) argues that entrepreneurial activity is “forever developing new interests and ambitions” (Bok, 2003, p. 9). New departments have opened offering alternatives in art and design education such as Visual Communication Design (VCD). Such courses are dedicated to educating students in the practical aspects of using digital technologies in visual design (Apple, 1989, p. 172). However the question remains: does the emphasis in these courses on the practical aspects of visual design empower students to understand the underlying conceptual principles? Are future visual designers fully cognizant or only faintly aware of the complexities

of the actual elements of visual design? Is attaining a level of technical proficiency enough in order to become an artist or designer?

It is within the framework of visual communication in the digital age that this research is concerned. It strives to investigate VCD education and design processes. Banks (2001, p. 177) declares that ‘visual research, whether conducted through the creation of images or the study of images, or both, is no different’, because ‘all visual images, whatever their source, are inherently complex and problematic’. This study places an emphasis on the pedagogy of visual communication design because such courses have inherited all the above mentioned complexities.

Within the epistemological process of the designer, knowledge and cultural interaction produce and create a visual understanding of how images communicate their reference. This was the point that initiated research and design to develop a clear conceptualization of ‘visual designer’ and ‘visual artist’ approaches.

In this study VCD education is conceptualized within two different fields of interest, namely, pedagogy and institutes. Both research trends critically investigate the construction of knowledge construction in the field of visual communication. The integration of ICT with arts, design and communication disciplines constitute an interdisciplinary VCD curriculum. The invisible curriculum of VCD is represented through institutions.

It is the opinion of Friere (1970) that ‘problem-posing theory and practice take people’s histories as their starting point’ (Freire, 1970, p. 84). In this study, it is assumed that the way one sees is the starting point in VCD education. The visual

cognition and perception which students hold on design elements is a cognitive process which has been shaped by their histories and experiences. The design process is an 'action' and 'reflection' that visual designer and visual artist use to reproduce their world within design concepts (Freire, 1970, p. 128).

The aim of this research is to investigate the currently developed understandings of visual communication design. The profiles of VCD students were examined and interviews were conducted for the purpose of understanding VCD education from the students' and VCD scholars' perspective. Questionnaires were also administered to VCD students.

The visual perceptions of students were particularly studied using semiotic analysis and various principles of cognitive science in order to measure the recognition and interpretation of basic geometrical shapes and graphical images. The aim was to highlight the differences between vision and perception and to prioritize such courses in VCD education.

The questionnaires did not aim to prove or find any evidence of student ability or consciousness. It was structured with the use of common and basic shapes in order to emphasize the curriculum requirements for VCD education.

Various triangulation approaches were used in order to analyze the student design process within the framework of the assumptions made in the contemporary situation of VCD.

Chapter 2

STATEMENT OF THE RESEARCH PROBLEMS

VCD education should aim to identify the differences in the approaches taken by artists and designers during the design process. This is in fact a primary limitation of the VCD curriculum in the faculty of communication. The production processes of *visual art* and *visual design* entail different domains of superiority (or features). The artist has the privacy to reflect his/her inner world and visual taste in the concept design; however the designer is limited by “the world's” concepts and the those of the target audiences. My concern is not the technique or creativity present in the design. It is the approaches that the designer or artist needs in order to achieve communication. Visual communication needs a common language to reach everyone. For that reason, the designer's perception has no importance of how he/she understands the world. Designers work in a limited frame of concepts.

These two processes are not in opposition. Each approach influences the other, positively or negatively. Specifically, we can assume that approaches have a particular form of values. Therefore artists are only limited by their own values of production even in commissioned assignments. Visual designers on the other hand are limited to the assigned (frame)-work and are supposed to keep their own values away from their production. This is therefore in complete contrast to the artist who states him/her/self in this (frame)-work, precisely because this is very precious to the

artistic work. Accordingly, the product may represent hidden-concepts for which the producer (artist/designer) would need to take the responsibility.

My question is: is technology a determining factor in VCD education?

In order to elucidate this, I pose the following major research questions:

1. How are ICT, art, design and communication unified in VCD?
2. How do artists and designers demonstrate design approaches in visual communication?

The following minor research questions are also pursued:

- Do students in VCD education improve their visual skills?
- Does VCD education identify the art and design approaches in the curriculum?

The foundation of VCD education is investigated through a structural comparison among state and non-state (foundation) institutes in the higher education system. The aim of the investigation which will be analyzed in chapter three, was to identify the curriculum problems of VCD education. The subjects in chapters three and six exemplified administrative problems and misconceptions in VCD education.

My research focuses on how students perceive and identify design elements. This is based on the principle that the manner with which one sees and constructs the world will determine the approach to the design process, This study of cognition was designed to understand general 'seeing (cognitive) processes' in relation to visual elements. Respondents were shown graphical images for the purpose of recalling and

labelling geometrical shapes to attempt to define arguments to establish the relationship between design and interpretation.

2.1 Significance of the Study

In the field of visual communication, the design process has not been adequately described. A triangulation approach involving the study of both qualitative and quantitative aspects will be used in this study in order to attempt to construct a description of contemporary VCD education, visual forms, and visual modes. The principal concern will be to describe the theoretical framework of visual communication in regards to perception and knowledge construction. In order to investigate the theoretical framework on which VCD education is currently based, a population sample of VCD students was selected and a longitudinal study was conducted in order to query their perceptions of visual communication and to identify the design process.

The student respondents were observed to be familiar with the digital realities of spreadsheet software, the Internet and so on, but not with specific design tools. They displayed considerable uncertainty as to how to use design elements for the purpose of communicating images. The question that arises from this observation is whether what Ertep (2004, p. 54) describes as ‘fabricating images’ is enough for effective communication. The findings from this empirical study will be interpreted from the varying perspectives of scholars from different disciplines. This cross-disciplinary investigation will identify problems within the field of VCD which originate from the cognitive processes of respondents.

It emerges that the ‘myth’ of visual perception in relation to the elements of design discussed by Barthes (1977) has its roots within the pedagogy of VCD. I mentioned above that one of the most important features of this study is the issue of what an image communicates. The aim of this investigation is therefore to describe symbolic and referential systems in the visual genre and to ascertain how meaning is produced in the visual design process.

Banks (2001) points out; there is a highly complex system which determines peoples’ visual cognition and perception. The field of cognitive research uses many different approaches and this research is used in this study as a basis for the study of respondents’ perceptions. A triangulation approach is used to interpret the perceptions displayed by respondents. Students’ visual perceptions are analyzed so as to construct a perspective of how they approach visual elements such as shape and color in order to represent image complexity. Their visual cognition and recall of graphical images and geometrical shapes is assessed in this study.

By adopting an interdisciplinary approach I will attempt to identify how we can categorize the differences in perceptions between visual designers and visual artists and therefore construct suitable curricula for teaching visual designers and visual artists.

2.2 Limitations of the Study

Contemporary visual communication is still very much a new and developing field given the ongoing improvements in technology. The tools used for visual design are constantly being updated and their utilization involves considerable expenses. Given

this, the present investigation has been limited to one visual tool, being Personal Computers (PC) which have been used with Adobe Photoshop Software.

By virtue of the “professionalism” and technological infrastructure involved in visual communication design, such courses are more frequently offered in foundation institutes rather than state institutes. The current research was carried out in Istanbul, Turkey, and the population sample chosen consists of junior students. Junior students were chosen because VCD was quite a new course of study in Turkey and in Northern Cyprus. Also few senior students would have been trained in the time frame that this study was conducted. This study was conducted within the time period of 2001 September to 2006 December.

The advantage of ICT skills showed that visual products could be generated by students with more speed and ease than by people with greater levels of skill.

Before beginning this research, the relevant institutes were informed and their permission secured. The classes in the population sample were also informed about the research and its purpose and all students agreed to allow me to use their responses to my survey and their homework and studio work as data for my study (see Appendix A). Technical and professional medical diagnosis on physical handicaps and biological treatments of respondents were not conducted given the limitation of funding.

2.3 Definitions

2.3.1 Terms and Concepts used in the Chapters

Design Tools

By using the term design tools, we refer to all digital production tools and instruments such as computer software, digital cameras, and digital AV technologies and so on.

Design Elements

By using the term design elements, we refer to design attributes such as color, typography, balance (symmetry, asymmetry, horizontal and vertical), curve, texture, height, line, light, legato, size (proportion), shape, space (negative, positive), staccato, (layout) structure and rhythm.

Visual Cognition

The term *cognitive* is used to refer to the ‘process of knowing’ and the term ‘*cognition*’ is used to refer to the ‘mental development’ of concepts. For the most part, this study used statistical results to explain visual cognition/perception, that is, to explain such things as reaction time. The aim is to describe the specific situation revealed by the respondents’ replies rather than to provide a general synthesis. In the above section on the limitations of this study, it was mentioned that the study did not take into account physical handicaps, or biological treatments and such demographic questions were not included in the questionnaire. Nonetheless, the theoretical basis of ‘knowledge construction’ will be discussed in the literature section of this study for the purpose of shedding some general light on the impact of psychological and physical handicaps within the field of VCD.

Marketing and Commercialization

Bok (2003, p. 3) uses the term *commercialization* to refer ‘to efforts within the university to make a profit from teaching, research, and other campus activities.’ The American Marketing Associations’ (2009) definition of marketing is as follows: “Marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large”. In the present study the institutes’ *marketing* and *commercialization* strategies are used to refer to the invisible curriculum.

Visual Product

The term *visual product* is used to refer to a complete digital production and to computer generated visual objects such as two dimensional images, computer icons, banners, buttons, three dimensional animations, models, architectural design, web pages, electronic graphics, digital art, photographs, and films.

2.3.2 Research Terminology: Why do we need research on the perception of geometrical shapes?

People ‘express and characterize’ shapes or form in a ‘relative manner’, which is based on ‘similarities’ and converted into metaphors by avoiding a ‘formal definition’, i.e., ‘the moon is round like a cheese’ or cake (Costa & Cesar, 2000, p. 265). In fact, an objects similarity is a subject of cultivation. In the case of a patient in ‘recovery from early blindness’ (Gregory & Wallace, 1963, p. 18), when the patient saw the moon for first time, ‘he expressed surprise at its crescent shape, expecting a "quarter moon" to look like a quarter piece of cake.’ The Gregory and Wallace (1963) finding is an example of the limited shape knowledge which is reconstructed without visual sensory input. Costa and Cesar (2000, p. 266) state that ‘invariance to transformation features in the definition of 'shape' like ‘translation’,

‘rotation’ and ‘scaling’ ‘manage to capture an important property of shapes’ but still it does not ‘clearly specify an ‘object’ or ‘data set’ as perceived by people. They (Costa & Cesar, 2000, p. 267) formulized the concepts of ‘single’, ‘whole’ and ‘united’ in the mathematical concept of ‘*connectivity*’ that has the following definition:

SHAPE = *Any Connected set of points.*

Costa and Cesar (Costa & Cesar, 2000, p. 267) utilized Figure 1 and Figure 2 as examples of ‘a possible problem’ in mathematical concepts in that ‘it fails to identify some structures normally understood as shapes’ by their definition. They clarify as follows:

The face in [Figure 1: Face shape .] should not be understood as a shape, but actually as a *set of shapes*, also referred to as a *composed shape*. As a matter of fact, a face is usually understood as a shape because its 3D version actually is a connected set of points (a surface).



Figure 1: Face shape (Costa & Cesar, 2000, p. 267).

In [Figure 2], an originally connected set of points (and therefore a shape) has been reproduced with some graphical problem causing it to break apart into two connected sets of points. Figure 2, for instance, is usually understood as a shape because it is firstly according to perceptual principles (i.e., Gestalt) [...] In this case [...] since continuous shapes are transformed into finite sets of isolated points of the orthogonal grid, alternative concepts of connectivity are required.



Figure 2: Shape (Costa & Cesar, 2000, p. 267).

Students need to evaluate their design elements in terms of formal definition and relative manners. For that reason they intend to analyze all design elements such as geometrical shapes with the following questions and issues as described by Costa and Cesar (2000, pp. 265-266):

1. What are they?
2. What properties do they exhibit?
3. The way they are perceived by humans.

To elucidate the visual cognition, perception, and employment of graphical and geometrical images within a given culturally-determined context, this study gathered data on each respondents' perceptions and use of the following components of the design process:

- a) Recognition of geometrical objects
- b) Labeling of geometrical objects
- c) Associations displayed between color and shape
- d) Forms or models employed to generate visual products
- e) Organization of components in terms of similarity and proximity
- f) Recall

Chapter 3

LITERATURE REVIEW: VISUAL COMMUNICATION IN THE DIGITAL AGE

VCD education is an interdisciplinary field and one that is still in its incipience. This is particularly so in the case of Turkey and Northern Cyprus. Relevant literature, including conference proceedings, relating specifically to Turkey and Northern Cyprus is currently very limited. Definitions of VCD and various perspectives on this new discipline are synthesized and summarized in this literature review and form the foundation of this study's investigation of research design and methodology.

Partly because of the interdisciplinary nature of VCD education, this field has been struggling to clearly establish its curriculum. Visual communicators use many approaches in their product design to achieve communication. This section will describe visual communication curricula and the different points of views on this subject expressed by various scholars on VCD education. Readers of the study will reach VCD approaches later in the literature, research findings and analysis. The aim is to identify the visual communication patterns displayed by respondents in relation to the elements of the visual design. The literature is structured in such a way as to provide a perspective on the subsections of visual communication.

In the first part of this review of current related literature, the emphasis is on determining the ‘invisible curriculum’ of VCD. The invisible curriculum represents the constitution and commercialization dilemma of VCD institutes. The commercialization strategies also refer to describing constitution problems of VCD curriculum while the curriculum is being explored within the pedagogical context.

Our assessment of the curriculum which is described later suggests that the role of constitution is not considered within the VCD curriculum as it is not deemed to be a part of the education process. However, I would argue that the function of a constitution within the field of VCD is crucial since its importance within the realm of VCD contributes substantially to the knowledge and identity construction for VCD education.

In terms of investigating the ‘invisible curriculum’ of VCD, we need to explore the relationship between the identity of the educational institute and the VCD curriculum and economic and corporate considerations. Giroux (1994, p. 24) argues that the employment of industry experts by educational institutes limits the efficacy of education’s role in ‘creating new identities’, augments unexplored consumerism, and inhibits the creation of new identities. Jorge (2004, p. 85) warns us that the development of ICT and digital media may have positive or negative utilizations and does not guarantee the improvement of living standards which is an argument often put forward by those championing the cause of greater and more advanced use of technological developments. Aronowitz and Giroux (1991, pp. 96-97) point out that student instruction in technological progress only serves to conform students to the existing relations of power within a society. Giroux (1994, p. 23) contends that within the field of popular culture ‘power has become an important cultural and

ideological form' and that VCD institutes reflects the popularity of ICT and its capacity to generate trends which ultimately leads to its creation of power relations.

The second part of the literature review will present the basic common definitions of visual communication that are used in courses on Art and Design and Communication.

An overview of the different points of view of VCD education that have been developed by various scholars and their discussion of problems related to this field and its ideal curriculum is presented.

The third and final part of our literature review summarizes some of the main issues relating to VCD that are found in the visual cognition and perception literature. Here, in order to explain how the social world is constructed and represented through a visual genre, the concept of *emoticons* as representing a digital heritage has been adopted. Also social networking sites (SNS) will be representing hybrid communication modes between *the virtual* and *the real* world.

3.1 Visual Communication Design Education

3.1.1 The Constitution of Visual Communication Design Departments in the Higher Education System in Turkey

This section will give a brief outline of how VCD departments have been placed under the faculties and the various reasons behind the VCD curriculum problems mentioned in chapter three.

In the Turkish higher education system, there are state and non-state higher education institutes. In the following context, non-state institutes are represented as foundation

institutes. Ongoing in this study (between 2001 and 2006) there were eighty-three higher education institutes in the directory of the Higher Education Council (know as YÖK) in Turkey. Fifty-eight were state and twenty-five were foundation institutes (see Appendix B: List of Higher Education Institutes in Turkey).

3.1.1.1 Fine Arts, Design and Communication Faculties in State Institutes

The structure of Fine Arts, Design and Communication Faculties in state institutes is as follows:

- Twenty-six state institutes have a Faculty of Fine Arts.
- One has an Art and Design Faculty.
- Fourteen have a Faculty of Communication (see Table 1).

3.1.1.2 VCD Education in State Universities

It was found that only four out of fifty-eight state institutes have a Visual Communication Design Department.

- Two VCD departments have been placed under the Faculty of Communication.
- The third is included in the Art and Design Faculty.
- The fourth one belongs to the Faculty of Fine Arts (see Table 2).

3.1.1.3 Fine Arts, Design and Communication Education in Foundation

Institutes

The structure of Fine Arts, Design and Communication in the state universities was as follow:

- Eight institutes have a Faculty of Fine Arts,
- Four have an Art and Design Faculty,
- Nine have a Faculty of Communication,

- One foundation university has a Faculty of Arts and Social Sciences (see Table 2).

3.1.1.4 VCD Education in Foundation Universities

Seven out of twenty-five foundation universities have a Visual Communication Design Department, four institutes have a Communication Design Department, and three have a Visual Arts and Visual Communication Design Department.

- Seven institutes have placed their VCD departments under the Communication Faculty,
- Four have been included in the Fine Arts and Design Faculty,
- Two in the Fine Arts Faculty and,
- One institute has included VCD within the Faculty of Arts and Social Sciences (see Table 2).

Table 1: Fine Arts, Design, and Communication studies among state and foundation institutes

Type	State Institutes	Foundation Universities
Faculty of Fine Arts	26	8
The Arts and Design Faculty	1	4
Faculty of Communication	14	9
The Faculty of Arts and Social Sciences	-	1

The above Table 1 shows that half (mean = 2.2) of the state institutes have a fine arts education. On the other hand, every three (mean = 3.1) foundation university has a fine arts education. The average number of existing communication studies in the state is four (mean = 4.1), and foundation is three (mean=2.7), difference is one-and-half (mean = 1.52). However, Arts and Design education made significant differences (mean = 8.3), one out of fifty-eight state institutes versus four out of twenty-eight foundation institutes. It is significant (see table-1) that fine arts

education is not supported by the foundations institutes as much as state institutes. We can assume that students don't prefer private (non-state institutes) education in the arts. It is possible that fine arts education generates higher (daily) expenditure than communication studies, therefore it is not attractive or it is too expensive for the foundation institutes. However, communication studies' are much more financially attractive than fine arts especially since the field of communication studies has active links between highly commercial media and entertainment industries for foundation institutes.

Table 2: Structure of VCD departments in state and foundation universities.

Placement of VCD Departments in the existing Arts, Design and Communication Faculties	State Institutes	Foundation Universities
Faculty of Fine Arts	1	2
The Arts and Design Faculty	1	4
Faculty of Communication	2	7
The Faculty of Arts and Social Sciences	-	1

Table 2 shows that VCD curriculum develops under the communication faculties rather than other faculties which may be a result of its correlation with media and entertainment industries.

One of the VCD curriculum problems is the result of how VCD education is constituted in the system. In detail, Table 2 shows that the foundation institutes mostly set up a VCD education in the communication faculties: resulting in minimizing costs and maximizing profits for the institutes (i.e.: the institutes' preference for placing VCD education in communication instead of Fine Arts and Design Faculties).

On the one hand, VCD has a specific curriculum but it inherits all aspects of the faculties' curriculum where the VCD department has been placed. On the other hand, the VCD curriculum developed within the faculties' curriculum, in relation to the curriculum of the faculties itself, are also forming a part of the VCD curriculum problems. I will elaborate on these issues further in chapter three.

3.1.2 Commercialization of VCD Education

Generally, university VCD departments offer training in the use of popular software packages and hardware systems related to the field of VCD. VCD scholar, Aydın (2003) states a VCD department 'gives an education conclusive of various art and communications disciplines and compatible with the latest media form, taking all kinds of visual communication and the utilized communication technology in its scope' (Aydın, 2003, p. 24). A complex problem for curriculum development within VCD is posed by the existence of the related, but essentially distinct, field of multimedia. The points of similarity between VCD and multimedia have led to confusion in establishing curricula for VCD as opposed to multimedia. Graphic designer and VCD scholar, Ertep (2004), has argued that VCD education is becoming more similar to multimedia education or 'illiterate' graphics design education. For instance, drawing skill is not compulsory in VCD education. However, a computer skill is one of the core requirements which needs to be developed for these courses.

ICT based courses such as animation, multimedia design, or web design are very popular and requirements in VCD education. Aydın (2003, p. 24) explains that VCD education 'allow students to develop a firm awareness of how the future of the arts and communication is being shaped and to understand the changing nature of

creative practice in these fields'. If scholars considering the VCD 'nature' as a medium (or media), a present technology that is always developing rather than changing and because of that it influences curriculum in respect 'to satisfy peoples desire to pursue new interests and opportunities' for the need of 'corporate culture' (Bok, 2003, p. 10). Ertep's critics lead us to the weakness of the curriculum (Ertep, 2004): VCD students are not fulfilling the requirements of visual communication or learning how to successfully communicate visually. Such knowledge and experiences can hardly be gained from multimedia or web education. Aydın argues that the graduate of this education would be a competitor for future art and design practice(Aydın, 2003).

Both institutional and commercial needs signify a technological determinism in VCD education. Institutes include multimedia (i.e., animation, web) courses in their curriculum and promote infrastructures like laboratories and technical tools to attract students for VCD education.

This relation have been observed in the titles of students' coded studio courses which are typically designated by a software name, for example, two-dimensional (2D) courses are given a title derived from a software package with such names as 'PhotoshopTM,' and three-dimensional (3D) design courses have titles such as '3D MaxTM.' This coding is also observed in daily life; i.e Real friend -FacebookTM friend.

The same phenomenon is observed in the titles assigned to faculty members where we find such designations as 'YahooTM Professor of Computer Science' and 'K-MartTM Professor of Marketing' (Bok, 2003, p. 2).

Another fundamental problem for visual communication education is the pervasive influence of the economic forces that are dominant in ICT and determine curriculum development for this field. These economic considerations are further compounded by the existence of corporate cultures which are determined by hardware and software companies, advertising companies, and the entertainment industry, all of which rely heavily on and determine, the development and ultimately the pedagogy of ICT. These economic and industrial concerns which impact heavily on the development of visual communication have been argued to have become the *sine qua non* of VCD (Aydın, 2005; Derman, 2005). Aydın (2005) and Derman (2005), VCD scholars, argued that economic and industrial concerns seem to be an absolute prerequisite for VCD and curriculum development.

Bok (2003) conducted a study in which he investigated behavior and trends of the ‘express matter of value in monetary terms rather than qualitatively’ (Bok, 2003, p. 3) within university teaching. He (Bok, 2003, p. 3) attempted to assess the following issues:

- 1) The influence of economic forces on the development of computer science majors and departments within universities;
- 2) The influence of corporate culture on university teaching as indicated by the increasing use of such terms as CEO, bottom line, and brand name in university administrations;
- 3) The growing number of vocational courses being offered by universities;
- 4) The strategies being implemented by many universities to economize by hiring more adjunct teachers and by employing administrative methods adapted from business.

Aydın (2003) claims that the gaps which have emerged in VCD should be filled by professionals who are ‘well informed about technology and aware of social theory’ (Aydın, 2003, p. 23). Bok (2003, pp. 14-15) argues that these gaps in education are

being filled by commercial rather than educational realities. Aronowitz and Giroux (1991, p. 89) denounce this reliance of education institutes on the world of commerce stating that the ‘curriculum has been fashioned in the interests of an industrial psychology that attempts to reduce schools and learning to strictly economic and corporate concerns.’ The view that economic agenda is marketing educational institutes is not new as Bok (2003, p. 2) points out:

By the early 1900s, the University of Chicago was already advertising regularly to attract students, and the University of Pennsylvania had established a “Bureau of Publicity” to increase its visibility. In 1905, Harvard was concerned enough about its profitable football team to hire a 26-year-old coach at a salary equal to that of its president and twice the amount paid to its full professors.

Educational institutes, and most especially communication faculties, invite famous people, such as photographers, editors, designers, artists, television and cinema personalities, and figures from the media industry, to become teaching members of their institutes. They justify this employment of people from outside the academic arena by arguing that they bring up-to-date and practical experience from the field which will constitute an enhancement of students’ skills. While this attempt at the transmission of superior practical skills is laudable, the absorption of industrial realities into the education agenda is argued to have some serious deleterious effects. Aronowitz and Giroux (1991, p. 95) maintain that importing industry into the education sector creates a situation in which ‘learning is perceived as either a body of content to be transmitted’ or a ‘body of skills to be mastered.’ This perception diminishes the critical value of education since ‘it functions to name and privilege a particular history and experience’ (Aronowitz & Giroux, 1991, p. 96). Students become concerned with imitating rather than evaluating and criticizing. Students need the opportunity to interpret and to intuitively assess information received in courses. They require encouragement to interpret their own learning experiences.

Grimmett and Ericson (1988) argue that, if given the opportunity to intuitively interpret and conceptualize rather than to simply accept the information transmitted, students can enrich this information through their own beliefs and values. Grimmett and Ericson (1988, p. 13) explain reflection as the process of thinking about action, deliberating about competing views of teaching, and reconstructing experience. In this process the self becomes teacher, and assumptions can be challenged. Adorno (1976, p. 16) points out that a situation in which critical evaluation of knowledge by students is not nurtured may result in the construction and reconstruction of false realities.

The employment of celebrities by educational institutes has the commercial objectives of enhancing the institute's public relations and advertising efforts. The well-known figure is also required by the institute to display the practical experience and skills which can solve problems as they arise. While the institute can benefit from these advantages of employing industry-famous figures, there are disadvantages to relying on the services of people functioning in industry. One such problem is that these people are frequently forced to prioritize their industry activities over their teaching commitments. The result of this is that classes may be taught by course assistants (a fact revealed in Istanbul' interviewees, 2005). This situation leads to a deterioration of constructive reflection from teacher to learner and a lack of overlap between the vision and mission of education.

3.2 Visual Cognition and Perception: An image

Theories of cognition and perception assume that the 'realities' of existence derive from both physical and psychological facts. To look is a physical and biological ability. To see refers to the process of identifying, conceptualizing, and categorizing

to give a meaning. Seeing involves an interpretation of visual data based on the social, political, cultural, and historical experiences of the individual.

A basic tenet of this study is that VCD students must possess some knowledge of how the human visual system functions. This is because visual perception plays an important role in the decisions that are made throughout the design process. In the field of multimedia, knowledge of behaviorist theories is of paramount importance since these can help to account for behavior and decisions made within the realm of virtual reality. However, in the field of visual communication, behaviorist theories have only peripheral significance and are therefore not considered within the present study.

To explain visual processing, the cognitive sciences employ various methods and methodologies both from neuroscience, the study of the brain, and from psychology. In this study we are concerned with the description of the human visual system and we base our overview of the visual process on cognitive psychology as developed by Gestalt scholars. We do not include considerations from the field of neuroscience given that these are outside our field of interest despite the importance of neuroscientific principles for the process of seeing.

3.2.1 Gestalt Theory

Gestalt psychology represents a reaction against psychological structuralism. This approach was developed by Wundt and contends that introspection and psychical elements determine visual analysis (Squires, 1930, p. 138).

The experiments of the early Gestalt theorists provided a set of scientific principles to elucidate sensory perception. The founders of Gestalt theory were Max

Wertheimer, Kurt Koffka, and Wolfgang Kohler (Arnheim R. , 1957, p. 3; Luchins & Luchins, 1999). Wertheimer's paper entitled "Experimental studies of the perception of motion" (1912) which presented the results of their experiment in phi-phenomenon marks the formal beginning of Gestalt psychology.

3.2.1.1 Phi-Phenomenon or Phenomenal Movement

In 1912 Wertheimer established that if there is a lengthy time interval during which we perceive stimuli discretely displaced at two positions (position A to position B, and then to A and then to B again) (Luchins & Luchins, 1999), we perceive discrete elements with no movement. However, if the time interval of the perception process is shortened, it is possible to see movement between the two positions (Luchins & Luchins, 1999). Through phi-phenomenon, that is, phenomenal movement, the object emerges with its defining nature and its characteristic shape is established (Luchins & Luchins, 1999). In his work on phi phenomenon, Wertheimer described only the whole but not the separate factors which provide the meaning of the elements (Luchins & Luchins, 1999). This relationship between wholes and phenomena is considered by Gestalt psychology to constitute the beginning of the visual process, the subsequent stage being the application of mental principles of organization and interpretation.

3.2.1.2 Gestalt Principles of Visual Perception

Gestalt theory identifies five principles to explain the organization between the parts and the whole during the process of perceiving. These are:

- (1) Proximity;
- (2) Similarity;
- (3) Continuity;
- (4) Closure;

(5) Figure-ground (the German *prägnanz*).

3.2.1.2.1 The Principle of Proximity and the Vertical and Horizontal Processing of Observed Objects

We now describe the role of proximity in the visual and recognition processes. In his work entitled ‘The laws of organization in perceptual forms experiments,’ Wertheimer (1923) describes his hypothesis that objects are seen as groups of ‘tap-tap dots,’ the closer dots forming perceptual pairs (Figure 3). The objects are seen as belonging to each other and forming a unit.



Figure 3: Row grouping.

Figure 3 shows an example of how unity can be established among similar shapes. Figure 4 provides an example of how distance rather than unity can be interpreted among similar shapes. We maintain identical proximity of objects throughout the process of visual perception while repeating or varying the color of the objects themselves (see Figure 4).



Figure 4: Unit grouping

Wertheimer’s (1923) research determined that what is actually seen in this case is a row of groups obliquely tilted from lower left to upper right (see Figure 3). For horizontal groups, the perceived arrangement is as displayed in Figure 5.

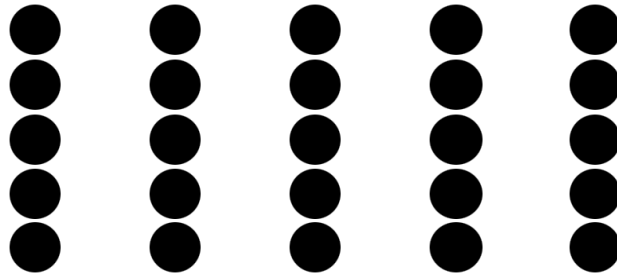


Figure 5: Horizontal grouping

A dominant issue in how we determine horizontal versus vertical ordering is our early life experience. For example, a person whose mother tongue is a language which is read from left to right (e.g. as in English) may be disposed to different perceptions from a person whose mother tongue is written from up to down (e.g. as in Chinese). However, in the case of observing the world of nature, for example, trees and landscapes, the universal tendency is to observe in a vertical rather than horizontal fashion (see the distal stimulus (Jacob & Jeannerod, 2003, p. 5).

The arrangement to be seen can be upset by eye-movements or variations of attention as illustrated in Figure 6.

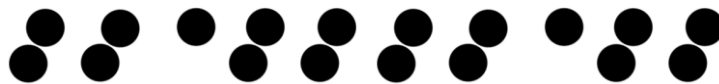


Figure 6: Eye-movements

In brief, the principle of proximity refers to the process by which visual elements that are close to each other are generalized or interpreted as belonging to the same object.



Figure 7: Similarity

3.2.1.2.2 The Principle of Similarity

The second of the five principles identified by the Gestalt scholars to explain the organization between the parts and the whole of the visual image during the process of perceiving is that of similarity. The similarity of features such as shape, size, color, and distance determine the perceptual organization of visual input. Symmetrical objects are seen as belonging together as illustrated in Figure 7 and below in Figure 8). In his experiments on the roles of proximity and similarity in visual perception, Wertheimer (1923) found that proximity plays a more dominant role than similarity.



Figure 8: Similarity - Symmetry

3.2.1.2.3 The Principle of Continuity

The third principle of continuity, Figure 9, gives an example of how the principle of continuity operates when we are exposed to a visual image that appears to be incomplete. In the image below the object behind the rectangle would typically be perceived as a second rectangle even though a second triangle, Figure 10, is not actually part of the visual data provided. It exemplifies the principle of continuity by showing that if there is one rectangle, then we continue in the same vein, fill in a gap in the information conveyed in the image, and 'see' a second rectangle.

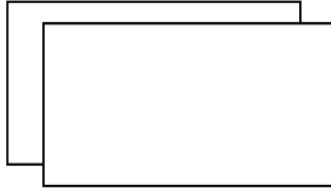


Figure 9: Continuity

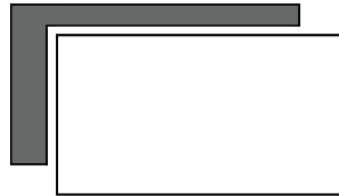


Figure 10: Continuity

3.2.1.2.4 The Principle of Closure

The principle of closure refers to how we supply missing elements in order to complete an image. The individual's knowledge becomes the determining fact since a process of reconstruction of knowledge takes place rather than solely perceiving given images (Figure 11). In Figure 11, we see a composition of two vertical and two horizontal lines which looks like an empty rectangle shape although the four corners are not connected to each other. However, just as we saw in Figure 9, the human mind 'sees' a rectangle even though there is actually no second rectangle present in the visual information, in the case of Figure 11, our mind supplies the missing part of the figure creating a closure of the four separate lines, and we 'see' a rectangle.



Figure 11: Closure

3.2.1.2.5 The Principle of Figure-Ground or Prägnanz

The fourth principle that of figure-ground, or *prägnanz*, refers to the process by which single elements of a whole are defined by the situation in which they appear. There may be several possible ways of perceiving and interpreting the whole. According to Chandler (2002, p. 151; Chandler, 1994), the most ‘stable interpretations are favored’ in *prägnanz*. We can illustrate *prägnanz* with the well known pictorial example designed by the American psychologist E.G. Boring, and titled ‘Young Lady/Mother-in-law’ picture, Figure 12 (Gregory R. L., 1970, p. 39).



Figure 12: Young Lady / Mother in Law Picture (Gregory R. L., 1970, p. 39).

This picture may be interpreted as depicting a young woman or an old woman, but it is not possible to see both images at the same time. One image, either that of a young woman or that of an old woman, is recognized first and this image becomes the figure we identify, and the rest of the visual image is pushed to the ground. Hence, the term figure and ground. According to Arnheim (1954, p. 17), “every aspect of visual experience has its physiological counterpart in the nervous system.” He (1954, p. 17) explains this grouping principle thus:

This means that whatever happens at any one place is determined by the interaction between the parts and the whole. If it were otherwise, the various inductions, attractions, and repulsions could not occur in the field of visual experience.

3.2.1.2.6 Some Examples of Gestalt Order of Visual Perception

Some examples of Gestalt theory of perceiving include Matthews' (1978) suggestion that, in terms of facial recognition, the hairline, eyes, and chin are the first features to be analyzed, followed by the eyebrows, nose, and mouth. He points out that it is noteworthy that although the eyes are not part of the facial outline, they are processed first. Reynolds and Pezdek's (1992) study reveals that people remember upper face features better than lower face features.

3.2.1.2.7 Criticisms of Gestalt Theory

The Gestalt principles outlined above have been much discussed by scholars. Richard Langton Gregory is a British psychologist and Emeritus Professor of Neuropsychology at the University of Bristol. His main interest is human perception, and he belongs to the experimental psychology school (Gregory R. L., 1973, p. 209). As an example of that he argues that 'from the verbal reports it is difficult to imagine the 'adapted' world of the experimental subjects for their perceptions seem to be curiously shuffled and even paradoxical' and examples were artificially organized (1973, p. 145) so that people will see in a particular order. To some extent, this is a valid criticism given that visual data may be subject to many feasible formulations. The examples used by Wertheimer were designed to elicit rapid answers on basic representational forms in order to express visual experience. Constructivist scholars criticize the Gestalt approach for 'describing perception rather than giving explanation' of how visual perception gives meaning to an image (Lester P. , 2003, p. 50).

In VCD, Gestalt gives understanding on visual experiences, and semiotics helps the interpretation.

3.2.2 Physical Issues in Visual Perception

Arnheim (1954) discusses the role of 'pull' in visual perception. 'Pull' refers to both the 'psychological forces' and 'the conditions established by the physicists for physical forces'. He (Arnheim R. , 1954, p. 16) states the 'perception' term with the following:

Psychologically, the pulls in the disk exist in the experience of any person who looks at it. Since these pulls have a point of attack, a direction, and intensity, they meet the conditions established by physicists for physical forces. For this reason, psychologists speak of psychological forces, even though to date not many of them applied the term, as I do here, to perception.

We can see objects through light rays that reflect objects into our eyes (Arnheim R. , 1954, p. 17). Light rays from the source (i.e. the sun) 'hit the object and are partly absorbed and partly reflected by it' (Arnheim R. , 1954, p. 17). The reflected light rays 'reach the lenses of the eyes' and is projected onto the 'retina' (Arnheim R. , 1954, p. 17).

Von Helmholtz was the first scientist to determine that photosensitive cells in the retina permit the differentiation of red, green, and blue lights. In his study of trichromatic color vision, he found that the color red is the first color to be identified at a distance. His colleagues continued his study and determined that the second color to be visible is green and the third; blue (Koffka, 1922).

In the retina, receptor organs 'combine in groups by means of ganglion cells' (Arnheim R. , 1954, p. 17). The retinal image is the organization of these light stimuli and it is the 'elementary organization of the visual shape'. The retinal images, in the form of 'electrochemical messages' are delivered to 'their final destination in the brain' and these messages are 'subjected to further shaping' [...] 'until the pattern

is completed at the various levels of the visual cortex' (Arnheim R. , 1954, p. 17).

This process is illustrated in Figure 13.

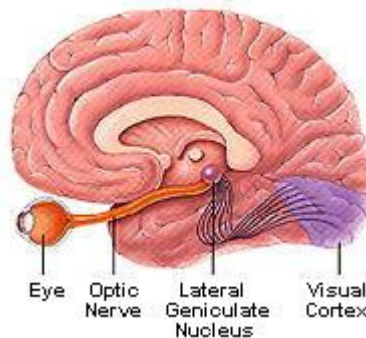


Figure 13: Visual Path Way (Kibiuk, 1994).

3.2.2.1 Cerebral Processing of Visual Data – Scanning, Matching, and Memory

In the discussion of visual perception, we need to examine the cerebral processing of objects observed. When we look, we automatically engage in a process of scanning and matching of the objects we observe and subsequently a process of memory search through which we attempt to make sense of the objects based on the knowledge available to us (Verhaeghen, 2002, p. 115). These processes of scanning and matching occur after the encoding stage (Verhaeghen, 2002, p. 115). These processes vary among people by virtue of individual differences such as age and the person's particular mental and visual capacities. For example, Verhaeghen (2002, p. 121) has shown that older people encode information more slowly than younger people during the process of visual search. However, during the process of memory search age is not a significant factor in how information is encoded (Verhaeghen, 2002, p. 112).

3.2.2.2 Visual Impairment and Visual Perception

Gregory and Wallace (1963) shed much light on the process by which we recognize visual input through their study of one patient who had suffered considerable visual handicap. This individual had lost his sight when he was ten months old but

recovered appreciable sight through surgical intervention at the age of fifty-two. Gregory and Wallace observed that, despite having regained his sight, his spatial organization deviated considerably from that of a person with normal sight. A major observation was that this man did not deal with the depths of the 3D world. His visual space was not disturbed by geometrical-optical illusions meaning that he did not interpret the sense of depth normally invoked by perspective drawings (Gregory & Wallace, 1963, p. 37). It was discovered that he was unable to 'see' the depth or drop from a window 30 to 40 feet above ground level when looking out of the window. The true height of the window was only apparent to him when he looked at the window from outside the building (Gregory & Wallace, 1963, p. 18).

What is considered as the most important finding of the evidence provided by this subject is what Gregory and Wallace (1963, p. 37) termed 'early touches experience', that is, when a tactile sensation provides information which is then used to interpret visual information. Gregory and Wallace (1963, p. 17) describe this phenomenon and the conclusion they draw from it as follows:

We were even more surprised when he named correctly a magazine we had with us. It was in fact *Everybody's* (for January 17th, 1959), and had a large picture of two musicians dressed in striped pullovers. Although he named the magazine correctly, he could make nothing of the picture. We at once asked him how he knew which magazine it was, and he said that although he could not read the name, he could recognize the first two letters, though not the rest and he guessed that the *Ev* belonged to *Everybody's*. Further questioning revealed that he could recognize any letter in upper case, though not in lower case and it so happens that the title of the magazine was written with only the first two letters in upper case, thus: *Everybody's*. He then told us that he had learned capital letters by touch, these being inscribed on blocks and taught at the blind school. Lower case letters were not taught. This was particularly interesting, for it suggested direct transfer from touch experience.

In other words, the man was able to transfer what he perceived from the sense of touch to use when interpreting from the sense of sight.

3.2.3 Interpretation of Visual Data

The mental recognition of what the eye is exposed to have been described in various ways. For example, Gregory (1970, p. 15) expresses it as ‘reading non-sensed characteristics of objects from available sensory data’. Eco (1984, p. 117) discusses how entities are perceived and recognized according to their ‘formal (morphologic) characteristics: a body is round or heavy, a sound is loud or deep, a tactile sensation is hot or rough’ and so on.

Arnheim (1954, p. 416) discusses how natural objects have their own ‘visual dynamics’. That is, the shape of the natural object embodies ‘traces of the physical forces’ that created the objects. He argues that shapes present a more decisive means of identification than color (Arnheim R. , 1954, p. 335) He also stresses that, in the process of recognition, it is not just the visual data received that is important, but also the observer’s subjective interpretation and this is determined by her/his world experience.

Visual communication is a form of nonverbal communication. Nonverbal communication is based on the interpretation that is made possible by the world of the individual receiving the nonverbal message. Messaris (1994, p. 22) argues that the interpretation of an image is ‘limited to the world of concrete objects or events’ and that the interpretation of the world is ‘further ‘limited to classes of *similar* objects or events’. Kress and Leeuwen (2001, p. 8) state that the world is conceptualized and articulated by an ‘interpretive community’. They contend that people have ‘the ability to match concepts with appropriate material signifiers on the basis of their physical experience of the relevant materials’ (Kress & Van Leeuwen, 2001, p. 75). Eco (1984, p. 211) discusses the concept of ‘image referent’ which may

be direct, that is a representation of the object, or indirect, that is, a dyadic or triadic sign. Gregory (1970, p. 18) maintains that under normal conditions we believe what we see by means of a perceptual set. A perceptual set refers to the pattern which emerges from the objects. These perceptual sets may create a bias in interpreting the situation and influence our interpretation of visual data but we are compelled to interpret visual data by means of these perceptual sets so that we can ‘translate the sensorial data to reconstruct ‘correct’ perceptions’ (Eco, 1984, p. 217).

3.2.4 The Role of Intuition In The Process of Visual Perception

Intuition has been described by Wenger (1997, p. 39) as the decision making that people apply to their world. Guess (1981, p. 10) defines it as ‘world view,’ ‘beliefs,’ ‘attitudes,’ ‘life goals’ and ‘forms of artistic activity.’ Guess (1981, p. 10) describes the concept of ‘world view’ as a ‘subset of the beliefs’ which possesses the following properties:

- a. The elements in the subset are widely shared among the agents in the group.
- b. The elements in this subset are systematically interconnected.
- c. They are ‘central to the agents’ conceptual scheme’.
- d. The elements in the subset have wide and deep influence on the agents’ behavior or on some particularly important or central sphere of action.
- e. The beliefs in the subset are ‘central’ in that they deal with central issues of human life (i.e.: they give interpretations of such things as death, the need to work, sexuality, etc.) or central metaphysical issues.

Guess (1981) explains that the above properties exist within a highly complex inter-relationship and that it is extremely difficult to identify the internal coherency of their characteristic structure.

The Gestalt scholars explain intuition as ‘picture making’ (Scrivener, 1978, p. 217; Wenger, 1997, p. 43); and as a process which sometimes requires past experiences in order to configure information (Wenger, 1997, p. 41). For instance, people perceive an image in a publication as a connected ‘unit of information’ (Kress & Van

Leeuwen, 1996, p. 219) but they understand it through interpretation or decoding (Köhler, 1959). These interpretations can be based on metaphors, signs, and symbols and the relationship of the sign and the meaning may be associative, referential or symbolic. In the visual arts, Wenger (1997, p. 43) argues, ‘imagery’ is a kind of ‘abstraction’ which is a ‘fundamental part of image-making’.

3.2.5 The Role of Semantics and Language in the Process of Visual Perception

Carry and Williams (2001, pp. 56-57) explain ‘the process of recognition of a particular object’ with the following:

First, when we recognize an object... we not only establish a match to a stored object representation, but we also access a semantically meaningful kind of category or a rich representation of a particular individual. We then have access to a wealth of information about that object on its kind of membership.... Second, recognition also involves a conscious experience of familiarity.... These are stronger, richer senses of the term “recognition”....

For instance, children express the relationship between ‘pictures and objects’ and between ‘words and objects’ as a ‘symbolic’ rather than ‘associative’ relationship (Preissler & Carey, 2004, p. 200). Moreover their paired ‘words and objects’ and ‘pictures and objects’ are in a ‘referential’ rather than ‘associative’ relationship (Preissler & Carey, 2004, p. 2004).

Messaris (1994, p. 25) states that ‘a language’s representational system can be seen as a means of adapting a child’s developing cognitive/perceptual framework to the task of life in a particular milieu’. In the representational system of a language, we can express, for instance, ‘the mode of color’ because the language possesses the terms for translating colors into ‘the mode of language (Kress & Van Leeuwen, 2001, p. 29).’ People create meaning ‘according to a complex interplay of codes or conventions of which we are normally unaware (Chandler, 2002, p. 14).’

Messaris (1994) argues that language can serve as our guide regarding the kinds of criteria we should apply in our examination of observed data. This signifies that we will be compelled to identify a consistent set of distinctions within the flux of experience (Messaris, 1994, p. 24). As Chandler (2002, pp. 151-152) puts it: ‘Gestalt principles can be seen as reinforcing the notion that the world is not simply and objectively “out there” but is constructed in the process of perception’. In other words, all human experience constitutes social knowledge which is constructed through semiotic resources and perceptions such as belief, sense, or world view and realized in the semiotic context of given communication situations (Chandler, 2002, p. 219; Kress & Van Leeuwen, 2001, p. 5).

3.3 Semiotics

Semiotics is the study of the systems of signs and the philosophical theories that seek to elucidate the functions of signs. The word semiotics comes from the Greek word *semeiotikos* which means an interpreter of signs.

The field of semiotics and its concern with signs is important for our study of VCD since a sign is a primary unit of visual learning. Visual learning is the process of becoming familiar with icons and their interpretations, that is, the association of a system of signs and the particular meanings indicated by these signs. What we learn about signs and how we apply this knowledge is critical in the realm of VCD.

3.3.1 Peirce’s Triadic Model of Semiotics

Peirce uses the term semiotics to refer to the relationship between an ‘action’ or ‘influence’ and ‘sign’, its ‘object’, and its ‘*interpretant*’ (Peirce S. C., c.1907, EP 2:411). The ‘character of a thing’ which the sign represents is termed a *representamen* (Peirce C. S., c.1899, CP 1.564).

Peirce identifies the following three items as existing in a triadic relationship:

- The *Representamen*.
- An *Interpretant*.
- An *Object*.

He describes the sign or *representamen* as being the ‘subject of a triadic relation TO a second, called its OBJECT, FOR a third, called its INTERPRETANT’ ((Peirce C. S., c.1899, CP 1.564).

He explains a sign’s function thus: ‘the REPRESENTAMEN determines its interpretant to stand in the same triadic relation to the same object for some interpretant’ (Peirce C. S., c.1903, CP 1.540-542). He states that a functional relation is not ‘in any way resolvable into actions between pairs’ (Peirce C. S., c.1907, EP 2:411).

Peirce classified the sign as symbolic, iconic, or indexical (Peirce C. S., c.1904, CP 8.335).

- **Iconic:** Likenesses or *icons* which serve to represent their objects only in so far as they resemble them in themselves (Peirce C. S., c.1909, EP 2:460-461). It is of the nature of an appearance and exists only in consciousness, although Peirce extends the term icon to the outward objects which excite in the consciousness the image itself (Peirce C. S., c.1903, CP 4.447). The similarity of the signifier form is perceived as resembling or imitating the signified as, for example, in metaphors, pictures, and cartoons (Chandler, 2002, p. 37).

- **Indexical:** Indices represent their objects independently of any resemblance to them by virtue of real connections with them (Peirce C. S., c.1909, EP 2: 460-461). The relationship between the signifier and the signified can be physical or casual but it is not arbitrary (Chandler, 2002, p. 37). An example of an indexical sign cited by Eco (1984, p. 213) is smoke standing for fire.
- **Symbolic:** Symbols represent their objects independently of any resemblance or connection to these objects because their user community accepts and perpetuates such usage (Peirce C. S., c.1909, EP 2:460-461). The signifier is arbitrarily connected to the signified and the signifier does not resemble the signified (Chandler, 2002, p. 37). Examples of such symbols include the use of signs to represent numbers and the words given by a language community to objects, concepts, and activities.

3.3.2 Saussure's Two-Part Model of Semiotics

Saussure (1910) describes the function of a sign as the relationship between a signifier, or, to use his term, a 'sound image,' and the signified or 'concept.' The signifier is the form of the sign and the signified is the conceptual element of the sign (Chandler, 1994; Saussure, 1910).

According to Saussure, the relation between signifier and signified is 'arbitrary'. This relationship is expressed in the following diagram:

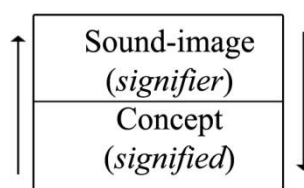


Figure 14: Saussure's diagram of a sign (Berger A. A., 1991, p. 8).

SIGN	
<i>signifier</i> Sound-image	<i>signified</i> Concept

Figure 15: Saussure’s diagram of a sign (Berger A. A., 1991, p. 10).

3.3.3 Barthes’ Categorization of Signification

Barthes (Barthes, 1977; Chandler, 1994) refined Saussure’s model by defining a threefold distinction within the concept of signification:

- **Denotative:** this refers to the simple relationship between a concept and a word (Barthes, 1977, p. 17). For example, the word ‘rose’ signifies a particular species of flower.
- **Connotative:** this refers to the development of a system of secondary meanings (Barthes, 1977, p. 18). For example, the rose has come to signify feelings such as love and passion.
- **Mythical:** this refers to more complex relationships between a concept and a sign (Barthes, 1977, p. 30). For example, the rose can represent the entire concept of, and myth associated with, romance and passion.

3.3.4 The Concept of Metaphor

Eco (1984, p. 89) defines metaphor as an ‘expressive mode with *cognitive value*’. It indicates a ‘rhetorical figure in general’ in which ‘the part is taken as representative of the whole (Eco, 1984, p. 87). Eco (1984, p. 127) explains the function of metaphors as follows:

The success of a metaphor is a function of the sociocultural format of the interpreting subjects’ encyclopedia. In this perspective, metaphors are produced solely on the basis of a rich cultural framework, on the basis, that is, of a universe of content that is already organized into networks of interpretants, which decide (semiotically) the identities and differences of

properties. At the same time, the content universe, whose format postulates itself not as rigidly hierarchized, but rather, according to Model Q, [It is a model that ‘dominated by the concepts of unlimited semiosis, every sign (linguistic and no-) is defined by other signs (linguistic and non-) which in turn becomes terms to be defined by other terms assumed as interpretants’ (Eco, 1984, p. 113).] alone derives from the metaphorical production and interpretation the opportunity to restructure itself into new nodes of similarity or dissimilarity.

Extensions of the meanings of signs, or such as when it occurs in the case of metaphors, can constitute ‘functions of the intentions’ (Eco, 1984, p. 214). Eco (1984, p. 214) explains this as follows: ‘the consequent conveyed by the antecedent is only *a class of possible consequents*’.

In visual communication, metaphor’s works like a ground-figure relation. The audience will receive a weak or incomplete message, it doesn’t represent the whole. The audience will capture a part of the message and then they will interpret that part for a whole message.

3.3.5 Semiotics and Codes

Related to the concept of signs is the concept of codes. Chandler (2002, p. 148) discusses the concept of codes which he defines as being related to the ‘convention’ of communication ‘which operates in certain domains.’ Eco (1984, pp. 103-104) describes codes as ‘assigning to things emergent properties, allowing them to become metaphors.’ Chandler (2002, p. 149; Chandler, 1994) describes three main categories of codes:

1. Social Codes

- Verbal Language (i.e., phonological)
- Bodily Codes (i.e., body language / gaze)
- Commodity Codes (i.e., fashion)
- Behavioral Codes (i.e., rituals)

Chandler considers that ‘all semiotic codes are social codes’ (Chandler, 1994). Social codes assemble knowledge into forms of social inter-action (Kress & Van Leeuwen, 2001, p. 5).

2. Textual Codes

- Scientific Codes (i.e., mathematical)
- Aesthetics Codes (i.e., romanticism)
- Genre/Rhetoric/Stylistic Codes (i.e., narrative / poetry)
- Mass Media Codes (i.e., Internet / radio / television)

3. Interpretative Codes

- Perceptual Codes (i.e., visual perception)
- Ideological Codes (i.e., belief systems)
- Internal to the art (i.e., Constructivism, Functionalism)
- Representation System
- Appropriation (derogatory)

Chandler (2002, p. 150; Chandler, 1994) points out that there is less agreement in the realm of ideological codes and that ‘all codes can be seen as ideological.’ These three types of codes require three kinds of key knowledge by interpreters, namely, social knowledge, textual knowledge and, modality judgment. Jacob and Jeannerod (2003, p. 3) define social knowledge as consisting of ‘the formation and the transformation of mental representations.’ They define mental representations as ‘thoughts’, ‘beliefs’, ‘desires’, ‘intentions’, ‘perceptual experiences’, ‘memories’, and ‘mental images’ of the user community (Jacob & Jeannerod, 2003, p. 4).

3.3.6 Signs and the Representation of Reality

Peirce (Peirce C. S., c.1903, CP 4.447) and Eco (1984, p. 214) point out that ‘signs can be used to *lie* about ‘the world’s state of affairs’ because ‘the antecedent is only *presumed* to be caused by the consequent’ and ‘the antecedent is not primarily related to an actual state of affairs’ but to a ‘general *content*.’

3.3.7 Semiotic Models and VCD

Walker and Chaplin (1997, p. 138) suggest that Peirce’s terms are ‘more useful’ for visual studies than Saussure’s terms because Peirce’s classification succeeds in explaining ‘visual images better’.

Arts and commercial relation between VCD, visual products and entertainment industry, requires deconstructive interpretation. Barthes (1977) categorization creates intense understanding and interpretation for recent visual phenomena’s.

The visual production is a process of reconstructing visual genres in modes and codes. Visual products, (i.e., photography and animation) inherits social, textual, interpretative codes (van Leeuwen, 2008; Eco, 1984; Kress & van Leeuwen, 2001; Chandler, 1994) and modes (Kress & van Leeuwen, 2001) in mean making.

3.4 Factors Involved in the Visual Perception of Art: Creation or Creator?

Gilbert (1998, p. 18) has pointed out that the nature of art, our perception of art, artistic quality, and the value systems on which artistic activity are based have become considerably more complex since the 20th century. She argues that in our era there is ‘no concrete “object”’ as work of art that we can hang’ or place somewhere (Gilbert, 1998, p. 20). Gilbert (1998, p. 21) argues that in the case of works of art

created by such highly esteemed masters as Picasso or Michelangelo, the issue of artistic quality is more or less ignored. The attention accorded to such famous works of art is focused more on the author and the myths surrounding the author. This focus on the creator rather than on the creation is partly due to the media which, with its perennial curiosity for the human interest in issues, tends to spotlight the character of the artist rather than the intrinsic artistic value of his/her creation. However, it is important to add that this media tendency is generated and supported by the popular interest in famous figures rather than abstract artistic considerations.

3.4.1 Historical Sources of Contemporary Perception of Works of Art

Our contemporary conception and perception of the visual arts are based on the development of art forms in the middle ages in Western Europe. At this time, the primary function of art was the depiction of religious icons and the portrayal of the Roman Catholic interpretation of religious authority and belief. Figure 16 presents an example of this concern with religious authority in the form of the painting by Rogier van der Weyden of St. Michael on the Day of Judgment (Weyden, 1450).



Figure 16: Rogier van der Weyden (c.1450). Beaune Altarpiece, interior showing the Last Judgment. Oil on panel, partially transferred on canvas. Musée Hôtel-Dieu, Beaune, France.

The angels and devils depicted in the above painting do not exist in the physical world but ‘the concept of interpretability’ (Eco, 1984, p. 217) of human artifacts is

inherited from religious belief. During the Renaissance there was a shift from this reliance on religious concepts to an interest in humans in terms of what they were capable of rather than their role in a divinely determined hierarchy (Gilbert, 1998, p. 398). An example of this is provided in Figure 17 which presents the painting by Raphael of the School of Athens.



Figure 17: Raphael (c. 1509-1510). School of Athens. Fresco, 500 x 770 cm. Stanza della Segnatura, Palazzi Pontifici, Vatican, Rome.

The difference between these two paintings by the Medieval Rogier van der Weyden (c.1450) and the Renaissance Raphael (c. 1509-1510) is quite clear. In van der Weyden's painting, there is no perspective in the depiction of the figures and the viewer is compelled to focus on the hierarchy and authority presented in the painting. Raphael's painting, on the other hand, represents the physical environment of his subject with architectural perspective and the human figures with a perspective almost equal to that of the real world. This Renaissance concept of 'art as mirror of the physical' still dominates in the popular perception of art (Gilbert, 1998, p. 397).

The principle of perspective in artistic design is based on the geometrical construct of perspective which holds that 'the eye receives at one station point' (Arnheim R. , 1954, p. 287). Arnheim (1954) argues that the artist does not need to be concerned

about the fact that ‘perceptual forces are not contained in the pigment on the canvases’ (Arnheim R. , 1954, p. 17). He insists that ‘what he creates with physical materials is experiences’ (Arnheim R. , 1954, p. 17). For instance, the artist’s image we perceive is ‘not the paint’, it is ‘the work of art’ (Arnheim R. , 1954, p. 17).

Today’s contemporary art perception can be explained by Nam June Paik and Bill Viola’s works. Nam June Paik is a contemporary artist who made conceptual arts with television screens and video installations (see Figure 18).

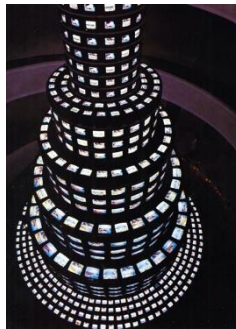


Figure 18: Nam June Paik (1988). The More The Better.
Three channel video installation with 1,003 monitors and steel structure; color, sound; approx. 60 ft. high.

Paik (1988) made installations rather than films and he used readymade images directly recorded from either broadcasted networks or channels randomly (Paik, The More the Better. Three channel video installation with 1,003 monitors and steel structure; color, sound approx. 60 ft. high, 1988). He used raw material to form collages of readymade footage (see Figure 19).

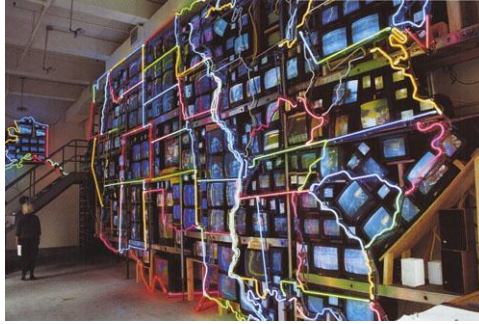


Figure 19: Nam June Paik (1995). Electronic Superhighway: Continental US. Forty seven channel and closed circuit video installation with 313 monitors, neon, and steel structure; color, sound, approx. 15x32x4 feet.

Nam June Paik's (1995) works can be considered as a progressive critic on consumerism of the mass media and he processed his works with consumerist image material into metaphysical newly digested artworks.

Bill Viola is a video artist. Since 1970 he is one of the most important contemporary visual artists (Viola's Biography). Viola (Kidel, 2003) analyses renaissance painting to show how in these period artists were representing the world and were giving sense on painting which has been lost in the ages of the camera today. Bill Viola (Kidel, 2003) mentions that Renaissance artist's were saying about the time that we know something in the place before words and before language (see Figure 20) and represents simultaneity of the space as we see inside the interior (see Figure 21).



Figure 20: Dierick (or Dirk) Bouts (c.1450-1455). *The Annunciation*. Distemper on linen. 35 7/16 x 29 3/8 in. J. Paul Getty Museum, Malibu, USA.

Dirk Bouts (c.1450-1455) represents the angel Gabriel who had come to Mary to tell her that she is pregnant.



Figure 21: Rogier van der Weyden (c.1437-1440). *Dream of Pope Sergius*. Oil on panel. 35 x 31 1/2 in. J. Paul Getty Museum, Malibu, USA.

Rogier van der Weyden (c.1437-1440) represents Pope Sergius in different place in one frame. To the left, Sergius sleeps in his bedroom where an angel tells him he is to appoint a new bishop. To the right, Sergius and two cardinals go out together.

3.4.2 Contemporary Digital Media Culture

Viola (Kidel, 2003) criticized the age of camera to not have been simultaneous like the renaissance logic of imagery based on optics and how the eyes see the world. Editing units combines frames to create structure, however it makes people not see

space and time but seeing edited language (Kidel, 2003). In the 'passion series' (Kidel, 2003), Viola used a stable position for the camera and he didn't move the camera to catch the motion of continuity and emotional waves passes through the person (see Figure 22).



Figure 22: Bill Viola, 'The Quintet of the Astonished' (Perov, 2000).
The Quintet of the Astonished: Video rear projection on wall-mounted screen,
artist's proof, collection of the artist, © Bill Viola.

The Quintet of the Astonished was the first works in The Passions series. Bill Viola was inspired by Hieronymus Bosch's (c.1490-1500) painting of Christ (see Figure 23).



Figure 23: Hieronymus Bosch(c.1490-1500). *Christ Crowned with Thorns*. Oil on panel 73.8 x 59 cm. Copyright © 2003 The National Gallery, London, UK.

He (Kidel, 2003) shot on high-speed film that allows the action to be slowed drastically when played back. Viola wanted to give a deep representation of simultaneous and momentary emotions which are unplanned and exist in varying

intensities by the work's (Kidel, 2003). Viola explored outer region of emotions of universal humanity in the 'passion' works ((Kidel, 2003).

The digital context carries new experiences and patterns as like all other cultural heritages. Development on the microprocessor changed the functions of the many media. If we explore today's contemporary media: its' function cover many characteristic of the mass media like radio to television, telephone to newspaper. Also communication tools transformed to the mobile platform such as social networks created hybrid environment between the virtual and real worlds.

The computer now performs many of the same functions as televisions, telephones (Skype software provides users with the ability to make telephone calls over internet), radios, CD and DVD players, motion picture editing suites, etc., and in some cases is actually replacing these technologies. Mobile (phone) and service provider, supply moving images and provides TV broadcasting and multimedia messages. The movie industries', big-budget mainstream films are increasingly being shot on digital HD (high definition) cameras, and are also edited digitally, so the film industry is going digital, even where 'CGI' (computer-generated images) is not used, on the one hand. On the other hand, digital film technologies and CGI is getting more advanced. Pixar made the first all-digital animated film, "Toy Story," and the company was so successful with digital animation that it forced the Disney Company to give up 'traditional' animation and go fully digital as well. Finally, Disney actually bought Pixar, so it could own Pixar's success rather than compete with it (Grover, 2004).

3.4.3 Commercial Considerations in the Creation of Artistic Works

Ratcliff (1993) brings our attention to another issue central to the creation of a work of art, namely, that of the market transactions to which an artistic composition is subject. He criticizes artists' interest in producing works of art which will have a commercial value. He insists that artists should be concerned with aesthetic values rather than ensuring their work can meet the criteria imposed by the 'clutches of the market' (Ratcliff, 1993, p. 280). He claims that 'art must be seduced and prostituted to become a fit object for commerce – this melodramatic story is tattered now and often neglected, but still strong in a way' (Ratcliff, 1993, p. 280). He (Ratcliff, 1993, p. 271) explains how aesthetic judgment is determined by market forces as 'every variety of meaning and values is generated by market transactions' and 'the esthetic is an aspect of the economic, as the economic is an aspect of esthetic' and also as follows:

The project of isolating the market value of an art work in the hope of excluding that supposedly crass, vulgar consideration from the realm of the esthetic is as misconceived a procedure as the formalist protocol that tried to banish content from the realm of form (Ratcliff, 1993, p. 277).

Peter Sellars (Kidel, 2003) criticized Viola for taking techniques of commercial photography and Hollywood mass production images of his recent works. Sellars (Kidel, 2003) said "Viola used unbelievably privileged videos of an 'actual birth' or Viola's 'mother dying'" (see Figure 24) but later "Viola hired an actor and had make up brought in, costumes, light, and the whole scenario was artificially constructed, and that enabled Viola to get high resolution, beautiful skin tone, images with more material present" (see Figure 25). Sellars (Kidel, 2003) questioned Viola's recent works. He asked "whether 'that impedes spiritual transparency, which is what Viola couldn't get in 'actual birth' and 'mother in hospital' video works'" (Kidel, 2003).



Figure 24: Bill Viola, Nantes triptych. Video Installation (Perov, 1992).
 Nantes Triptych: Video footage of birth (on the left), death (on the right) and a metaphorical journey between the two represented by a body floating in water (in the center) © Bill Viola.



Figure 25: Bill Viola. Emergence (Perov, 2002).
 Emergence: high-definition video rear projection on a wall-mounted screen 200.0 x 200.0 cm (projection image). This work was commissioned by the J Paul Getty Museum, Los Angeles © Bill Viola, 2002.

Seller said Viola was still trying to touch something unspeakable, something invisible, and these contradictions are really painful in some of the works (Kidel, 2003).

Giroux (1994) examined pedagogy and politics in the popular culture that was often ignored by the schools. In ‘Benetton’s pedagogy of representation’ and symbolic mode of the Walt Disney production, he argues ‘these new form of advertising and

consumption do not deny politics, they simply reappropriate it' (Giroux H. , 1994, p. 22).

For instance 'Benetton photos militate' against a reading in 'which context and content are historically and culturally situated' (Giroux, 1994, p.17) but also the message was contextualized by 'the class of possible consequents' (Eco, 1984, p.214). Benetton' deforms 'the conditions of productions', 'circulation', and 'commodification' to present photos as unproblematic by 'dehistoricizing' and 'decontextualizing' the photo (Giroux H. , 1994, p. 17).

Eco (1984, p. 214) says 'the sign can be referred to referents' because it is 'correlated to a content' but the absence of referents related to 'resistance, rupture, and critique' that allows readers to 'accept the image' (Giroux H. , 1994, p. 21). The traditional forms of discourse legitimated 'knowledge' dominant relationships but 'oppositional paradigm' reading 'challenges' these relationships by deconstruction (Aronowitz & Giroux, 1991, pp. 90-91).

According to Giroux (1994), Benetton questioned the use of logo imprinted advertisement instead of the photojournalist 'photographs'. But 'they decided to use photographs as part of their support for art, controversy, and public dialogue around social issue' and to keep 'designer corporate symbols for index visual memory retention' (Giroux H. , 1994, p. 11).

The Disney Company 'rewrites the historical and collective identity of the American past' and 'it is not ignorant of history; it reinvents it as a pedagogical and political tool to secure its own interests, authority, and power' (Giroux H. , 1994, p. 29).

Giroux (1994, p. 19) explains ‘while individuals produce rather than merely receive meanings, the choices they make and the meanings they produce are not free-floating’. Its ‘formed within wider social and cultural determinations that propose a range of reading practices that are privileged within power relations of dominance and subordination’ (Giroux H. , 1994, p. 19). He proposes that to address this issue, as part of ‘postmodern politics’ and ‘pedagogical challenges’, it is up to the ‘progressive educator’ and ‘cultural worker’ (Giroux H. , 1994, p. 24).

3.5 Visual Perception in the Digital Age

The digital age brings a vast new variety to our visual experience. It has also given rise to new research trends which investigate the impact of computer activity and virtual reality (VR) on human behavior and society. For example, human computer interaction (HCI) is a study which explores the interaction between people and computers. This interdisciplinary field explores the cognitive and perceptual abilities of people vis-à-vis VR and how communication is conducted through computer mediation (Palmer, 1995, pp. 288-289; Cubitt, 1998, p. 35).

3.5.1 Developing Technologies, Developing Perceptions

Valente and Bardini (1995, p. 313) describe the cyberspace movement as enabling the simulation of environments and the provision of common social places. VR is a branch of multimedia which aims to simulate and visualize n-dimensional models in real time (Sperka, 2004, p. 117). Valente and Bardini (1995) explain the psychological process of VR experiences as involving the mental processes of construction and reconstruction. The construction process occurs when we “watch and evaluate a media message”. The reconstruction process is a result of construction. An individual’s past experiences guide interpretations of new

experiences and media message encoding in the memory (Valente & Bardini, 1995, p. 325).

An inherent feature of VR is that it requires a mediator, that is, the computer/Internet, to represent a reality. That is, it presents a reality that cannot function without the mediation of the Internet/computer. The mediated nature of VR has been discussed and criticized. Steuer (1995, p. 49), for example, posits the enormous difference between VR and 'real reality' as follows:

If virtual reality is defined in terms of telepresences, then its locus is the perceiver... Virtual reality refers only to those perceptions of telepresence induced by a communication medium... therefore virtual reality can be distinguished from both purely psychic phenomena (such as dream or hallucination), because these experiences require no perceptual input at all and the form the 'real' reality as experienced via our unaided perceptual hardware, because virtual realities (unlike real realities) can be experienced only through a medium.

Many other scholars take a much more positive view of the nature and possibilities of VR. A concept and term developed after the dawn of VR is that of 'Augmented or Enhanced Reality' (AR) and this is defined by Spreka (2004, p. 117) as the representation of "the real images in one enhanced picture". Spreka (2004, p. 117) claims multimedia, VR, and AR are "the potential candidates for future human-computer interfaces in the training, design, decision support making-based on modeling, simulation' and 'visualization intuitive point-and-click interface with highly visual and scientific analyses". Spreka (2004, p. 117) explains VR representation in the following terms:

Worlds are real and natural objects or phenomena. Human means the reflection of the worlds (natural, artificial, real or constructed) in the human brain. Artifact means the record of the natural or artificial objects, human ideas or computer models in the form of text, drawings, images, video sequences or 3D shapes. Computer means the machine which can model and simulate the world and interact with this world by means of inputs and outputs. These resemble human sensory and motor systems.

3.5.2 The Importance of Symbols in Cyber-Culture

Danet (2001, p. 3) discusses the primacy of symbols in the context of the digital age: ‘In the 1990s typographic characters became central expressive symbols of emergent cyber-culture.’

A symbol well known in computer mediated communication (CMC) is the ‘@’ which has replaced the letter ‘a’ on the Internet since 1972 (Danet, 2001, p. 3). This symbol was transferred from the ‘medieval scribal calligraphy to 19th century hand writing to the typewriter’, and then to ‘the computer keyboard’ (Danet, 2001, p. 3).

3.5.3 The Creation of Symbolic Operations through Graphic User Interfaces

Graphic user interface (GUI) designers use semantic relations, such as the indexical and referential relations discussed above in this chapter to establish ‘the symbolic operations’ which occur in CMC (Cubitt, 1998, p. 35). Computer-mediated representations are based on familiarity with signs and they represent an example of iconic sign function. An example of iconic sign function cited by Horton (1994) are the *recycle icons* which we see on the opening screen of our computers. This icon symbolizes a function, that is, the act of deleting data, or a condition, that is, whether the recycle bin is empty or full (as illustrated in Figure 26 and Figure 27). The recycle icon presents the trash bin as a ‘real object’ and also as a function which permits the option of recovering deleted objects. It stores deleted objects as an index sign.



Figure 26: Empty recycle bin



Figure 27: Full recycle bin

3.5.4 Absorption of Cyber Realities into General Culture

The realities and options generated by communication technology advances have worked their way into general culture. An example of this is the use of text abbreviation that is common in contemporary telecommunications. How embedded this usage is becoming in the popular culture is exemplified by some British mobile phone service providers who plan to “translate” the English literary classics as short messages. For example, the famous quotation of Shakespeare’s Hamlet, ‘to be or not be,’ would be represented as “2b?Nt2b?” (Sutherland, 2005).

Another example is the use of Latif Demirci, a Turkish comic artist, whose humor frequently appears in the Turkish daily news paper *Hürriyet*. Demir’s series entitled ‘married and possessing a mobile phone’ (in the Turkish ‘Evli ve Cepli’) satirizes the extent to which some users expand the realities of telecommunications to general usage. An example of this is his transference of the mode of condensing written text as done for SMS messages to the realm of general signs (see Figure 28 and Figure 29). For example instead of writing ‘Please Do Not Park Here,’ his cartoon portrays the use of the sign ‘PLS D NT PRK’ (In Turkish ‘LTFN BRY PARK ETMYN’ instead of ‘lütfen buraya park etmeyin’). In Figure 29 his character complains to the flat dweller that they ignore short message as well. In Turkish ‘yok abey, kısa mesajdan da anlamıyo bunlar’. The humor lies in the confusion created by such signs for the uninitiated.



Figure 28. Evli ve Cepli ('Married and Possessing a Mobile Phone) Cartoon strip (Demirci, 2007). *Please do not park* :).

In the same vein, Demirci exploits the primacy of the symbol @. For example, he uses the symbol to send his readers a holiday message: 'all readers @ good holiday season' (In Turkish 'TM OKRLR @ İİ BYRMLR :)') instead of 'tüm okurlar, iyi bayramlar'). Again the source of the humor lies in the confusion generated in the uninitiated by this formulation of a well-known message.



Figure 29: Evli ve Cepli ('Married and Possessing a Mobile Phone) cartoon strip (Demirci, 2006). *All reader @ good holiday season* :).

3.5.5 The Role of Culture in Digital Visual Presentation

As mentioned above in section-3.5.4 the language of a user community can affect the typical perception of visual data. The example was given of how the way in which a community's language is written can determine the tendency towards vertical versus horizontal processing of visual data. Cubitt (1998, p. 35) discusses the role of culture in how a community chooses its mode of graphic representation. He argues that 'the systems of representation employed in video graphics must be understood as

renditions of machine code in culturally specified forms’ (Cubitt, 1998, p. 35). Johnson (1997) points out that software files menus use a navigation direction of up to left (i.e.: file open) or left to bottom (i.e.: exit). Cubitt (1998, p. 35) suggests that such practices derive from the dominance of Western countries in software program production and that this cultural dominance produce ‘visualities’ ‘as images for a specific kind of viewer.’

Ellen Lupton, a curator, a graphic designer and a writer on typography, stated that (Hunter, 2006; van Leeuwen, 2008) during the 1990s, design education and design educators moved from formal analysis to culturally based, referential approach pedagogies, and shifted toward multiculturalism, niche marketing and the ‘audience of one’:

The designers of software programs such as Photoshop, Illustrator, Flash and Final Cut were systematically organizing image processing into menus of properties, parameters, filters, and so on, converting the Bauhaus theory of visual language – once a distant ideal – into comprehensive visual tools. So we do have a language of vision now, but it was created by corporate software developers (Hunter, 2006).

3.5.6 Emoticons: Definition and Development

A very important innovative feature of digital visual presentation is the use of the emoticon. An emoticon refers to the use of particular combinations of punctuation to represent facial expressions and convey the writer’s feelings or intended tone. Its use began in e-mail communications and was then taken up in the realm of telephone text messages and later in electronic communication. Emoticons have come to constitute an important role in electronically assisted communication.

We can define emoticons as nonverbal electronic communication. Emoticons can be conveyed through images, icons, text, and/or letters. They are commonly described as a 'blend of emotion and icon.'

emotion + icon = emoticons

We can provide the following chronological development of the adoption of emoticons as found in dictionaries:

Description:

- A small composite symbol, not unlike an ICON – 1998
- A representation of a facial expression such as :-)
to representing a smile – 2004, 2005

Class:

- Formed with punctuation symbols – 1998
- Formed with keyboard characters – 2004
- Formed with various combinations of keyboard characters – 2005

Distribution Media

- Used by the sender of an e-mail message – 1998
- Used in email and text messages – 2004
- Used in electronic communications (i.e.: e-mail, short message service (SMS)) – 2005

Signify:

- To indicate mood and attitude – 1998
- To convey the writer's feelings – 2004
- To convey the writer's feelings or intended tone – 2005

Emoticons are now used to represent much more than just facial expressions. These symbols have been made icons by the commercial messenger services (i.e., Microsoft Messenger and Skype) and people can download or generate their emoticons on websites. Such emoticons can be viewed as providing a form of virtual mask which serves to represent the user.

3.5.7 Impact of Culture on Use of Emoticons

As with other modes of information technology (IT) assisted communication, the use of emoticons is influenced by the culture of the user community. Heine et al. (1999, p. 768) argues that the ‘narratives, metaphors, images, proverbs, icons, and symbols’ of the cyber world are culturally significant. They explain that the ‘selves are shaped through engagement in the understandings and practices of particular worlds. Selves thus developed are instrumental in reproducing and maintaining the cultural systems from which they derive’ (Heine, Lehman, Markus, & Kitayama, 1999, p. 768).

Yuki et al. (2007, pp. 303-310) and Matsumoto et al. (1998, p. 148) also insist on the role culture plays in the use and interpretation of emoticons. For example, they argue that the Japanese are concerned with controlling, masking, or neutralizing their emotions unlike Americans who are keen to give a clear expression of their emotional state (Yuki, Maddux, & Masuda, 2007, p. 309; Matsumoto, Takeuchi, Andayani, Kouznetsova, & Deborah, 1998, p. 148).. They suggest that the Japanese use the eyes as a diagnostic cue while Americans prefer the use of expressions of the mouth to indicate emotional state ((Yuki, Maddux, & Masuda, 2007, p. 308). Matsumoto et al.’s (1998, p. 152; Yuki, Maddux, & Masuda, 2007) study determined that emoticons may be used to ‘express, de-amplify, amplify, neutralize and mask’ emotions.

Similar to the findings of Yuki et al.'s (2007) study, Matsumoto et al (1998, p. 148) conclude that Westerners fashion emoticons through depiction of the direction of the mouth while East Asian emoticons function through delineation of the eyes as illustrated in the following examples:

(^_^) a happy face

(;_;) a sad (or crying) face

Pollack (1996) summarizes some uses of emoticons among Westerners as follows:

:) happy face

:-) smiling face

:(or :-(sad face

Pollack (1996) suggests that the Japanese smiley is easier to recognize because it is 'right side up instead of sideways'.

3.6 The Virtual Culture and Visual Communication

The social networks are one of recent developing phenomenon in the virtual culture and visual communication.

3.6.1 Social Networking Sites (SNS)

Boyd and Ellison (Boyd & Ellison, 2007) defined social network sites (SNS) as "web-based services" that allow users to "(1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system." SNS "enable users to articulate and make visible their social networks" with a unique member profiles (Boyd & Ellison, 2007) Dwyer, Hiltz and Passerini (2007) stated that SNS is a virtual community. Acquisti and

Gross (2006, p. 2) described SNS as “Internet-communities where individuals interact with others through profiles that represent their selves”.

Members use SNS for a number of purposes. The main intention is communication, interaction and maintaining relationships (Lampe, Ellison, & Steinfield, 2007; Dwyer, Hiltz, & Passerini, 2007). Other popular activities contain networking, finding friends, dates, and jobs; watching videos and navigating other one’s profiles; following activities, receiving updates about events; inviting people to events; getting updates from friends; stating current status about their self; sharing information, photos, videos, and music; sending-receiving messages; posting public testimonials; (Boyd & Ellison, 2007; Dwyer, Hiltz, & Widmeyer, 2008). Many SNS users have integrated SNS into their daily life (boyd & Ellison 2007). Most literature on the use of SNS focuses on communication, friendships, and information sharing (Acquisti & Gross, 2006; Dwyer, Hiltz, & Widmeyer, 2008; Taraszow, Aristodemou, Arsoy, Shitta, & Laouris, 2010). Also teens (9–17 year olds) who used SNS, *education* was identified as a common topic of conversation in messages sent over SNSs. 60% of students surveyed reported using their SNS to talk about education topics and 50% to talk specifically about schoolwork (Greenhow & Robelia, 2009, p. 121).

3.6.2 Facebook™ as a Social Networking Community

The usage and the popularity of SNS is demonstrated by registered members in Wikipedia. Wikipedia (2010) listed 178 different major active SNS (excludes dating websites), giving information about the subject, registered users, registration policy and global ranking. Descriptive summary of several popular SNS members in Wikipedia as: (1) Facebook with 400 million users; (2) Orkut with 180 million; (3) MySpace with 130 million; (4) Friendster with 90 million; (5) Hi5 80 with million;

(6) Twitter 75 with million; (7) LinkedIn 60 with million; (8) Flixter 63 with million; (9) Netlog 59 with million; (10) Classmates.com with 50 million.

The above list indicates popularity of SNS usage. The online virtual community Facebook™ is the most popular SNS at present. Facebook started as a school network for Harvard students and alumni (Boyd & Ellison, 2007). In a short period of time, it became very popular in USA colleges then all over the world. Recently, Facebook™ reached over 400 million registered users and it was visited more often than Google™ search engine, i.e., New Year's day (Dougherty, 2010). It has largest school networks as 163822 high schools and 12294 college networks (Facebook™ Networks, 2010).

The primary motivation of Facebook™ users is to be able to communicate with people by staying connected to old friends and meeting new ones (Boyd & Ellison, 2007) and sharing common interests with others, uploading photos and videos (Taraszow, Aristodemou, Arsoy, Shitta, & Laouris, 2010).

From school network to global world, Facebook™ has entered the world of business, marketing and promotion by offering various web 2.0 technologies such as news feed, blog, messages, and applications; advertisement by segmenting user profiles or via informative public profiles for institutes and individuals.

3.7 VCD Curriculum Problems from Scholars Perspective

Art scholars such as Ertep (Ertep, 2004) claim that VCD education is more close to multimedia education. Ertep ((2004) emphasizes that multimedia topics are based on ICT curriculum. In his perspective, VCD curriculum is not a right place for including multimedia topics such as web design. In other words, Ertep (2004) points out that

multimedia education is ‘the false framework of the VCD curriculum’ (Ertep, 2004, p. 50). But then Barokas (2004) uses a different approach to legitimate VCD relation with multimedia. In 2004 Barokas has done research about multimedia education curriculum at Istanbul, Turkey. She found out that multimedia courses mostly cover the communication faculties, specifically in the VCD curriculum. She argues that multimedia is a branch of visual communication design because multimedia education inherits such topics as computer based drawing, graphic design and animation from VCD curriculum. Multimedia uses both visual and audio elements in order to communicate the message (Barokas, 2004, p. 19).

The artistic skills requirement is another discussion in this VCD curriculum. Both Aydın (2005) and Derman (2005) argues that VCD education concentrated on computer, image processing and web technologies, and skills on technology is a requirement for VCD students. However arts and design scholars (Çavuşoğlu, 2010; İnatçı, 2010) argued that an artistic skill, such as drawing, is a core requirement for VCD education and students develop their skills on technology during education.

Integrating both theory and practical applications in VCD education (Aydın, 2003; Aydın, 2005; Barokas, 2004, p. 19) should be a reflection of the theory on practice. Friere (1998) explained that ‘critical reflection on practice is a requirement of the relationship between theory and practice; otherwise theory becomes simply “blah, blah, blah” and practice, pure activism’ (Freire, 1998, p. 30). ICT skilled people may use technology more ‘efficiently’ in the (re)production or performance of visual art (i.e.: digital photographs, electronic music, animation, movies, computer games, simulations and so on.). However ICT practice in VCD is a ‘pure activism’ in the contemporary situation. For example, *activism* in artistic design is ‘not a guarantee

for the artist to create art' (Günel, 2003, p. 57). In fact, it is a challenge for an artist to 'being led to the artwork by the technology' (Voci, 2003, p. 107). Voci (2003) argues that an artistic endeavor in the application of digital technology only states 'the designation of ones and zeros' or metaphor of 'life or death' (Voci, 2003, p. 107). It is a form of image with 'discrete elements' and 'label' is a 'pattern' of projects imagination (Voci, 2003, p. 107). It is a view point that artistic design achieves communication through 'symbols' or 'pictorial images' that suggests 'theme or message' to the viewer (Lauer & Pentak, 2005, p. 6).

Synder (2003, p. 91) argues that cognitive and perceptual techniques are not based on specific technology; it is a biological and psychological working of brain - of how we see and perceive images. The fundamental is a visual technique in the digital age.

Synder (2003, p. 91) explained his experience with following example:

I was trained in the classical tradition of a filmmaker. ... When I teach classes such as "Digital Cinematography" or "Avid Video Editing" the classes are surprisingly similar to the classes I took 25 years ago. ... The cameras may be digital, the editing system a computer, but core visual techniques underpinning the use of this technology are fundamentally the same.

It is obvious that VCD curriculum problems are neither practical applications nor skilled education. The artists or designers are 'saying something not only visually but they also communicate an idea' to the audience (Lauer & Pentak, 2005, p. 6). So is VCD a practice of *information design* of visual materials to convey a message, or is it more of an *aesthetic* design of visual materials?

In many ways ICT integration appears as a problem in the VCD curriculum. However, design processes signify more. The students' problems on visual design processes can be categorized as follows:

- Information design versus aesthetic design.
- ICT skill versus content.

Karol (2003, p. 77) had been experiencing that students rarely managed to use a few elements in 'typographic form to expression content' in the graphic design'. Resnick and Berger (2003) states 'it is difficult for sophomore students to comprehend the need for visual consistency' also 'students create the illustration without planning for placement of typography, especially as a sequential design element' (Resnick & Berger, 2003, p. 137).

Main problems in VCD practice, namely, conceptualization can be identifiable when students gain technique or ICT skills or else either the learner or the educator may confuse it as an undeveloped technique or ICT practice problem.

3.7.1 Design Process

Design is a procedural system such as 'interpretation' or 'articulation' with consequences on knowledge that 'operates in certain domains' (Chandler, 2002, p. 148; Kress & Van Leeuwen, 2001, p. 41). According to Kress and Leeuwen (2001, p. 21) 'designs are conceptualizations of the form of semiotic products and events.' They (2001, p. 55) explained the difference between semiotic mode and recognized mode in design with the following:

Semiotic modes which are not in the official, public inventory of modes of a culture or a domain of practice cannot be drawn into the process of design. Only recognized modes are available as elements for the design process. Similarly, only recognized structured structures and sequences (syntagms), whether as 'script' or as 'genre', are available to the design process.

Kress and Leeuwen (2001, p. 21) stated that three things are designed simultaneously:

1. a formulation of a discourse or combination of discourses,
2. a particular (inter) action, in which the discourse is embedded,
3. a particular way of combining semiotic modes.

The invisible elements of design, for instance worldview, discourse and myth, are attached to these variables. The whole relationship in the content or the expression identifies each other mutually (Kress & Van Leeuwen, 2001, p. 5). Also the designers' experiences (i.e.: socio-economical, political and cultural, etc.) interact with their values and judgments in the process.

The content variables get concrete form in the design process. For example, if the design concept is a *house* then the form or type of apartment is a variable of the house concept (Deleuze & Guattari, 1988; Kress & Van Leeuwen, 2001). As a result both designer and audience reproduce and/or inherit attached variables from content and expression.

3.7.2 Visual Designer or Visual Artist

The artist's aim is oeuvre, but for the designer the aim is product. Both artists and designers make products but the time period (frame) for designer is much smaller or limited than artist and the important difference is aim. The aim of an artist is oeuvre and the aim of the designer is a product captured in a limited time frame; i.e. one day, one month and so on. This is why all design or architecture is called applied art.

The artist has limited time which must be separated for art work, an exhibition, and assignment. For instance, the artist uses limited time for assignments and when s/he needs to use the design process, that is the moment where artist and designer cross each other.

Design is the organization of design principles and design elements, mainly forming a plan or according to a plan. A plan forms the mapping.

- Artist works for progression.
- Designer work for continuation.

Designers cannot afford progression. He needs to work a specific (steady) style because clients need to know if they can rely on the designer. When a designer works too progressively/experimentally the client never knows what kind of product he will receive at the end or in which time period that product will be concluded.

3.7.3 Tools and Intuition

We can categorize intuition as an approach and we can categorize an intuition approach as a difference between the visual designer and the visual artist. For instance, Deleuze and Guattari described artistic intuition as it is not a color but it is coloring (Deleuze & Guattari, 1994, pp. 166-167). Arnheim (1954, p. 13) emphasizes artist and designer intuition with following:

[...] spatial relation between the objects, artists arranges the pictorial objects in a painting or the elements in a piece of sculpture but designer or architects seek the proper distance between building, windows, and pieces of furniture.

Lars Spuybroek is a Dutch architect and artist. His company, Nox Architect, uses computer calculations to generate or formulate curves and polymorphic shaped architecture (Spuybroek, 2004). ‘D-tower’ is one of his projects where ‘the intensive (feelings, qualia) and the extensive (space, quantities) start exchanging roles, where human action, color, money, value, feelings all become network entities’ (Figure 30) (Spuybroek, 2004) The project consists of a physical building (the tower, titled, D-Tower), a website (<http://www.d-toren.nl>) and a questionnaire.



Figure 30: D-Tower, designed by Nox Company (Spuybroek, D-Tower, 2004).

It 'is a 12 meters high structure where standard and non standard geometries come together to make up a complex surface, made of epoxy formed by computer generated modeling techniques (CNC milled Styrofoam)' specially ordered by the city of Doetinchem in the Netherlands (Spuybroek, 2004).



Figure 31: Color reflection on the D-tower (Spuybroek, D-Tower, 2004).

The questionnaire in the project 'written by the Rotterdam based artist Q.S. Serfijn', which deals with emotions like 'love', 'hate', 'happiness' and 'fear' that are represented by four colors: 'red', 'green', 'blue', and 'yellow', 'which are also the colors of the lamps illuminating the building' (Figure 31). The D-tower website (<http://www.d-toren.nl>) is a 'visualization of the responses of the inhabitants to a questionnaire' and all participant answers are graphed on the website. By this project the people in Doetinchem can see 'which emotion is number one that day' (Spuybroek, D-Tower, 2004).

Turkish graphic designer Emrah Yücel is known as a computer wizard. He is a designer of popular movie posters (i.e.: Kill Bill). He mentioned that all his works includes his private sign. He (Kalkan, 2005) explained his design process in the following interview:

My work means spending hours, weeks and months with the images that make up a film. I put in long hours at the computer without taking the weekend off. In the end an image I create is distributed all over the world and lives on in people's minds for decades. It makes me happy to know that my wife Simla's name is somewhere in all this, somewhere that only I know. I have other secrets, too, but they're secret.

Emrah Yücel expressed his artist's intuition as his wife inspired him on 'acts of sign making' (Kress & Van Leeuwen, 1996, p. 8). His statement indicates that he includes secret signs as an artist, and he creates images (professional design assignments) as a skillful designer and that these signs are hidden somewhere in the design, somewhere only he knows.

McLuhan (1964, p. 9) argues that 'the "content" of any medium blinds us to the character of the medium'. However 'the character of the media' emphasizes 'the need for understanding their visual components' (Dondis, 1973, p. 18). Such VR experience can 'not to be seen in terms of 'realism', but it can be 'a new, and newly (inter) active form of representation' (Kress & Van Leeuwen, 2001, p. 110). Audiences may use media in different ways towards gratification.

3.8 Critical Pedagogy

Critical pedagogy is the thought and practice that questions the domination of power, politics, history, culture and economics, within the context of schooling, worldviews or belief system (Guess, 1981; Darder, Baltodano, & Torres, 2003; Giroux H. , 2003; McLaren, 2003). Darder et al., (2003, p. 12) states that 'critical pedagogy supports

the notion that all knowledge is created within a historical context and it is this historical context that gives life and meaning to human experience’.

It is an approach, which criticizes class and social inequalities, and democracy in the system as political and economical constituents of the teaching, learning and educational system (Freire, 1970; Giroux H. , 1994).

Giroux (1994, p. 30) describes critical pedagogy as ‘knowledge’, ‘authority’ and ‘power’ relationships among ‘teachers and students’, ‘institution and society’, and ‘classrooms and community’. He argues that ‘who has control over the conditions for the production of the knowledge’ is a primary concern in the critical perspective (Giroux H. , 1994, p. 30).

According to Giroux (1994) critical pedagogy is ‘the ways in which the circuit of power works through the various processes through which knowledge, identities, and authority are constructed within particular sets of social relations’ (Giroux H. , 1994, p. 30). McLaren (2003, p. 69) mentions that ‘critical pedagogy asks how and why knowledge gets constructed the way it does, and how and why some constructions of reality are legitimated and celebrated by the dominant culture while others clearly are not’.

Freire (1970) stated that it is a *praxis* that reflects and acts upon the world in order to transform it (Freire, 1970, p. 33).

3.8.1 Concepts of the Critical Pedagogy

Philosophical Principles of Critical Pedagogy

In terms of critical pedagogy, Darder, Baltodano, and Torres (2003) categorized the following nine philosophical principles:

- Cultural Politics

[...] schools functions as a terrain of ongoing cultural struggle over what will be accepted as legitimated knowledge (2003, p. 11).

- Political Economy

[...] at issue here is the question of class reproduction and how schooling practices are deceptively organized to perpetuate racialized inequalities (2003, p. 11).

- Historicity of Knowledge

[...] it offers a mode of analysis that stress break, discontinuities, conflicts difference, and tensions in history, all of which serve in bringing to light the centrality of human agency as it presently exists, as well as within the possibilities for change (2003, p. 12)

- Dialectical Theory

Rooted in a dialectical view of knowledge, critical pedagogy seeks to support the dynamic interactive elements, rather than participate in the formation of dichotomies and polarizations in thought and practice. By so doing, it supports a view of humans and nature that is relational, an objectivity and subjectivity that is interconnected, and an understanding of theory and practice as coexistent (2003, p. 13).

- Ideology and Critique

The principle of ideology in critical pedagogy serves as a starting point for asking questions that will help teachers to evaluate critically their practice and to better recognize how the culture of the dominant class becomes embedded in the hidden curriculum - [...] (2003, p. 13).

- Hegemony

[...] understanding how hegemony functions in society provides critical educators with the basis for understanding not only how seeds of domination are produced, but also how they can be challenged and overcome through resistance, critique, and social action (2003, p. 14).

- Resistance and Counter-Hegemony

It begins with assumption that all people have the capacity and ability to produce knowledge and to resist domination. However, how they choose to resist is clearly influenced and limited by the social and material conditions in which they have been forced to survive and the ideological formations that have been internalized in the process (2003, p. 14).

- Praxis: Alliance of Theory and Practice

Unlike deterministic notions of schooling practice that focus primarily on an instrumental/technical application of theory, praxis is conceived of as self-creating and self-generating free human activity (2003, p. 15).

- Dialogue and Conscientization

[...] dialogue and analysis serve as the foundation for reflection and action. It is this educational strategy that supports a problem-posing approach to education-an approach in which the relationship of students to teacher is, without question, dialogical, each having something to contribute and receive. Students learn from teachers; teachers learn from students (2003, p. 15).

3.8.2 The Function of the Critical Pedagogy in VCD Education

From Freire's terminology, 'learners begin to perceive meaning of the reality presented with relationship between elements of the codification and daily experiences by decodification' (Heaney, 1995). Freire (1970, pp. 60-61) explained teacher-students relations as a part of this process in learning as follow:

Liberating education consists in acts of cognition, not transferals of information. It is a learning situation in which the cognizable objects (far from being the end of the cognitive act) intermediates the cognitive actors-teacher on the one hand and students on the other. Accordingly, the practice of problem-posing education entails at the outset that the teacher-student contradiction to be resolved. Dialogical relations-indispensable to the capacity of cognitive actors to cooperate in perceiving the same cognizable object – are otherwise impossible.

According to Darder et al. (2003) 'this perspective resurfaces the power of human activity and human knowledge as both a product and a force in shaping the world,

whether it be the interest of domination or liberation (Darder, Baltodano, & Torres, 2003, p. 13).’

Chapter 4

RESEARCH DESIGN AND METHODOLOGY

This empirical study employs a variety of research methods. Triangulation approaches were used in the attempt to develop a comprehensive overview of students' perception of VCD and their reasons for choosing this course of study.

4.1 Triangulation Approach

To achieve a comprehensive understanding of how students approach VCD, a variety of instruments were employed for this investigation. These involved the following means of securing student input:

- a) Students were asked to write a paper at the end of the each class to record their reflections on skills development and to keep a diary about their courses for the duration of the semester.
- b) A semi-structured questionnaire was administered to explore respondents' perceptions of how to use a computer, and to determine how respondents viewed their own skill in using computers before beginning their university course.
- c) Pre-tests and post-tests were administered to measure any changes in attitude and understanding.

The main issues which inspired the development of the research instruments include the following points related to the experimental process of a teaching-learning approach:

1. The student learning process:

- Knowledge construction, i.e. identity.
- Challenging world views, i.e. values, beliefs, and so on.
- Reconstructing personal meanings, i.e. inner and outer evaluations.

2. The teaching process:

- Power relations, i.e. empowerment in the classroom.
- Information transformation, i.e. effects observed on the knowledge construction.
- Verbal/nonverbal feedback, i.e. effects observed on personal meaning.

An open-ended questionnaire was devised to provide student feedback which could be used to develop some theoretical observations of VCD students' perception of design elements and design processes. This questionnaire was administered to all respondents in the population sample. Questions included in the questionnaire were formulated to attempt to identify the perceptions of respondents when presented with specific geometrical shapes and visual communication. These are crucial factors in the teaching and learning of visual design.

In addition to the data collection strategies described above, which were administered to all 541 students, semi-structured interviews were also conducted with 63 EMU students planning to undertake VCD courses.

4.2 Population Sample

A problem initially faced in this data collection was the difficulty of securing permission to seek student opinion in the various universities. Some institutes feared

that the data would be used to compare institutes and/or measure students' knowledge and could affect the image of the institute.

The population sample consisted of 541 students from Faculties of Communication in six universities in Turkey and one in Northern Cyprus. The Northern Cyprus population sample consisted of all the students undertaking VCD courses. The population sample of the students from universities in Turkey was composed of randomly selected third year VCD students. At the time at which this research was carried out there were no fourth year students registered at these universities due to the recency of the VCD course offerings.

The universities in Turkey consisted of the following:

- Bahçeşehir University (BU): 26 student respondents,
- İstanbul Bilgi University (İBU): 22 student respondents,
- İstanbul Kültür University (İKU): 94 student respondents,
- Maltepe University (MU): 38 student respondents,
- Yeditepe University (YU): 19 student respondents,
- Galatasaray University (GSU): 15 student respondents.

These students included 220 females and 142 males. There were 214 sophomores and 138 junior students. All students had experience using computers and digital design tools.

It was possible to secure a much larger population sample at my own university, and the EMU sample consisted of 327 students, 138 juniors and 189 sophomores. The junior students were registered in the Visual Literacy Course and included 60

females and 78 males. The sophomore students were registered for a course in Layout and Computer Graphics and included 66 females and 123 males.

The students who took part in my investigation were eager to participate and felt relaxed in sharing their opinions with me when they were assured of the anonymous nature of their responses.

The data was collected over a four year period, 2002 to 2006, in Northern Cyprus and Turkey.

4.3 Instrument: Data Collection Techniques

The first section of the questionnaire elicited respondents' demographic information including gender, age, university location and possession of a computer.

4.3.1 Five Point Likert Scale Questions

The five point Likert scale was used to elicit participants' response to a set of these statements:

1. The influence of the respondent's family on her/his choice of visual art and design as a university course.
2. Students' attitudes to the visual arts in general.
3. Students' attitudes to different teaching methods, namely, lectures using printed and/or projected course material in which students are required to listen and take notes and studio classes in which the lecturer uses printed, projected, and/or online course materials and students are required to listen and edit and/or produce visual images using computers.
4. Students' responses to exposure to 2D images, 3D images, moving images, web pages, photography, and artistic drawings and their perception of these.

5. Students' views on the ways of utilizing design elements, in particular, that of color: software default color, their favorite color, and relative color for content.

4.3.2 Open-Ended Question

Open-ended questions were also included and students were asked to describe geometrical shapes. In assessing their answers to these questions, a semiotic approach and Gestalt theory were used to explain students' perception/description of the geometrical shapes.

1. Labeling of the geometrical objects.

Respondents were asked to describe visual data in terms of their geometrical shapes, such as squares, circles, triangles, ellipses, and parallelograms.

2. Organization of components in terms of Gestalt Principles (i.e.: similarity and proximity and so on.)

Respondents were shown geometrical shapes placed within boxes (an example of which appears in Figure 32) and asked to identify them.

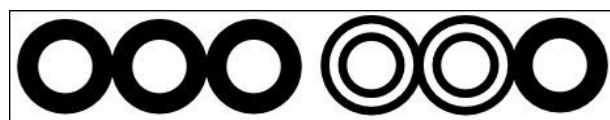


Figure 32: Research figure: Circle shapes.

3. Associations displayed between color and shape

Respondents were asked to verbally identify a suitable color or colors for a perfume bottle (see Figure 33). They were asked to present a verbal answer to this question so that they would not be able to test their choice of color and see

the result. After choosing a color, they were asked to describe what they associate with their chosen color.



Figure 33: Research figure: Image of a Salvador Dali perfume bottle.

4.3.3 Object Perception

4.3.3.1 Recall and Recognition of the Graphical Images

The content of a graphical ‘collage’ poster was selected to test respondents’ recall of an image and the order in which they see the separate parts of the whole image.

This part of the research was carried out to test two hypotheses:

Hypothesis I: Within a limited time, people see whole images.

Test variable I: What do they see first?

Hypothesis II: If the duration of exposure is extended, people see items separately.

Test variable II: What do they see subsequently?

The image chosen for this test was the following:



Figure 34: Research figure: Deluce Electronics Company Advertisement, 1996.

Because of physical constraints, the image was projected over the computer in some universities and presented as a printed image in others.

Image [Figure 34] projected via computer (BU, YU, and EMU):

1. Poster projection time was limited to 5 seconds.

Respondents were asked to write down what they saw during this limited exposure.

2. Subsequently the image was presented for a period of 20 seconds and the respondents were asked to write down what they saw.

Printed image [Figure 34] shown to students (IBU, IKU, MU, GSU and EMU):

1. Students were asked to write down what they saw first and what items they saw subsequently.

Using the two different test methods of the projection via computer and the printed image may give a different result in perception of the object. However, it was considered that this slight variation in methodology would not prevent the generalizability of results.

4.3.4 Interviews

Semi-structured interviews were conducted with 63 students from Turkey who were hoping to register for the VCD course at EMU in the academic year 2006-2007. Seventeen were female and forty six male. These interviews were carried out in the attempt to establish a profile of students wishing to embark on VCD courses and their perception of VCD.

Chapter 5

RESEARCH FINDINGS

5.1 Observation from VCD Candidates' Interview

Sixty-three (17 female and 46 male) Turkish students seeking admission to EMU's Visual Communication Department in the academic year 2006 - 2007 took a written exam and on the basis of this were invited to attend an interview in Antalya. The interviews were conducted between 8 and 9 August 2006 at EMU's Antalya liaison office.

The following observations are made based on these interviews:

- Students attending an interview were invited to bring a portfolio (if they had one) to demonstrate personal experience. However, this was not obligatory.
- Candidates' portfolios contained their works such as photographs, artistic drawings, and so on.
- The interview panel observed that candidates were confused about announcement, and few candidates brought hand drawings to the interview.
- The interview panel asked questions about popular culture, candidates' hobbies and leisure activities in order to understand the nature of their social interaction and world view.
- Selected images from visual literature were shown to candidates and they were asked to describe them. One of the examples of these images was 'the Identical Twins' (1967) of Diane Arbus' photographs (see Appendix D).

- Seventeen female and 46 male candidates attended the interview.

Summary of candidates' responses to the interview panel's request to talk about themselves.

Observation 1:

Ninety-two percent of the candidates stated that they do not like reading and prefer listening to music. Only two male candidates regularly read periodicals such as computer magazines and all the other candidates stated they do not read periodicals or newspapers. All candidates stated that they use the computer for a minimum of 3 hours per day. Five male candidates stated they use the computer to play games. Half of the candidates stated they use the computer for chatting (e.g., instant message services, MSN) on the net everyday. Eighty percent stated that they would like to spend more time on the computer but their families force them to study or sleep.

Observation 2:

Ninety-two percent of the candidates do not have any specific hobbies. Eight percent stated they play musical instruments such as the guitar. Only five students stated that they had been abroad and only one of these, a male, stated he had visited a museum when he was abroad. The other four stated that they had no interest in visiting museums or exhibitions. Twenty percent of the candidates brought a portfolio to the interview. One male candidate's portfolio included web page templates and two male candidates brought their flash disk (memory stick) to show their photographs portfolios. Four male candidates who had artistic drawings in their portfolios stated that they took private hand drawing classes to prepare them for the university skills exams. However, they added that artistic drawing is not really their hobby

Observation 3:

Eighty-eight percent of the candidates stated that they had gained information about VCD education from their relatives and 8%, from their friends. One candidate mentioned that he had taken advice from his school mentor on choosing VCD education for his university career. Only one candidate declared that he had conducted a search on VCD education on the internet and that a VCD course is his own personal choice. Two male and two female candidates criticized the degree of control of their families on their choice of study and they declared an interest in studying abroad rather than in Turkey.

Exam committee asked them to describe their daily life out of school purpose.

Observation 4:

Half of the candidates declared that, they meet up with their friends in their free time but they do not like to go out at night. Thirty percent watch television everyday but 16 candidates mentioned that they do not like to watch advertisements. Fifty percent of respondents stated they watch movies on television rather than cinema and only one male candidate was able to mention the name of at least one director (Tarantino).

I asked candidates what is VCD in their mind?

Observation 5:

Seventy-eight percent of respondents stated that VCD is something which related to the act of seeing. One female candidate stated 'I am not sure what VCD is'.

I asked candidates what they understand by the term “to see.”

Half of the candidates mentioned that it is “the thing” that what our eyes see. Twenty-eight percent of candidates stated that it is our understanding of what things are, or what is going on, the result of seeing.

Twelve candidates represented the following views.

(Female: F, Male: M)

Candidate 1 (M): It is reading graphics.

Candidate 5 (M): VCD is not based on hand drawing; it is related to the computer software. I have already read the VCD curriculum and course content from the internet. There are photography and web design courses. I like it. I would like to take photography and play computer games (e.g.: I enjoyed playing Quark).

Candidate 9 (M): You can learn how to make animations with VCD education, and you can use animations for advertisements. I like using the computer. I use it for almost 8 hours everyday. I use the internet to download computer software.

Candidate 22 (M): VCD is an advertising animation production. I have a webpage. I am always uploading new software to my website to help other people reach software easily. I use the computer for at least seven hours a day.

Candidate 27 (F): VCD is presenting design by creativity. Graphic design is a more limited field than visual design. I like to use computers, I am using a computer almost 12 hours everyday. Mostly I am chatting on MSN messenger. I like to watch TV advertisements.

Candidate 39 (F): VCD is related to the press and media; it also includes advertising design. I use the computer almost 3 hours a day to chat with friends on MSN messenger.

Candidate 47 (M): VCD is "a remembering some thing you saw before". I am using computers to make design. Specifically, I am using Photoshop, Corel Draw and Freehand software.

Candidate 54 (M): VCD is related to 3D design. My parents are publicist. We have a printing office. I know Photoshop software is very important for this field and I can skillfully make nice designs using it.

Candidate 56 (M): First I wanted to study radio-TV. Later my parents and I talked about it, and decided that it is an information age; VCD topics enhance computer skills better than the radio-TV departments. I am using a computer for almost 24 hours on the weekend. I like to read sport on the internet.

Candidate 57 (M): Radio-TV departments are more close to advertising but in VCD you can make an advertisement and you can explain some things by using photographs.

Candidate 60 (M): VCD is a branch of fine arts but also it is covering advertising, cinema, and music. I am a member of a music band. We are working on our albums. Once I made an advisement design for our band using Photoshop software.

Candidate 62 (F): VCD is an interpretation of object at first sight. I like to take photographs. Everyday I am using a computer for at least 5 hours. Specifically I like to work on Paint software.

5.2 Demographic Profile of Respondents

Five-hundred and forty-one students responded to the questionnaire and Table 3 displays their university affiliation: The first year EMU students replied to all the questions except those relating to their opinions on studio courses and lectures.

Table 3: Distribution by university affiliation

		University			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bilgi University	22	4.1	4.1	4.1
	Bahcesehir University	26	4.8	4.8	8.9
	Galatasaray University	15	2.8	2.8	11.6
	Maltepe University	38	7.0	7.0	18.7
	Yeditepe University	19	3.5	3.5	22.2
	Istanbul Kultur University	94	17.4	17.4	39.6
	Eastern Mediterranean University	327	60.4	60.4	100.0
	Total	541	100.0	100.0	

N= 541

The percentage of third year students from each university was as follows:

5.5% from İBU,

6.5 % from BU,

23 % from İKU,

4 % from GU,

9 % from MU,

5 % from YU,

47 % from EMU.

All the freshman year students in the population sample were from EMU. One hundred and ninety-seven respondents (35.5%) were female and 343 (65.5%) were male. One student did not answer the question related to gender.

Table 4: Cross tabulation of gender and university affiliation

University * Gender Crosstabulation					
			Gender		Total
			female	male	
University	Bilgi University	Count	3	19	22
		% within Gender	1.5%	5.5%	4.1%
	Bahcesehir University	Count	11	15	26
		% within Gender	5.6%	4.4%	4.8%
	Galatasaray University	Count	10	5	15
		% within Gender	5.1%	1.5%	2.8%
	Maltepe University	Count	9	29	38
		% within Gender	4.6%	8.5%	7.0%
	Yeditepe University	Count	5	14	19
		% within Gender	2.5%	4.1%	3.5%
	Istanbul Kultur University	Count	33	60	93
		% within Gender	16.8%	17.5%	17.2%
	Eastern Mediterranean University	Count	126	201	327
		% within Gender	64.0%	58.6%	60.6%
Total		Count	197	343	540
		% within Gender	100.0%	100.0%	100.0%

197 females and 343 males, N= 540

Sixty-five of the respondents were in the 17-19 age range and 62 were 20 years old. 20% were 21 years old, and 18% were 22 years old. 15% were 23 years old, 12% were 24 years old, and 11% were 25 or above. Six respondents did not state their age giving a valid number of responses of 535.

Respondents were asked whether they owned a computer and 84% declared ownership, 16% stated non-ownership, and three respondents did not answer this question making a valid number of responses of 538.

Table 5: Cross tabulation of computer ownership and university affiliation.

University * Do you own computer? Crosstabulation					
			Do you own computer?		Total
			yes	no	
University	Bilgi University	Count	22		22
		% within Do you own computer?	4.8%		4.1%
	Bahcesehir University	Count	25		25
		% within Do you own computer?	5.5%		4.6%
	Galatasaray University	Count	13	2	15
		% within Do you own computer?	2.9%	2.4%	2.8%
	Maltepe University	Count	37	1	38
		% within Do you own computer?	8.1%	1.2%	7.1%
	Yeditepe University	Count	19		19
		% within Do you own computer?	4.2%		3.5%
	Istanbul Kultur University	Count	86	7	93
		% within Do you own computer?	18.9%	8.3%	17.3%
	Eastern Mediterranean University	Count	252	74	326
		% within Do you own computer?	55.5%	88.1%	60.6%
Total		Count	454	84	538
		% within Do you own computer?	100.0%	100.0%	100.0%

5.2.1 Family's professional interest in the visual arts and design

Respondents were asked whether their families had any professional interest in the visual arts and design. Most (68%) declared no family interest in the field with 32% (170) stating that their parents had a professional interest in the field. Seven non-replies made the valid number of responses 535.

Table 6: Cross tabulation of family’s professional interest in VCD and university affiliation

University * Family VCD Crosstabulation					
			Family VCD		Total
			yes	no	
University	Bilgi University	Count	8	13	21
		% within Family VCD	4.7%	3.6%	3.9%
	Bahcesehir University	Count	8	18	26
		% within Family VCD	4.7%	4.9%	4.9%
	Galatasaray University	Count	4	10	14
		% within Family VCD	2.4%	2.7%	2.6%
	Maltepe University	Count	12	26	38
		% within Family VCD	7.1%	7.1%	7.1%
	Yeditepe University	Count	9	10	19
		% within Family VCD	5.3%	2.7%	3.6%
	Istanbul Kultur University	Count	22	69	91
		% within Family VCD	12.9%	19.0%	17.0%
	Eastern Mediterranean University	Count	107	218	325
		% within Family VCD	62.9%	59.9%	60.9%
Total		Count	170	364	534
		% within Family VCD	100.0%	100.0%	100.0%

5.3 Responses to Likert Scale Questions

5.3.1 Role of the Visual Arts and Design in Participants’ Daily Lives

Respondents were queried regarding the importance of the visual arts and design in their daily lives. More than half the respondents (58%) strongly agreed or agreed that the visual arts and design played a significant role in their daily lives. Twelve percent were undecided and 30% expressed disagreement or strong disagreement. Twenty-seven participants failed to answer the question (N= 514).

5.3.2 Teaching Methods

In the pilot test we found that 15 out of 138 (10 %) 1st year students had taken visual design courses before, and 15% of the 1st year participants knew design tools on the computer. In light of this, the first year students of the population sample were not queried about their preferences since they do not have experience of the different VCD teaching methods.

The third year students of the population sample were questioned about their preference for the different teaching methods. The majority of respondents (89%) expressed a positive perception of studio classes. Nine percent were undecided and (72%) disagreed with the usefulness of studio classes. None of the participants indicated strong disagreement with the worth of studio classes (N= 394).

When asked their opinion of lectures as a teaching method, twenty-seven percent of the participants indicated strong agreement with the value of lectures and 48 % indicated agreement. Fourteen percent were undecided, 7% disagreed, and 4% strongly disagreed (N= 394).

5.3.3 Types of Visual Images: 2D images- 3D images - Moving Images - Web Designs - Photographs - Artistic Drawings

Respondents were presented with visual images and their opinions were sought on the effectiveness of the different types of visual images.

2D images: More than half the participants (55%) strongly agreed that 2D images are an effective teaching tool, or agreed that 2D techniques such as poster design and photographic editing provide a means to create effective visual images. Seventeen percent were undecided, 20% disagreed, and 8% strongly disagreed. Eighteen participants did not respond to the question (N= 523).

3D images: Half the respondents (51%) declared disagreement or strong disagreement with the effectiveness of 3D images. Fewer than half (32.5%) declared strong agreement or agreement, while 15.5 % were undecided, and 13 participants failed to respond to the question (N= 528).

Moving images: Nineteen percent of respondents stated strong agreement and 35% agreement with the effectiveness of moving images. Fourteen percent were undecided. Thirty-two percent disagreed or strongly disagreed, and eleven participants failed to respond to the question (N= 530).

Web designs: Thirteen percent of respondents strongly agreed and 32 % agreed with the usefulness of web designs. Nineteen percent were undecided, while 26 % disagreed, and 9 % strongly disagreed. Fourteen participants did not respond to the question (N= 527).

Photographs: Forty-three percent of respondents agreed and 23 % strongly agreed that photographs are a valuable means of capturing visual attention. Twelve percent were undecided, 21 % disagreed or strongly disagreed, while 14 participants failed to respond to the question (N= 527).

Artistic drawings: Nearly half the respondents (48 %) disagreed or strongly disagreed with the visual effectiveness of artistic drawings, while 16 % strongly agreed, and 23 % agreed. Thirteen percent were undecided and 14 participants did not respond to the question (N= 527).

5.3.4 The Elements of Design: Color

Respondents were asked to state their favorite color, and 34% stated blue, 15.5 % black, 10.5% red, 5% pink, 5% green, and 4% white. The colors orange, purple, and yellow were each chosen by 3% of respondents. The remaining 11% of respondents chose brown, light brown, grey, burgundy, light blue, navy, pistachio green, turquoise or lilac. Thirty-one respondents (6%) stated that they have two favorite

colors as displayed in Table 7. Eleven participants did not respond to the question (N= 529).

Table 7: Colors schema for the respondents' two favorite color(s).

Black-White	Red-Green	Pink- Khaki	Blue-Icy	Indigo-Purple
Black-Red	Red-Yellow	Pink-Purple	Blue-Sky	Yellow-Dark blue
Black-Orange	Red-White	Pink-White	Blue-Grey	
Black-Blue	Red-Blue	Pink-Blue		

Table 7 shows that, respondents' who have two favorite colors, chose at least one color; black, red, pink and blue, which was chosen as a favorite color by the majority.

5.3.5 Utilizing Design Elements: Color

Participants were asked three questions relating to their use of color in the computer design process. First year students were not administered these questions due to their lack of formal university experience in computer design.

Default colors of the computer tools:

Forty percent of respondents disagreed and 37% strongly disagreed with using the default colors on the computer. Sixteen percent strongly agreed or agreed and 7% were undecided about using the default color of the computer in the design process. Eleven participants (3%) did not respond to the question (N= 392).

Favorite colors:

Half of the respondents strongly agreed or agreed and the other half disagreed or strongly disagreed with using their favorite color in the design process. 18% strongly agreed, 27% agreed, 24% disagreed, and 21% strongly disagreed with using their

favorite colors in their computer designs. Ten percent were undecided and 4% did not respond to the question (N= 387).

Context-determined colors:

The majority of respondents strongly agreed or agreed that they chose the color(s) for their designs after considering which color(s) would express the content better. 54% strongly agreed and 33% agreed with this practice. Eight percent were undecided and 5% disagreed. Only one respondent expressed strong disagreement while 4% did not respond to the question (N= 388).

Table 8: Frequencies of respondents’ statements of choice of colors

Process	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Default colors	15	47	28	158	144
Favorite colors	68	103	39	95	82
Context-determined colors	208	129	32	18	1

5.4 Open - Ended Question

5.4.1 Labeling Geometrical Shapes

For the purpose of learning more about the visual perception of the population sample, respondents were shown geometrical shapes and asked to provide a term to describe each one. Their answers are now summarized.



Figure 35: Research Figure - Square shape

Eighty-seven percent of respondents identified the shape displayed above in Figure 35 as a square. Six percent of respondents provided a total of 23 different answers to describe the shape. These included the following: 4, a, A, a geometrical shape, circle, quadrangle, rectangle, octagon, shape, box, a representation of a container, screen, house, bird's eye, a sign indicating geometry, order, static, basic, partition, cornered, oppression, and authority. Seven percent of respondents did not answer the question (N=502).

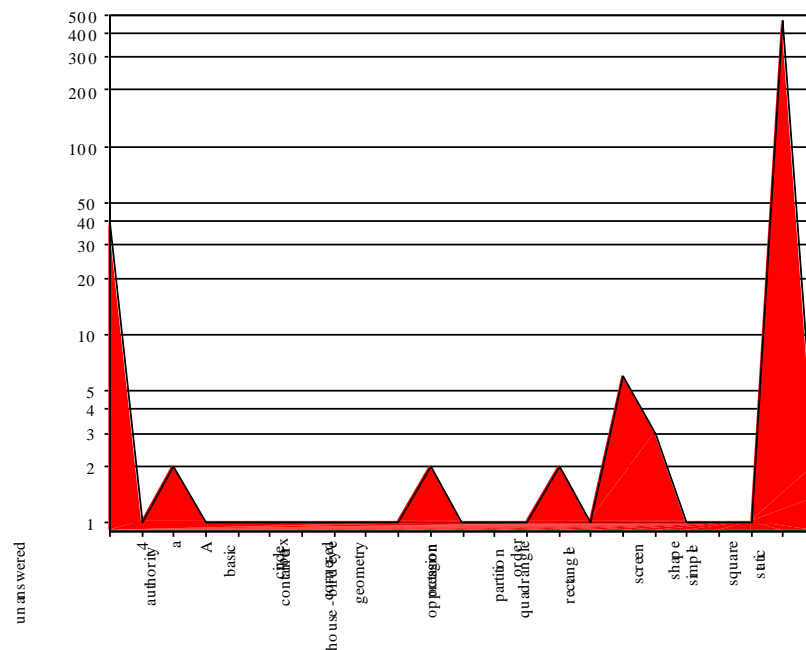


Figure 36: Descriptions of square shape

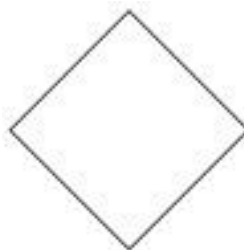


Figure 37: Research Figure - Lozenge form of square (or square with acute angles of 45° or rotated 45°)

Twenty-six percent of respondents labeled the shape displayed above in Figure 37 as a square, 18% classified the shape as a quadrangle, and 4 % described it as a vertical square. Twenty-two percent failed to answer the question. The remaining 30% described the shape in 33 different ways, namely, - 4, a, A, - prism, rectangle–square, rectangle, reverse square, rhomb, parallelogram, triangle, vertical triangle, diamond (as in a suit of cards). a diamond (i.e.: a jewel), a pastry (baklava), deltoid, kite, stained glass, signboard, necktie, keyhole, symbol, logo, geometry, and a shape suggesting something dynamic, false, modified, hard, strong, balance, unbalanced, order, or perspective (N=420).

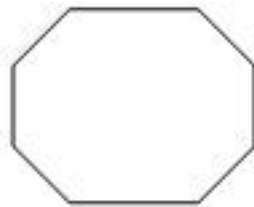


Figure 38: Research Figure - Octagon shape

Sixty-two percent of participants described the shape displayed in Figure 38 as an octagon, 5% stated it was a polygon, 3%, a hexagon, and 2% described it as a seven-cornered shape. Twenty percent did not answer the question. The remaining 8% of respondents used 43 different terms to describe the shape. These were as follows: - 8, 9, B, c, d, enlarged square, pentagon, quadrangle, rectangle/square, square, square hacked at corner, round shape, round cornered, trapezoid, triangle, crystal, diagonal, plane, cornered, table, traffic sign, parquet, place mat, plate, pool, space-ship, tray, a symbol for an equal sign, or a symbol suggesting the concepts of geometry, extra, decayed, developing, variety, motion, amendment, soft, and ugly (N=432).

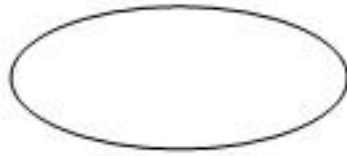


Figure 39: Research Figure - Ellipse shape

Forty percent of participants recognized the shape displayed in Figure 39 as an ellipse and 29% described it as an oval, 7%, a circle, 2%, a round shape. Twelve percent did not answer the question and the remaining 10 % used a total of 37 different terms to describe the shape. These consisted of the following: - 1, b, C,- cylinder, weakened circle, enlarged circle, horizontal circle, wide circle, trapezoid, flat round, crushed round shape, sphere, symmetry, curve, horizontal shape, vertical shape, cycle, hole, flat face, battery, bread, candy, egg, pitta, plate, pool, tray, racetrack, UFO and also they mentioned that the shape indicates width, softness, saturation, set (of items and so on.), cleverness, movement, area, unnecessary (N=475).



Figure 40: Research Figure - Triangular shape

Eighty-six percent of respondents identified the above shape as a triangle. The remaining 6% of the participants gave 28 different descriptions. These were: - 3, A, c, d,- polygon, prism, ellipse, pyramid, quadrangle, cutter, ball, hat, Christmas hat, ice-cream, motorway line, needle, nose, pine tree, pizza, roof, direction and

represents geometry, far, confident, achievement, intelligence, sublime and sharp.

Eight percent failed to answer the question (N=500).

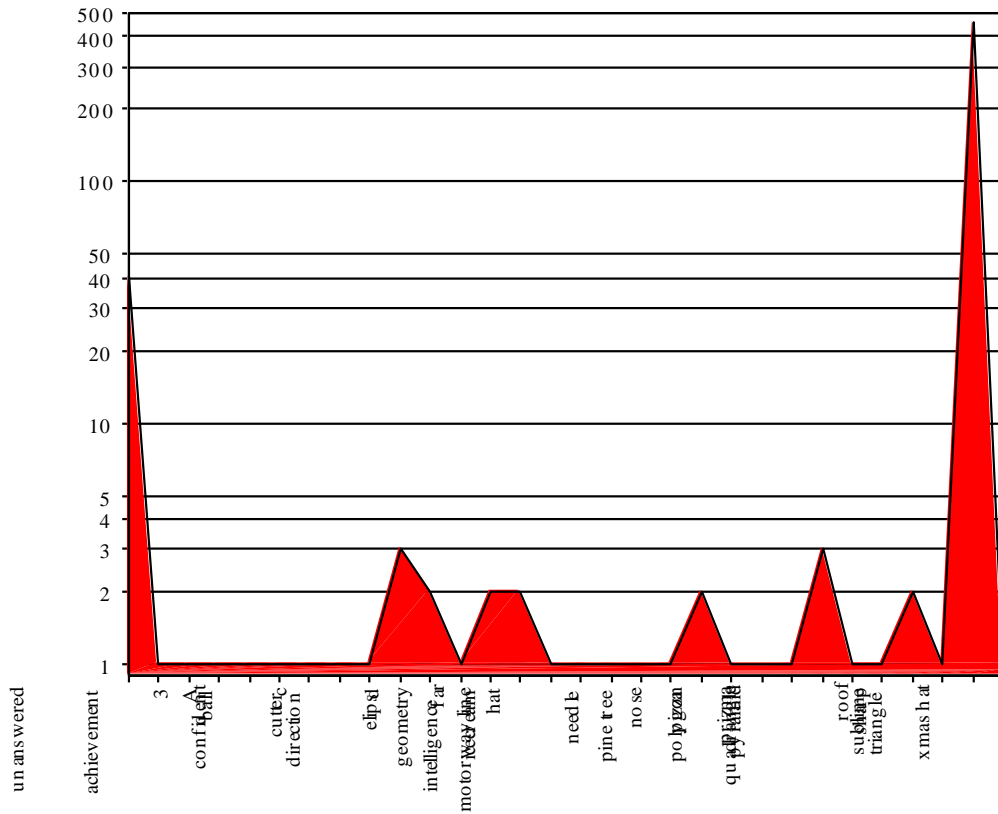


Figure 41: Descriptions of the triangular shape

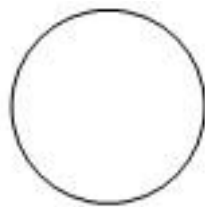


Figure 42: Research Figure - Circle shape

Sixty-two percent of participants chose the word circle to describe the above shape and 18% described it as a round shape. Two percent described the shape as a ball. Seven percent used following expressions to express the shape: - 0, 1, b, C,-

hexagon, pentagon, ring, , center, pi and represents geometry, complementary, complete, cycle, life, air bubble, perfect, volume, transformation, hole, face, planet, lahmacun (Turkish pizza), and simit (Turkish ring-shaped savory pastry). Eleven percent did not answer the question (N=478).

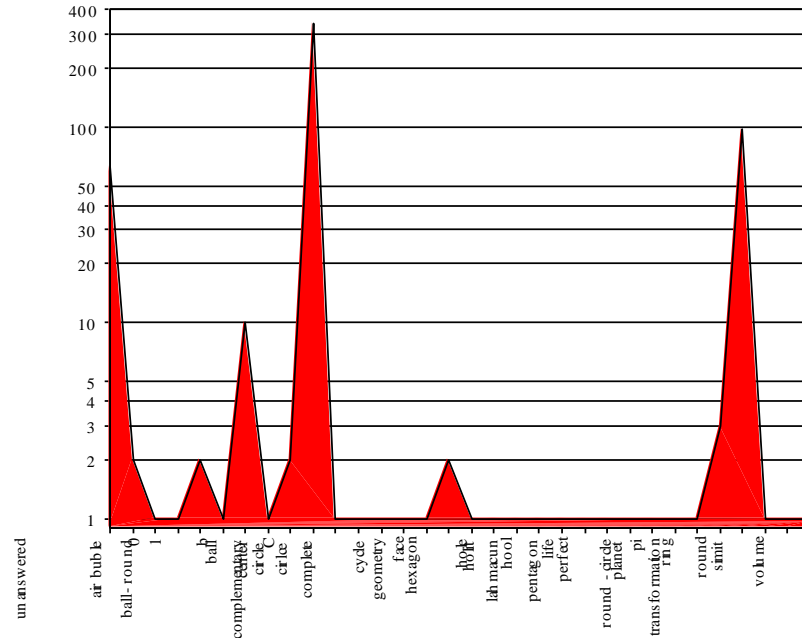


Figure 43: Chart of the circle shape, N=478



Figure 44: Research Figure - Parallelogram shape

Twenty nine percent of the participants labeled the shape displayed in Figure 44 a rectangle, 14% parallelogram, 7% trapezoid. 20% of the participants stated: - 4, A, e, -behalf rectangle, cylinder, horizontal rectangle, false quadrangle, parallel, parallel- quadrangle, parallel-rectangle, parallel-trapezoid, quadrangle, slant and vertical- rectangle, rectangular, skewed quadrangle, skewed rectangle, square, long

square, vertical, vertical cylinder, vertical triangle, perspective, plane, lines, mirror, egoist, glass, rubber, soap, wall, table, fast-ski, door, boat, cake, license plate, zebra-crossing, pizza tower, and shape indicates that convenient to demolition, folded, slant, flat, pointless, irregularity and unbalance. 30% did not answer the question (N=370).



Figure 45: Research Figure - Arc shape

Fourteen percent of the respondents labeled the above shape (see Figure 45) a half circle, 5% a rainbow, 3% a half moon, 3% a half ring, 3% a half simit (Turkish pastry), 4% an arc, 2% a telephone, 2% a magnet. Eighteen percent of the respondents categorized the shape in the following ways:

b, C, circle, cylinder, oval, ellipse, trapezoid, quadrangle, round, horizontal, ring, curve, arch, flat, buckled, radius, convex/concave, cross section, cross section of the circle, behalf circle, half, parallel, symmetry, handle, half crowded two circles, half cylinder, half ellipse, half round, half thick circle, half two circle, crowded two ellipses, two half circles, two half moon, crescent moon, band, bent, bridge, up side of two the letters, dome, cup, handle, cup holder, door handle, handle of the suitcase, hair, gate, horseshoe, pipe, melon, tunnel, and also shape represents continuity, naive, pointless, protective, protractor, transition and wizard of oz. 46 % of the respondent did not answer the questions (N= 295).



Figure 46: Research Figure - Trapezoid shape

Eighteen percent of respondents labeled the above shape as a bucket, 10% a trapezoid, 6% a glass, 5% a quadrangle, 5% a vase, 3% a planter, 3% a rectangle. Thirteen percent described the shape in the following terms:

4, 9, A, e, cone, parallelogram, square, triangle, triangle (upside down and prickly part is absent) vertical triangle, half triangle, slant vertical quadrangle, warped quadrangle, scaled rectangle, isosceles trapezoid, half cylinder, line, round, curve, diagonal, exclamation mark, fire bucket, water bucket, aquarium, basket, hopper, lantern, planter, glass, body, building, traffic light, trashcan, WC and indicates hierarchy, distort, descent, wide, new, perspective, pointless, slow, speed. 37% did not answer the question (N=388).



Figure 47: Research Figure - Pentagon shape

Sixty five percent of the respondents identified the Figure 47 a pentagon and 2% hexagon. 9% of the respondents classified the shape by 35 different ways: 5, 9, B, c, d, ellipse, polygon, pyramid, trapezoid, triangle, wide triangle, five triangle,

equilateral, diagonal, diamond, shape, multiple direction, architecture, oriental architecture, perspective of the house, house, pool, magician card, pot, star, cake, tin, crown, crown of the king, logo of the Chrysler, France, mass and indicates sharpen, geometry, risky. 24% did not answer the question (N= 414).

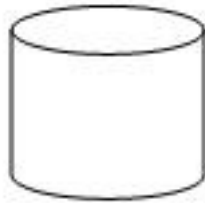


Figure 48: Research Figure - Cylinder shape

Fifty six percent of the respondents labeled the Figure 48 a cylinder and 2% cube.

19% of the respondents recognized the shape:

- 3, 9, b, C, - box, round, 3D round, round box, round cube, round prism, square, circle, thick circle, 3D circle, circular box, ellipse, oval, oval cube, vertical, vertical cylinder, half cylinder, prism, cube, globe, graphical drawing of triangle, column, cone, bucket, dimension of the bucket, symmetry, pipe, roll, spiral, chocolate box, money box, gel box, pencil tray, oil storage, tanker, conserve, children pool, trashcan, cheese, macaroni, cup, glass, candle, hopper, pouffe, drum, chart, stage, stair, well, sun, Rome, and indicates height, high (point and so on.),three dimension (3D) and softness. 23% did not answer the question (N=417).

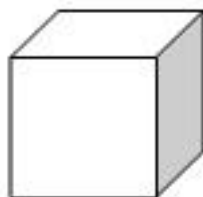


Figure 49: Research Figure - Cube shape

Sixty five percent of the participants labeled the Figure 49 a cube, 6% box, 5% square, 2% prism. 8% of the participants categorized the image as other geometrical shapes, (see Table 9), and - 6, a, D, dice, stool, trestle, plane or they mentioned that shape indicates perspective, bevel, depth, analytical, discontinuity, heat, infinity, normalcy, laziness, sadness, shadow, similar thought, XSI Softimage (high-end 3D graphics application developed by Softimage). Fourteen percent did not answer the question (N=468).

Table 9: Categorization of the Cube Shape with Other Geometrical Shapes

Box	Cube	Square	Rectangle	Other
box (3D)	cube (3D)	square (3D)	rectangle(3D)	quadrangle
box – Pandora		square (2D)		prism
Box (closed)		square (dimensional)		
box (gift)		square with landscape		
Box (open)		crowded two squares		
box(with shadow)	cube – box	square - box		

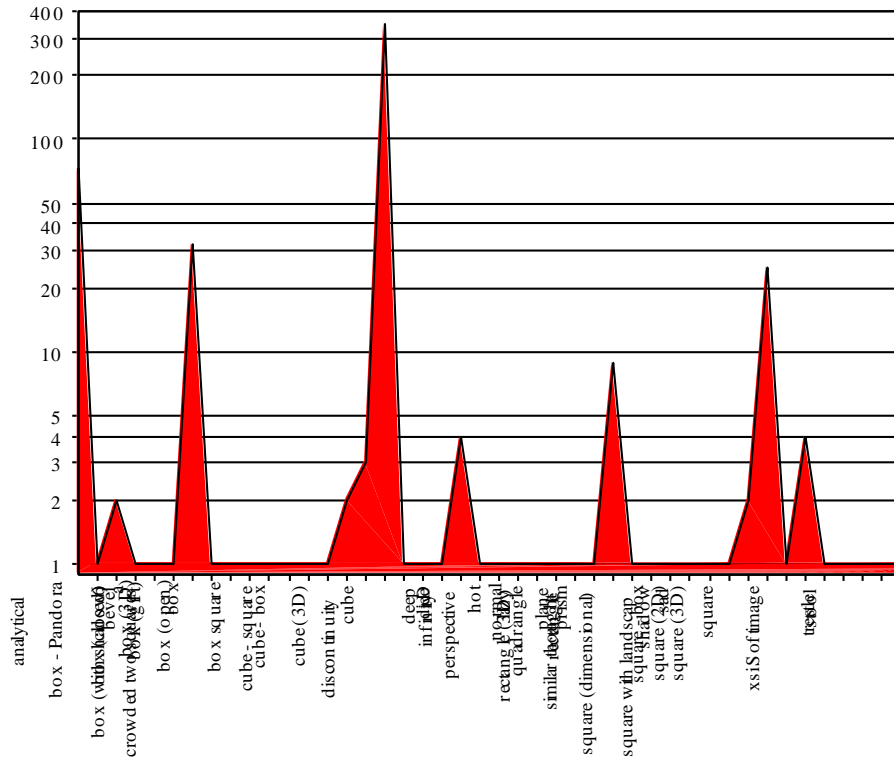


Figure 50: Chart of the cube shape

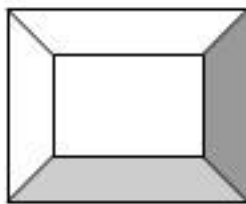


Figure 51: Research Figure - Bevel [rectangle] shape

Fifteen percent of the participants stated that the above Figure 51 was a frame, 8% rectangle, 4% button, 4% pyramid, 2% crowded rectangle, 2% prism and 2% square. 28% of the participant categorized the shape -4, A, a, e- box, hexagon, cone, quadrangle, rectangle, cube, prism, pyramid, parallelogram, trapezoid, square, 2D-square, 3D-square, 4D-square, 3D-rectangle, crowded circles, crowded quadrangle, crowded rectangle, crowded rectangles, perspective view of the box, perspective

view of the cube, behalf cube, diamond, dimension of the quadrangle, two rectangles, two squares, two merged square, empty parallelogram, unconnected parallelograms, half prism, linear pyramid, open cube, vertical rectangle. They mentioned that shape represented a diamond (jewel), vase, frame, plasma, perspective view of the ceiling, half hedge, letter, roof, bullion (i.e.: gold), button, arabesque, bald, glass, cat, chocolate, envelope, house, mirror, photograph, photograph frames, plate, empty trash bin, perspective view of the TV, roof, perspective view of the room, sun, (painting) table, tower, tray, TV, well, 3D screen and window. Also respondents stated that shape indicates linearity, depth, symmetry, perspective, conjunction, closer, incomplete and half. 35% did not answer the question (N=349).



Figure 52: Research Figure: Sun figure

Sixty percent of the participants described the shaped displayed in Figure 52 as a sun, 6% circle and triangles, 2% round and triangles. Ten percent categorized the figure in the following terms:

4, b, d, c, b, E, circle, triangle, circle and triangles, 4 lines, day, day light, light, morning, night, star, sun, sun lights diffuse in 8 way, sun, ninja star, round, triangle and oval, round table, perspective of the table and chairs, meeting table, a cannon ball, flower, perceived objects, pattern, directions, freedom, lazy, hot, in heat, range, shelter, spike, symbol, wheel, (Alice in Wonderland) Alice with chain, (participant

was referring to himself) me, (solar god in the Egyptian pantheon) RA and (pop singer in Turkey) Kenan Doğulu. Twenty-two percent of participants did not answer the question (N=342).



Figure 53: Research Figure – Disconnection; Rectangle shape

Thirteen percent labeled the shape displayed in Figure 53 a rectangle, 7% quadrangle, 6% four lines, 6% lines, 4% square, 3% line, 2% divided rectangle, 2% open rectangle, 2% incomplete rectangle, 2% labyrinth, 2% horizontal and vertical lines by the respondents. 16% of the respondents recognized the shape:

- 9, A, e, f, - two linear line, four parallel lines, box, incomplete quadrangle, divided quadrangle, divided square, parallel, line, linear lines, straight lines, parallel lines broken lines, matchstick, matchstick box, matchstick puzzle, not stick rectangle, parallel, parallel lines, pentagon, quadrangle, cut quadrangle, quadrangle without edge rectangle, broken rectangle, cut rectangle, linear rectangle, rectangle with no boundaries, rectangle with parts, rectangle without edge, ring, square, cut square, unconnected from corner, unconnected lines, unconnected rectangle, thin lines, Atari game, labyrinth, labyrinth - snake game, mouse labyrinth, gate for snake, film strip, donut, prison, room, split golden section ratio – architectural, sun, tired , window, garden, football field, cinema screen, Chinese symbol, cash of the car, car park, car without tire, head, hedge, dream and sign indicating the concept of equal, boundary, undecided, discontinuity, hesitant, incomplete, unlimited, pointless, escape exist, drawn, ready to merge. Thirty-five percent did not answer the question (N=356).

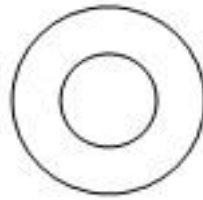


Figure 54: Research Figure - Ring shape

Twelve percent of the respondents labeled the Figure 54 crowded two circles, 10% two circles, 7% circles, 7% round, 6% simit (ring-shape savory covered with sesame seeds), 6% (car) tire, 5% ring, 2% crowded rounds. Six people categorized it a 'polo candy' and other six of the respondents stated a button. 26% of the respondents did not answer the question. 19% of the respondents categorized the shape:

- 2, 9, b, C, - empty circle, half circles, double circle, thick circle, one big one small circle, set of circles, double round, two empty circles, two cylinder, empty cylinder, ring, round, two rounds, oval, crowded two lines, perspective view of the cylinder, perspective view of a funnel, perspective view from the inside of a pipe, perspective view of a vase, crowded, crowded ring, crowded rounds, crowded sets, crowded two balls, hole, candy, donut, well, moon, button, ball, lamb, tire, life buoy, plate, pimple, eye, bird eye, human, Mexican having a siesta, pagan, radar, hot spot, dart, target, target board, candle, UFO, zero, pair, depth, protective symbol, complementary symbol, conservative symbol, objective, personality, and first letter of Oğulcan (N=408).

5.4.2 Organization of components in terms of Gestalt Principles

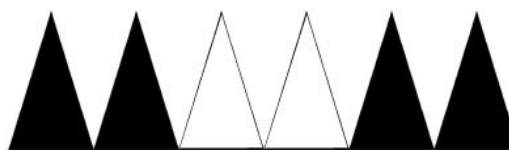


Figure 55: Research Figure - Two-different color of the triangle shape

Thirty-five participants responded that the shape represented in the above Figure 55 was a triangle, line or pyramid shape.

Thirteen participants grouped by colors:

Four black - two white triangles, four filled, positive-black, and negative-white:

Two empty triangle, white triangle (focal point), empty triangle.

Eighty-eight participants used the following associations to express the shape:

backgammon, puzzle, ear (i.e.: rabbit), forest (chain), grass hill (6 hill- 2 white hill behind than other), mountain (i.e.: twin, chain, black and white), snow climate, tooth (i.e.: monster mouth, shark, sharp) castle, crow, crown (i.e.: 2 D crown), hat (i.e.: Indian), tent, thorn, trap, roof, barrier, traffic law, human in dark, balance, harmony-harmonious, sharp, basic design, contrast, deficiency, difference (i.e.: white triangles), disorder, discontinue, disturb, expression, in between, loneliness, minority, opposition (i.e.: white-black), process, symmetry, repetition, order, seriousness and separate groups.



Figure 56: Research Figure - Two-different colors of the ring shape

Twenty-five participants grouped the images in Figure 56 by shape:

Circle (i.e.: twelve circle, two circle forms an 8), line and round.

Seven participants grouped through colors: Positive and negative (3-2 + 3- 1), four black - two white circles, empty and filled circles.

Ninety-seven participants stated the following associations to express the grouping: activation, basic design, chaos, confusion, difference, disharmony, disorder,

dynamism, exception, fail, filled, imbalance, incite, inharmonious, join – flow, loop, meaningless, motion, no difference, order, list, pivot (mil), progress, relive, unbalanced, unity, Olympic, ‘O’ letter, Backgammon dice, ball (i.e.: bowling ball), button, chain, chair, Mexican, Lucky Strike (cigarette brand), *Famecity* (computer game), eye, eye glass, lamp, car headlight, lorry, locomotive, train, car-tire (4 black - 2 white), Frisbee, speaker, target board, simit, sweet, candy, polo, bracelet, earring, ring and weak chain.



Figure 57: Research Figure - Two-different direction of the arrow shape

Twenty-one participants grouped the image represented the above Figure 57 by shape as an arrow, line, arch and vector.

Thirteen participants grouped by direction:

up – down, vertical- horizontal, ascend – descent, left – right, cross, dual way, opposite direction, opposite way, linear, asymmetry and parallel line.

Eighty-seven participants express grouped with association:

Adidas logo, air current, barcode, border, carpet pattern, circulation, collapse of Atatürk principles, conflict, confusion, dynamic, elevation – lowness, esteem, flash, indefiniteness, infinity, life, light, lightning flash, low pressure - high pressure, match, inexpressive, monotony, motion, motorway, opposition (i.e.: idea, we-they there-her good-bad) parallel wind, parallelism, pipe, rain – thunderbolt, rain, road (i.e.: ways), rule, sign, way, slippery, stable, stick exchange, sunlight, mirror, technology, timeline (i.e.: ascent and descent), traffic, traffic flow, traffic sign, dead-

end road, motion (i.e.: up-down), pressure (i.e.: up-down), vertical limit, weather cast, wind, and wire.



Figure 58: Research Figure - Two-different color of the square shape

Fifteen participants grouped the image represented in the Figure 58 as a square, box and line.

Sixteen participants grouped by colors:

- 1 1 4 -, white square focal point, white empty box, 5 black and 1 white square, 5 filled - 1 empty, 6 black 1 white square, 6 square, 1 missing, active (open) box, active (selected) square, black square, box: 5 black 1 white empty square box , active button, selected square and light (i.e.: dark, open).

One hundred and two participants expressed the grouping as representing the following associations:

Against, alone, barrier, broken, queue, difference (i.e.: difference take attention), disorder, dreary, inharmonious, game, 'I' letter, leadership, compulsion, loading, loneliness, difference, noble, out of balance, presence, privilege, elite, radical, separation, singular , illuminate window, brick, button (i.e.: web) cigar, door, pin code, right pull, puzzle, sugar box, traffic light, broken film tape, film, film frame, film tape, locomotive, railway – train, train rail, TV screen, wardrobe, one is open window - white open window.

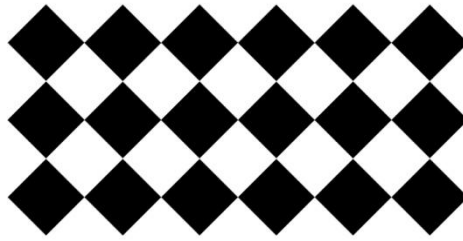


Figure 59: Research Figure - Pattern form from square (diamond) shape

Fourteen participants grouped the Figure 59 as a shape: diamond, square, eighteen square, triangle, line and eighteen quadrangles.

Five participants grouped by colors: filled and empty square, black and white square and amount of the shapes counted in the each row as -six black-five white-six black-five white-six black-(6 5 6 5 6). Fifty-six participants used the following associations to describe the shape:

cheat, continuity, discontinuity, equality, order, harmony- harmonious, hold, integrity, intersection, optic illusion, order, out of order, protrude, perspective, pessimism, repeat, symmetry, two piece, wholeness and x letter.

Sixty-three participants described the figure and ground patterns on the above figure as follows:

Sliced baklava, backgammon checker, chess board, checkered flag, chair, cinema saloon, café, carpet pattern, pattern (repeats), wall frieze, diamond ceramic, game - grand prix, rally-race flag, necklace, playing card diamond, puzzle, sock, sweater, table cloth, Marley, texture and vans shoe pattern.

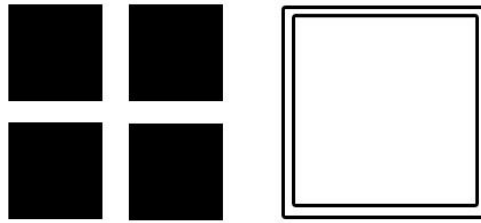


Figure 60: Research Figure - Two-different color and forms of the square shape

The above Figure 60 was described as three different geometrical shapes by twenty-seven participants. These shapes were: a square, (i.e.: divided, separate), a line and a box (i.e.: 5 fill).

Four participants grouped the same shapes by color:

One white - one black square, 4 black - 1 white square, 4 black square forms a square, 4 filled squares, filled and empty squares.

Ninety-nine participants used the following terms to describe the associations:

Geometric shape, alternative, architectural, balance, basic design course, border, challenge, complete, cross, filled, contradiction, dark and light, deficiency, difference, divided, division, opposition, piece and whole, separation, freedom, finite, imbalance, in-out world, induction, loneliness and togetherness, loop, lover, middle ages, ordinary, other side, out of order, riches and poorer, share, sulky, whole and piece, Symmetry, order: like logo, flag of Sweden, cross, table (web), monitor, TV and speaker, TV box, window, frame and mirror.

5.4.3 Associations Displayed Between Color and Shape

Participants were asked five questions relating to the color design task of the perfume bottle. Hundred-and-eighteen participants were administered these questions (thirty-six females and eighty-two males). They specified their target audience for the perfume. Twenty-one female chose a female audience, four females chose a male audience and eleven females chose a unisex audience. Female and male targets were

chosen equally (twenty-eight) between the male participants. Twenty-six male participants' chose a unisex target for the perfume. Figure 61 shows participants' intention on target of the perfume.

Count		perfume target			Total
		female	male	unisex	
Sex	female	21	4	11	36
	male	28	26	28	82
Total		49	30	39	118

Figure 61: Gender intention on gender target of the Perfume bottle design.

Which color do you assign to the perfume bottle?

Participants' chose twenty-two different colors and color combinations. The Table 10 shows color choice for the perfume bottle.

Table 10: Participants' color choice for the perfume bottle.

One Color	Two Color	Detail Color
Black	Cream – Red	Lilac
Bronze	Red – Black	Blue (i.e.: Dark, Grey, Ice, Indigo, Light, Night)
Silver	Red – Blue	Cream (i.e.: Golden)
Transparent	Blue – Pink	Green (i.e.: Phosphoric)
Turquoise	Pink – Purple	White(i.e.: Ice, Metallic)
Red	Purple – Lila	Pink (i.e.: Light)
Khaki		Purple (i.e.: Close To Blue, Light)
Orange		Red (i.e.: Claret, Dark, Rose)

Color

Participants were queried as to their choice of color.

Blue: Thirty participants chose blue for the perfume bottle. Participants mentioned that blue is a masculine color; it is not a feminine color but both females and males like blue so that it could be use as a unisex color. Blue is a sexy color and attracts male attention. It symbolizes freedom, power, and masculinity. It is the color of city life, cool, hard and cold. Blue represents water, cleanness, freshness, coolness and

holiness but also it doesn't signify direct information. Participants mentioned that they liked the color blue.

Red: Red was chosen by eighteen participants in the design of the perfume bottle. Red represents woman. It symbolizes love, passion and pleasure. It is a symbol of sex and sexuality. Red makes a woman more feminine. It is a spicy color. It represents fire. Red is an eye catching and attractive color. Participants used the following terms to explain their choice of red: feminine, vamp, sexy, effeminate, dazzling, impressive, lively, the color of passion, attractive and a unisex color.

Pink: Eleven participants chose pink. All participants agreed that women like pink. Participants mentioned that it is a woman's color and that it suits them. Also participants used harmony, glamour, feminine, attractive and authentic as terms to describe pink.

Black: Eight participants used the following terms for black: attractive, a classic color, hard, ripe, charismatic, mysterious, pure, powerful, and a masculine color.

Transparent: Eight participants chose a transparent perfume bottle as it is clean, pure, mysterious, determined, minimal and natural terms, and also unisex color. Participants mentioned that they liked transparent.

Purple: Seven participants chose purple to represent both women and men. Participants also mentioned that it is a feminine color; a masculine color; a unisex color; woman liked purple; participants' favorite color; and they liked the idea.

White: White was chosen by five participants. Participants mentioned that they liked the color. Additionally participants stated that white doesn't represent sexuality and it is a unisex color. It symbolizes cleanness and purity. It doesn't suppress the facts.

Yellow: Four participants chose yellow which characterizes floral colors. Participants stated that it does not represent sex. Participants used ‘pretty’ term to express why they chose yellow.

Orange: Three participants stated that orange does not represent sex. Also they mentioned that it was a light and peach color.

Silver: Three participants chose silver in order to symbolize the millennium, fashion, technology, quality and modern.

Turquoise: Three participants stated that turquoise is a color of peace and spaciousness; Men like cold colors; it does not represent sex.

Green: Three participants chose green in order to attract attention and signify unisex. Participants stated that green does not give out the feeling of *disgust*.

Grey: Two participants argued that grey attracts attention; Men are primitive and de-saturated.

Lilac: Two participants mentioned that Lilac is a soft color and represents a woman's softness. One participant stated that woman *like* Lilac.

Bronze: One participant stated that bronze is an attractive color.

Cream: One participant stated that cream is a *dazzling* color.

Cream and Red: One participant associated *innocence* with cream and *sexuality* with red.

Blue and Pink: One participant stated that blue and pink were *male* and *female*.

Red and Blue: One participant mentioned that red and blue were *female* and *male*.

Khaki: One participant stated that it is a color of *confidence* and *naturalness*.

Rose: One participant chose rose as an *attractive* color.

Pink and Purple: One participant mentioned that the combination of pink and purple stands for *feminine* color.

Purple and Lilac: One participant mentioned that both purple and lilac indicates *riches*.

Red and Black: One participant stated that red and black represent *passion*.

Symbolic Meaning of Color

Participants were asked what the chosen color symbolized.

Black: Eight participants stated the following terms: depth, elegant, attractive, purity, life, dark, lost, loneliness, blank, power, charisma, pure, order, simple and quality.

Blue: Thirty participants mentioned that blue symbolizes Fenerbahçe (Turkish football team), alcohol, money, sex, calmness, relaxation, fresh, cleanness, freshness, cool, cool color, sky, freedom, purity, infinity, deep, masculinity (i.e.: dark blue) masculine, modern, night, ocean, depth, power-man, prestige, romanticism, sea, shower, spacious, cleanness, trust and water.

Blue and Pink: One participant declared the blue and pink symbolizes *calmness* and *relaxation*.

Bronze: One participant stated that bronze symbolizes *attractiveness*.

Cream and Golden: One participant mentioned the golden and cream symbolizes *smartness* and *impressiveness*.

Cream and Red: One participant mentioned that cream and red symbolize innocence (cream) and sexuality (red).

Green: Three participants mentioned that they liked green; it is not an ordinary color.

Grey: Two participants mentioned that grey symbolize calmness, the unexpected, stability and purity.

Khaki: One participant – lonely confidence and friendship.

Lilac or Lila: Three participants mentioned that lilac symbolizes attractiveness, freshness and spaciousness.

Orange: Three participants stated that orange symbolizes visibility, pleasantness and lightness.

Pink: Eleven participants mentioned that the pink symbolizes femininity, innocence, attractiveness, life, identity, naturalness, sweetness, peace, trust, lightness, sense, representation of a female, freshness, purity, beauty and pleasantness.

Pink and Purple: One participant stated effeminate.

Purple: Seven participants' chose the words lover, maturity, mystery, unidentified, chaotic, pretty, childish, sex, sky, spring and love.

Purple and Lilac: One participant stated richness.

Red: Eighteen participants responded that red symbolizes attractiveness, sex, sexiness, sexuality, wildness, relaxation, uniqueness, passion, nobility, mysteriousness, love, liveliness, motion, fire, that it was a feminine color, femme-fatal, angry and effeminate.

Red and Black: One participant has been chosen red and black and did not stated symbolic representation of the colors.

Red and Blue: One participant mentioned that using both red and blue together symbolizes warmth (red) and coldness (blue).

Rose: One participant declared freedom and difference.

Silver: Three participants stated media culture, modern life, civilization and modernity.

Transparent: Seven participants stated limpidity, fresh, freedom, cold, clean, natural and cool.

Transparent and Grey: One participant chose the word loner.

Turquoise: Three participants stated clean freshness, the sea, peacefulness, spaciousness and nature.

White: Five participants declared cleanness, freedom, purity, spaciousness, medical and smooth.

Yellow: Four participants stated that yellow symbolize a - pure, cleanness, richness, and materiality and not satisfied. Also participants mentioned that 'I like yellow'.

Emotional Meaning of Color

Participants were asked what emotion was evoked with the chosen color of perfume bottle.

Black: Eight participants stated that black is a sign of - anger, something awful, confidence, good-bad, pessimism, mystery, power and the unreachable.

Blue: Thirty participants declared the following terms: wet, trust, sexual emotion, relaxation, pure and clean, presence and liveliness, presence, melancholic, masculinity, lukewarm, infinity, cold, and hard, freshness, fresh, cool, freedom, excitement, falling in love, attractive, confidence, calm, ripe, boring-characterless, beauty, exuberance, attractiveness, attractive and charming.

Blue and Pink: One participant stated *excitement* and *relaxation*.

Bronze: One participant chose hot and love.

Cream and Golden: One participant stated pleasant, smart and different.

Cream and Red: One participant mentioned peace and cleanliness for cream, sexuality and pretentiousness for red.

Green: Three participants stated nausea, passion and the military.

Grey: Two participants mentioned calm, naturalness, a sense of peace and presence.

Khaki: One participant stated confidence and naturalness.

Lilac or Lila: Three participants chose relaxing, calm, presence, pure, clean and natural.

Orange: Three participants stated falling in love and relaxation.

Pink: Eleven participants stated the following terms: confidence, euphoria, madness, beauty, feminine and alive, happiness, love and emotional, naturalness, opposite sex, peaceful, pure, freshness and sweet, purity, woman's freedom and femininity.

Pink and Purple: One participant chose candy.

Purple: Seven participants stated the following for the color purple: glamour for woman, romanticism, self confidence, spaciousness and undecided.

Purple and Lila: One participant stated that purple and lilac presented positive emotions.

Red: Eighteen participants stated the following terms: cheerful, erotic, excitement, exotic, happiness, hot and euphoric, liveliness, motion, love, exuberance, trust, nobility, irritable, savagery, sex, sexual desire, lustful, sexuality and wildness.

Red and Black: One participant stated presence.

Red and Blue: One participant declared lukewarm.

Rose: One participant stated romanticism.

Silver: Three participants chose consumption, dynamism and peace.

Transparent: Seven participants stated sincerity, sensitivity, freedom, a muse as a color, minimal, limpid, fresh, motion, and health.

Transparent and Grey: One participant stated relaxation.

Turquoise: Three participants mentioned spaciousness, freedom, nature and peace.

White: Five participants mentioned love and happiness, pure, pure love, purity, loneliness and relaxation.

Yellow: Four participants stated that the yellow indicated something pleasant, relaxation and splendid.

5.5 Object Perception

5.5.1 Recall and Recognition of the Graphical Images

Image Projected via Projector

Seven female and thirty-one male VCD students from YU and IBU participated in the following part of the research instrument. Participants were exposed to a displayed image [see Figure 34] for 5 seconds and asked to write the first item they saw. Later, students had an extra 20 seconds to look at the image and write more about what they saw.

What did you see first?

Twenty nine percent of the respondents mentioned that they had seen a man first. 24% of the students stated a car and 18% a face. Eleven percent of the respondents stated a bird. Eight percent of the respondents mentioned that they saw a collage of images. Five percent of the respondents saw an eye. The image was described as a clown and a speaker by two respondents.

Table 11: Distributions table of the first perceived items

Items	Respondents	Percentages
Man	11	29 %
Car	9	24%
Face	7	18%
Bird	4	11%
Collage	3	8%
Eye	2	5%
Clown	1	2.5%
Speaker	1	2.5%

Table 12: Cross tabulation of gender and first perceived items

Items	Female	Male
Man	3	8
Car	1	8
Face	1	6
Bird	-	4
Collage	1	2
Eye	1	1
Clown	-	1
Speaker	-	1
Total	7	31

What did you see second?

Thirty-one percent of the participants stated that they saw a car second. Sixteen percent stated a face, twelve percent a guitar, seven percent of the participants saw an eye. Six percent of the participants declared that it was a collage of the images. Four and a half percent mentioned a bird and four and a half percent stated a man. Ten percent of the participants did not answer the question (N= 72).

Printed Image given to participants

One hundred and ninety-two students from EMU, GSU and MU were administered the following questions. The respondents included 69 females and 109 males. Fourteen participants did not state their gender. Participants were asked to write the first item and second item they saw in the printed image [see Figure 34].

What do you see first?

Thirty percent of the participants perceived a car first, 28% percent a face, 25% a man, 5% a bird, 5% an eye, 3% a guitar, and 3% a toy. One participant identified a whistle. Three participants didn't answer the question (N=192).

Table 13: Distribution table of the first perceived items

Items	Respondents	Percentages
Car	59	30%
Face	55	28%
Man	48	25%
Bird	10	5.1%
Eye	9	4.6%
Guitar	5	2.6%
Toy	5	2.6%
Whistle	1	0.5%

Table 14: Cross tabulation of gender and first perceived items

Items	Female	Male	Not Specified
Car	17	41	1
Face	13	35	7
Man	26	19	3
Bird	5	4	1
Eye	5	3	1
Toy	2	3	-
Guitar	1	3	1
Whistle	-	1	-
Total	69	109	14

What do you see second?

Forty-seven percent of the participants recognized a car, 11% face and 13% guitar, 5% eye and 5% bird, 4% man 3% whistle. Four percent of the participants stated a collage of images, and speakers. One percent of respondents identified the image as a hand, a mouth, a trumpet, and a CD. Eight participants did not answer the question (N=192).

Chapter 6

INTERPRETATION OF THE RESEARCH FINDINGS

The major findings from this study are based on the data I collected through questionnaires, observation and interactions with the visual design students. Chapter five presented a partial analysis of the findings. It serves as a section that conceptualizes the study based on visual design students and current VCD education. Chapter six is intended to be a complement to the chapters in those findings, observations and interviews with participants blended together.

6.1 Profile of VCD Candidates

Findings suggest that all VCD candidates are using computers everyday mostly in order to access the Internet and especially for chatting. It shows that they are not using computers for production but merely for the purpose of leisure. Another important finding in the research is that candidates were reluctant to read printed media such as books, magazines or newspapers. It seems that computers and the Internet are an easy substitute to entertainment and social interactions via instant messenger and/or social networks.

As an assumption we could state that the use of computers and the Internet is time consuming and leaves very little space for hobbies such as sport, playing a musical instrument or reading. These hobbies can be considered to be active pursuits. Through the findings, it was shown that pleasure was mostly found in passive activities, which were utilizing consumerism. For example, listening to music is a

passive action, but playing and learning a musical instrument or drawing are active processes. Visiting museums or exhibitions are a way of forming a novel cultural perception which doesn't coincide with a life of interests in the passive media. This could explain the hesitation of students to actively participate in visiting cultural institutes, like museums and art exhibitions.

Using a computer is a form of leisure which relies on consuming and has little to do with production or creation. Because of this, a discrepancy between the student's conceptions of what a computer entails conflicts with the use of a computer as a production or creative medium. The gap between the different interpretations forms a tendency of implying consuming emotions to recruit new students for production and creative positions. A danger occurs of sketching a false image in order to get a student quota. Literally, candidates are incompetent at expressing their opinion about VCD, but approximate descriptions lead to the 'act of seeing'. This lack of knowledge generates a vulnerability in the candidate's choices, which might lead to the easy manipulation of aspirant candidates by institutes offering VCD, and can also be considered a reconstruction of a fraudulent image.

Although VCD has recently developed as a study with appropriate publicity towards pre-university education institutes, a significant lack of support by school mentors or school counselors to advise students can be detected as a result of the knowledge gap of VCD. This can also be interpreted as a distrust towards the credibility of this education in the productive or creative industries. The findings shows that students are limited yet pro-active in searching the Internet about VCD and that a significant percentage acquired advice from their relatives in choosing this education.

Noticeably the majority of the families had no professional interest in VCD and this significantly contradicts the majority of students' in choosing this field of study.

VCD candidates were not familiar with VCD education. However in their opinion VCD education is focused on ICT such as the Internet, multimedia, web design, electronic graphic, animation and rarely photography(Third years VCD Students, 2007).

6.1.1 Profile of VCD Students

In parallel to the above findings, registered VCD students stated almost similar answers considering VCD. For the purpose of understanding students' perception on VCD education, one-to-one interviews with students were conducted. They declared that when they registered to join the VCD department, they were not sure what VCD education was about. They were using design software packages such as Photoshop in which they were interested to gain more desktop publishing design skills. They also stated that they saw brochures of VCD departments which show students using a computer (PC or Macintosh), a graphical pen and all other digital tools in their class, and that is how it influenced them to chose such institutes to get an education in VCD (Third years VCD Students, 2007).

The majority of the VCD students are in possession of a computer. It is significant that 2D design, web design, photography and moving images were their favorites, rather than 3D design or artistic design. VCD candidates' and students' understanding from VCD education significantly overlaps with web design, 2D design and photography. More than half of the participants displayed significantly positive attitudes towards the visual arts and design in their daily life. Their approach

towards visual arts and cultural life changed positively and drives most of the candidates' orientation.

6.1.2 Teaching – Learning

After the analysis, the data gathered via the questionnaires showed that the majority of students registered in VCD courses shared positive opinions about offered teaching methods regardless of teaching methods both studio or lecture. It is then assumed that students haven't developed a healthy dose of criticism or simply lack expressing critique. In order to improve curriculum a profound system of transparent criticism and openness of accepting critique will be one of the requirements.

Interviews with professors who taught studio courses reveal that students have concentration problems when asked to work or study conceptually in the studio (VCD instructors, 2005).

It was pointed out by some of the professors who allowed the use of their class time for data collection that they observed students frequently concentrated on ICT for the purpose of amusement instead of content (VCD instructors, 2005). As recognized for instance in a design course such as computer graphics, which is supposed to be taught in the studio. For this specific purpose, students have to learn and use software packages. During a course, students need to complete a conceptual task or assignment in each session by using the tools for design purposes. However, professors observed that the ability to use tools like special effects and filters, deactivate conceptual concentration and students were unable to apply their fresh experience within the conceptual framework.

Consequently, expressed content in assigned projects became a special effects salad. The practice of a new experience or skill is a positive consequence for progression in a course as well for knowledge, however a majority of students develop an attitude towards these as being merely a leisure - such as ICT concentration - while erroneously presuming that they develop their conceptual skills.

6.1.3 Students Perception on Trends

Students believe their teachers, who are practical active professionals and are occupied with other task such as corporate jobs or institutional assigned works that frequently result in absences in the classrooms(VCD Students, 2005). Absences of ‘famous’ professionals in the classrooms are leading to filling the teaching gap with ‘course assistants’, who are taking the responsibility of teaching activities and guiding coursework. As a result they believe their institutes used those ‘famous’ people to attract aspirant candidates, which rarely leads to a higher quality education offered by the institutes (VCD Students, 2005).

6.1.4 “Expert” Professionals Perception on Trends

Commercial worries forces foundation institutes to find ways to attract students for new schools and education. They use celebrities to create an image which secretly says you can be one of them. At the same time, it creates stereotypes for graduates. Another meaning of hiring celebrities is to give a reference to the socioeconomic power of institutes.

There are two groups in this category:

- Expert celebrities (EC)
- Expert academics (EA)

It is common to see celebrities in media and applied art studies. Their field experience is an essential source for students. However, academics didn't feel appreciated with this policy; several (academic) interviewees emphasized that celebrities were not following regular timetables, books or teaching materials. Also they were not participating in any faculty-departmental meeting. Therefore the curriculum didn't gain any advantages from celebrities.

Expert academics are the victims of this system. They are skillful, aware and knowledgeable on social theory. The institutes use this power to share skillful academics with public relation offices. Interviewee EA, described his oppressed situation as “the institute or the administration is my boss. They have power to re-define my duties, such as teaching or doing other institutional services. I mean unpaid extra assignments next to my teaching duties. For instance, my profession is photography. Sometimes I get calls from “the boss” who says go somewhere and take photos for some reasons that the institute needs. ’ (EA 2006, September 16).

Teaching needs dedication, pedagogy, epistemology and continuity. But teaching and learning is not limited to the classroom. To create a relation between the sector and institutes is very necessary. Therefore, it is better to organize regular workshops with celebrities as an alternative to teaching duties.

6.2 Visual Perceptions

In this research, it was assumed that geometrical shapes and figures are well-known concepts by the research population. It was the initial point to investigate visual perception to highlight ‘the way of seeing’ (Berger J. , 1972). We demonstrated geometrical shapes and figures to have an advantage on ‘conceptual control’ in the

process of abstract thinking of concrete representation (Fischbein, 1993) Research figures composing references for the analysis that geometry already possesses *simultaneously* (Fischbein, 1993). More specifically, ‘conceptual and figural properties’ of the geometrical shapes leads us to interpreting respondents’ perceptual experience (Fischbein, 1993; Kress & Van Leeuwen, 2001; Costa & Cesar, 2000, p. 537). The mathematical perspective of Costa and Cesar (2000) on shape definition was partly adopted to capture properties of the shapes in order to covert into a semantic analysis.

To classify = the act of assigning classes to objects (Costa & Cesar, 2000, p. 536).

Following classification methods illustrated by Costa and Cesar (2000, p. 537):

- a- *Learning*, corresponding to stage where the criteria and methods are tried on the prototypes [in definition: developing patterns].
- b- *Recognition*, when the trained system is used to classify entities [in definition: matching, labeling and/or recalling patterns].

6.2.1 Classification of the Geometrical Labels

Findings suggest that labels of the geometrical objects can be categorized into two classes:

1. **Simple:** Valid geometrical descriptions have been classified as *simple*.

The majority of the respondents used valid geometrical labels for eight shapes. Following list illustrating to the class of objects:

- Square: Eighty-seven percent
- Triangle: Eighty-six percent
- Pentagon: Sixty-five percent
- Cube: Sixty-five percent
- Circle: Sixty-two percent
- Octagon: Sixty-two percent

- Cylinder: Fifty-six percent
- Ellipse: Forty percent

2. Complex: Invalid geometrical definitions have been classified as *complex*.

Respondents used minimum two and more geometrical description for seven geometrical objects. Following descriptions demonstrate complexity:

- Lozenge form of square:
 - Square: Twenty-six percent:
 - Quadrangle: Eighteen percent
 - Vertical square: Four percent
- Parallelogram:
 - Rectangle: Twenty-nine percent
 - Parallelogram: Fourteen percent
 - Trapezoid: Seven percent
- Arc:
 - Half circle: Fourteen percent
 - Rainbow: Five percent
 - Half moon: Three percent
 - Half ring: Three percent
 - Half simit (Turkish pastry): Three percent
 - Arc: Four percent
 - Telephone: Two percent
 - Magnet: Two percent
- Trapezoid:
 - Bucket: Eighteen percent,

Trapezoid: Ten percent

Glass: Six percent

Quadrangle: Five percent

Vase: Five percent

Planter: Three percent

Rectangle: Three percent

- Bevel shape:

Frame: Fifteen percent

Rectangle: Eight percent

Button: Four percent

Pyramid: Four percent

Crowded rectangle: Two percent

Prism: Two percent

Square: Two percent

- Disconnected-rectangle:

Rectangle: Thirteen percent

Quadrangle: Seven percent

Four lines: Six percent

Lines: Six percent

Square: Four percent

Line: Three percent

Divided rectangle: Two percent

Open rectangle: Two percent

Incomplete rectangle: Two percent

Labyrinth: Two percent

Horizontal and vertical lines: Two percent

- Ring:

Crowded two circles: Twelve percent

Two circles: Ten percent

Circles: Seven percent

Round: Seven percent

Simit (ring-shape savory covered with sesame seeds): Six percent

Tire (car): Six percent

Ring: Five percent

Crowded rounds: Two percent

6.2.1.1 Conceptual Simplicity and Complexity

We can assume that the *similarity* between an oval and ellipse is a complex fact in the labeling process. Twenty-nine of the participants were recognizing the Figure 39 as an oval. Forty percent of the participants were correctly recognizing the ellipse. In fact, from mathematical perspective, ‘shape features’ of the ellipse is an oval, but an oval may not be an ellipse (Costa & Cesar, 2000, p. 3). The character of an ellipse plays a fundamental role in matching and labeling. Here, both ellipse and oval can be a valid identification for this shape. In total, sixty-nine percent of the respondents matched it among the (sub-) form of the oval.

We concluded that respondents had a similar identifying problem on the parallelogram, rectangle and the lozenge form of a square as in the ellipse-oval dilemma. In a mathematical perspective, a square has four equal length sides and four right angles. Both the rectangle and parallelogram have four sides and only the opposing two sides are parallel and have the same lengths. The parallelogram has

two acute angles but the rectangle has four right angles. Briefly, both indicate that a square and a parallelogram is a rectangular entity. The Figure 37, a square, is in it's entirely 45° rotated, and still has the same four length sides and four right angles.

Findings show that ellipse recognition is based on characteristic quality (i.e., degree of roundness, being a sphere), while a cube shape is been recognized on composite invariance (i.e., perspective, depth).

It can be argued that similarity in a formal manner can be encoded relatively. For instance, curve based shapes, particularly; an arc shape is insignificantly described among the other geometrical shapes. Also, the arc shape has been identified as an incomplete or a half shape by respondents. The respondents (in fourteen percent of the cases) have attempted to describe its similarity with a half 'simit', or geometrical qualities with a (half-) circle but they reduced other formal elements such as lines and dots.

According to Costa and Cesar (2000), 'shape complexity is commonly related to spatial coverage in the sense that the more complex the shape is the larger its spatial covering capacity' (Costa & Cesar, 2000, p. 439). Also 'when more landmarks or dimensions are used, the shape space becomes more complicated' (Lester P. E., 1997, p. 77). It shows that each element such as a line has other formal elements like space and dimension and hence involves *perceiving* objects.

Dondis (1973, p. 17) argues that 'simplicity has negative aspects' and 'limited potentials' which enhances 'creative variance and expression.' The Geometrical simplicity of the ellipse is less significant then the cube. The cube has a 3D feature

like a cylinder. Its formal and conceptual character are convertible to another shape such as a 'square' or a 'real object' as a cube.

Sun figure [see, Figure 52]

When we compare an ellipse with the sun figure, we can assume that the familiarity fact is more significant than the similarity fact in object recognition. The research majority has significantly identified both of the images, however the combined figural properties are forming the elements of the sun figure (i.e., circle and triangle).

The research respondents were familiar with describing a representation of the sun as a sun figure, however they did not describe an ellipse or spherical shape as a planet or moon.

Furthermore, the ellipse, the circle and the sun figure have common characteristics, namely roundness, but the quality of the circle in the sun figure, has index and reference meaning with triangles, so that a sun figure is insignificantly described with its geometrical shape (i.e.: triangle and circle).

The findings show that the respondents significantly used the similarity of the concrete objects in reference of abstracting index images. Therefore, they used geometrical labels insignificantly.

As a result, the labeling process signifies that adequate comprehension of the image didn't develop yet. Also, we can argue that respondents were literally incompetent with the geometrical concepts that they were attempting to describe.

Hence in the formal findings we can suggest that *basic design* and *visual literacy* should be considered important in a VCD curriculum.

6.3 Analysis of the Organization of the Components in Terms of Gestalt Principles

In section 6.3 Analysis of the Organization of the Components in Terms of Gestalt Principles, we analyze whether or not the respondents have different descriptions within section 5.4.2 Organization of components in terms of Gestalt Principles) figures.

The general structure of the section 5.4.2 Organization of components in terms of Gestalt Principles figures, offers an alternating repetition of shapes, or shapes placed in different colors and/or sizes intended to create a motif or model like a prototype or pattern. According to Dondis (1973, pp. 44-45) ‘there are three basic shapes, the square, circle and equilateral triangle’ from which we can develop ‘all physical forms in nature’ or other imaginative forms.

Dondis (1973, p. 44) argues that ‘each of the basic shapes has its own unique character or characteristics’, and to which meaning is attached through ‘association’, ‘arbitration’, or through ‘our own psychological and physiological perceptions’. For instance ‘the square is associated with dullness, honesty, straightness, and workmanlike meaning; the triangle with action, conflict, tension; and the circle with endlessness, warmth, protection (Dondis, 1973, p. 44).’

Based on the research results, a horizontal repetition of the square [Figure 58] was a signifier of the *sequence*, *queue* or *order*, like a *film-frame*, *locomotive* or *puzzle*.

Color difference in the sequence created positive associations like *activation/de-activation, illumination*, elite, noble and leadership, and negative associations such as loneliness, dreariness, broken down, compulsion and separation.

Dondis (1973) states that basic shapes express three 'visual directions': 'the square, the horizontal and vertical; the triangle: diagonal; the circle: the curve (Dondis, 1973, p. 46).' Dondis (1973, p. 46) points out that 'visual directions has strong associative meaning and is a valuable tool in making visual messages'. For instance 'horizontal-vertical' direction is 'man's primary reference in terms of his well-being and maneuverability' and also its means 'stability in all visual matters'.

Results of the research show that triangles [Figure 55] were associated with ascending or growing qualities such as forests and mountains. Respondents have captured sharpness as a figural property of the triangles and associated objects like teeth, thorns or traps with it.

A circle was a signifier of motion and dynamism. Chaos and confusion were symbolized with the circle. Figural properties of the Figure 56 were associated with foods like candy and also other round objects such as a tire.

Arrows [Figure 57] used a signifier of the directions such as up-down, horizontal-vertical or ascending-descending. Therefore, respondents associated flowing subjects like traffic, blood pressure or weather circulation such as lightening and wind by arrows.

Horizontal and diagonal repeating shapes particularly Figure 58 and Figure 59 were associated with texture or fabric patterns like a flag.

Diagonal direction meaning is ‘threatening and almost literally upsetting’, and it has ‘particular significance in direct reference to the idea’. The curve has a meaning of being ‘associated with encompassment, repetition and warmth’ (Dondis, 1973, p. 47).

Results shows that respondents perceived each group of the shapes as pattern or ‘good gestalt’ (Wertheimer, 1923), “where the whole is greater than the simple sum of its parts” as an expression, that the perception of parts created something larger than themselves - a completeness, a meaning. According to the gestalt principles it is a figure-ground relationship.

We argued that color components of the figures considered a light, order similarity (color- shape) – proximity

6.4 Color

Results show that blue and red were the predominantly chosen colors among the respondents. It was observed that participants used specific colors to signify a gender. Red, pink and purple were used as signifiers for femininity and blue and black were used as signifiers for masculinity. Color has particular patterns like silver, which represents modern life or connotes technology.

Majority of the respondents mentioned that they chose a color because they believe; it was an eye-catching or attractive color. However respondents declared that they ‘love’ it. So, there was a challenge between ‘they like it’ or ‘color(s) chosen up on a

content of the assignment' and then used it. Respondents mostly appealed to their emotion like an artist but they needed to do design assignment upon given limits. Findings point out differences between the designer and the artist in the design process.

Table 15: Positive and negative associations of the colors

Color	Positive	Negative
Blue	Water, cleanness, freshness, holiness, relaxation, sky, freedom, purity, infinity, modern, ocean, power, prestige, romanticism, the sea, shower, spaciousness, trust, calmness, presence, lively, excitement, falling in love, confidence, ripe, beauty, exuberance, charming	Alcohol, money, boring, characterless, coldness, cool wet, depth, night
Red	Love, passion, pleasure, spicy, dazzle, motion, impressive, lively, relaxation, uniqueness, nobility, mysteriousness, cheerful, excitement, happiness, warmth, hot, euphoric, exotic, exuberance, trust, nobility, erotic, lustful, sex	Savagery, wildness, angry, irritable, femme-fatal, fire, vamp
Pink	Harmony, glamour, innocence, life, identity, naturalness, sweetness, peace, trust, lightness, sense, freshness, purity, beauty, pleasantness	
Black	Classic, charismatic, mysterious, purity, power powerful, elegant, life, confidence, mystery, quality	Hard, ripe, depth, dark, lost, loneliness, blank, simple, anger, pessimism, unreachable
Transparent	Cleanness, minimal, natural, limpidity, health, freshness, freedom, purity, mysterious, sincerity, sensitivity, motion	Cold, cool, determined
Purple	Lover, maturity, mystery, pretty, sex, sky, spring, love, glamour, romanticism, confidence, spaciousness	Chaotic, childish, unidentified
White	Cleanness, purity, freedom, spaciousness, smooth, love, happiness, relaxation	Medical, loneliness
Yellow	Flora, purity, cleanness, richness, pleasantness, relaxation, splendid, pretty	Materiality
Orange	Visibility, pleasantness, lightness, falling in love, relaxation	
Silver	Dynamism, quality, peace, civilization, modernity, millennium, fashion, technology, modern life	Media culture, consumption

Turquoise	Peace, spaciousness, clean, freshness, freedom, nature, the sea	Cold
Green	Passion	Disgust, nausea, military
Grey	Calmness, purity, naturalness, presence, peace	Unexpected, primitive, de-saturated, stability
Lilac	Attractiveness, softness, freshness, spaciousness	
Bronze	Attractiveness, hot, love	
Cream	Dazzle, innocence, smartness, impressiveness	
Khaki:	Confidence, naturalness	
Rose	Difference, freedom, romanticism	

The results of the research show us that there were wide definitions and emotional appeals for colors, so that we cannot generalize emotions or meanings of the color but we can conclude that color gives meaning in its context.

A point of significance the study reveals is that the chosen colors for femininity have hardly any negative associated connotations, while the colors associated with masculinity have conspicuously negative connotations. Possibly, the result is dependent on the gender relationship in the culture.

A note worth to be mentioned is the specific choice by the research respondents for specific colors and their associations can be explained in the scope of the culture. A different culture would presumably give different results.

Color should be explained to students, without appealing to any specific given or normalized emotions of teachers in the class. At this point, the teachers' role becomes significant when colors are explained to the students/learners. If a teacher is explaining her/his subjective opinion out of a given text, it may impose false consciousness, or generate additional/new patterns to the learners indirectly. Texts

being used during the course in order to provide ideas about the meaning of color and subjective purposes should be explained with the help of semiotics.

6.5 Analysis of the Recall and Recognition of the Graphical Images

It was Gestalt that stated that limited time makes/pulls or pushes people to see figures or a whole as one rather than its separate parts. What they see in the limited time is an expression of their experiences. These experiences are not limited; they are only momentary experiences. Also it is a personal experience and expression of their available knowledge. Because, each of them traced his/her memory to recall projected images and then used their knowledge and terminology to described or identify with the stimulus which they perceived via projection. The unity of the image illustrated in the Table 16 is as follows:

Table 16: Unity of the illustrated images

Identified images via	Projection	Print
Man	% 29	% 25
Face	% 18	% 28
Bird	% 11	% 5.1
Clown / Toy	% 2.5	% 2.6
4 different description	% 60.5	% 60.7

According to our first hypothesis, we tested ‘do people see whole images?’ within the limited time. Findings show that more than half (60.5%) of the respondents recognized whole image within the limited time. In both methods, whole perception of the image didn’t change significantly. Students captured different properties of the image that resembled a man, face, bird or clown. Only significant changes occur on the good gestalt such as a man, a face, a bird and a car.

A car is a concrete form like a CD, guitar and so on. It was then argued that the perception of the car figure is simpler than any other shape, because, it is a main piece of the conception and the optical level used to set its position by design. However ‘car’ is not enough to describe the whole image (simply). Therefore one out of four participants recognized a car but at least one out of two described unity of the image among a man, face and bird. Also the term ‘collage’ founded a literal difference between VCD and visual design students.

Table 17: Illustration of literal difference

Identified items via	Projection	Print
Car	% 24	% 30
Collage	% 8	-
Eye	% 5	% 4.6
Speaker	% 2.5	-
Guitar	-	% 2.6
Whistle	-	% 0.5
4 different description	% 39.5	% 37.7

In the second hypothesis it was predicted that people see items separately by time exposure fact and it increased recall of more conceptual items. In fact, students insignificantly recognized a CD, hand, trumpet, sol-fa-syllable and angels within the limited time but also findings demonstrate that when the duration of exposure was extended, the recall of separate items increased in the recognition. Arnheim (1954) argues that ‘distance in time has much the same effects as distance in space’ (Arnheim R. , 1954, p. 63) as we considered time limit a ‘distance in time’. He also states that ‘when the actual stimulus has disappeared, the remaining memory trace weakens’ which is exhibited after five seconds.

Chapter 7

CONCLUSION

In practice, VCD education is an interdisciplinary study; however the curriculum is still developing and needs more improvement. In fact we can say that titles such as visual communication, visual communication design or visual arts and visual communication education have already moved further than the discussion between multimedia and graphic design.

ICT provides a trend and motivation into VCD education, but it is not a determinant factor. If we assume or consider moving images and photography apart from multimedia education, then we can categorize this content as a part of the communication and media education. However multi-*media* can already be regarded as a form of *media* by definition. The content of any media can be a medium of the communication (McLuhan, 1964). All visual content of those media can be considered a medium for visual communication. Thereby the technical level of multimedia with all other media can be a content of other studies.

The main curriculum challenge is not a multimedia education, but an art and design education in the communication and media curriculum. Communication faculties with VCD curricula need image studies. Learners and practitioners of VCD are required to have perspective and the understanding of how an image communicates through visual elements in the form of design, especially within the arts.

A VCD student's understanding from VCD education significantly overlaps with web design, 2D design and photography. In fact, VCD education has already moved further than the discussion between fields.

In practice, it is a mixture. However, the curriculum is still developing and needs more improvement. It was pointed out by some of the professors who allowed me to use their class time for data collection, that they observed that students frequently concentrated on ICT instead of content. ICT provides a tendency and motivation towards VCD education, but it is not a determinant factor. However, VCD education needs a strong concentration on such image studies as visual literacy, basic design, typography, color theories, and semiotics.

Hence the level of literacy of VCD students shows a significant gap in knowledge and the ability to express basic visual language in their professional field. The students who were lured into a VCD education, by an image of ICT and new computer technologies were given the impression of their knowledge of ICT as a consuming or entertaining medium. The knowledge of basic creative production software packages has been blurred by the use of leisure software prior to the VCD education.

Pre-education, like primary and secondary education, should be streamlined towards teaching software packages in order to give students the basic software knowledge; they need to promote academic discourse in their studies of basic visual literacy and contextual and academic content, instead of focusing on software training and the use of software as a consuming tool.

The findings indicate a lack of an academic course track in education (designed to suggest VCD studies) as a whole and shows significant knowledge gaps in the course paths of students studying toward post secondary education. Students are simply not ready when they register at an academic institute to start building up theoretical knowledge on top of their basic skills.

This results in the decreasing excellence of academic education in order to catch up with a practical education that obeys the demands of the software industry. Also, if moving images and photography are considered to be branches of communication education, then it is also a branch of graphic education and multimedia education in the contemporary situation. This implies that visual education as a whole would benefit from revision and readjustment in a system of acceptations, norms and criteria where software has only a place as a tool instead of being the driving force of a branch for a commercial industry. Education should refocus on content, liberated from commercial demands, starting from primary education onward.

The applicability and preparation of students in the professional fields should take place through preliminary and compulsory student-internships in the relevant closely connected industries and guided by educational institutes as an additional program in the curriculum. Although this is in many situations the case, the involvement and responsibility of the educational institute should be a requirement.

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APPENDICES

Appendix A: Explanatory note for the Contributors

Dear Students,

As the 2003-2004 Spring Semester *PRA324 Layout and Computer Graphics Design course* teacher, I will be asking for your sincere will to contribute and collaborate in my *PhD. Thesis*, besides fulfilling the requirements of the in-class responsibilities.

This contributions and collaborations will be done by filling in some periodically applied questionnaires, as well as writing some dairies, and interviews.

Please write down your name, student number and sign if you would like to participate in the study.

Thanks,
Aysu ARSOY

Name:
Surname:
Student Number:
Group:

Appendix B: List of Higher Education Institutes in Turkey

Higher Education Council, [http:// www.yok.gov.tr/universiteler/uni_web.htm#](http://www.yok.gov.tr/universiteler/uni_web.htm#);

Date of access: 3/5/2007

Alphabetic Order

STATE INSTITUTES

1. Abat İzzet Baysal University <http://www.ibu.edu.tr/>
2. Adana Menderes University <http://www.adu.edu.tr/>
3. Afyonkarahisar Kocatepe University <http://www.aku.edu.tr/index.php>
4. Akdeniz University <http://www.akdeniz.edu.tr/>
 - Faculty of Communication
5. Aksaray University <http://www.aksaray.edu.tr/>
6. Anadolu University <http://www.anadolu.edu.tr>
 - Faculty of Communication
 - Faculty of Fine Arts <http://www.gzs.anadolu.edu.tr>
7. Ankara University <http://www.ankara.edu.tr/>
 - Faculty of Communication <http://www.ilef.ankara.edu.tr/>
8. Atatürk University <http://www.ilef.ankara.edu.tr/>
 - Faculty of Communication
http://fakulteler.atauni.edu.tr/iletisim/akademik_birim.php
 - Faculty of Fine Arts
http://fakulteler.atauni.edu.tr/gsanatlar/akademik_birim.php
9. Balıkesir University <http://www.balikesir.edu.tr/>
 - Faculty of Fine Arts <http://www.gsf.balikesir.edu.tr/>
10. Boğaziçi University <http://www.boun.edu.tr/>
11. Bozok University <http://www.bozok.edu.tr/>

12. Celal Bayar University <http://www.bayar.edu.tr/>
13. Cumhuriyet University <http://www.cumhuriyet.edu.tr/>
 - Faculty of Fine Arts
http://www.cumhuriyet.edu.tr/akademik/fak_guzel/index.php
14. Çanakkale Onsekizmart University <http://www.comu.edu.tr/>
 - Faculty of Fine Arts <http://gsf.comu.edu.tr/>
15. Çukurova University
<http://www.cukurova.edu.tr/Content/Asp/English/index.asp>
 - Faculty of Fine Arts
16. Dicle University <http://www.dicle.edu.tr/>
17. Dokuz Eylül University <http://www.deu.edu.tr/DEUWeb/index.html>
 - Faculty of Fine Arts
<http://www.deu.edu.tr/DEUWeb/Icerik/Icerik.php?KOD=25>
18. Dumlupınar University <http://www.dumlupinar.edu.tr/>
 - Faculty of Fine Arts
19. Ege University <http://www.ege.edu.tr/>
 - Faculty of Communication [http://iletisim.ege.edu.tr/iletisim/kurumsal/Visual Communication Design Department](http://iletisim.ege.edu.tr/iletisim/kurumsal/Visual%20Communication%20Design%20Department)
20. Erciyes University <http://www.erciyes.edu.tr/default.html>
 - Faculty of Fine Arts <http://guzelsanat.erciyes.edu.tr/>
21. Fırat University <http://www.firat.edu.tr/>
 - Faculty of Communication
<http://www.firat.edu.tr/iletisim/bolumler.asp>
22. Galatasaray University <http://www.gsu.edu.tr/tr/>
 - Faculty of Communication <http://iletisim.gsu.edu.tr/tr/>
23. Gazi University <http://www.gazi.edu.tr/>
 - Faculty of Communication <http://www.ilet.gazi.edu.tr/>

- Faculty of Fine Arts <http://www.gsf.gazi.edu.tr/>
Visual Communication Department <http://www.gsf.gazi.edu.tr/-gitgiris.htm>
- 24. Gazi Antep University <http://www.gantep.edu.tr/>
- 25. Gazi Osman Paşa University <http://www.gop.edu.tr/>
- 26. Gebze Yüksek Teknoloji enstitusu <http://www.gyte.edu.tr/>
- 27. Hacettepe University <http://www.hacettepe.edu.tr/>
 - Faculty of Communication <http://www.iletisim.hacettepe.edu.tr/bolum.shtml>
 - Faculty of Fine Arts <http://www.gsf.hacettepe.edu.tr/>
- 28. Harran University <http://www.harran.edu.tr/>
- 29. Hitit University <http://www.hitit.edu.tr/>
- 30. İnönü University <http://www.inonu.edu.tr/>
 - Faculty of Fine Arts
- 31. Istanbul University <http://www.istanbul.edu.tr/>
 - Faculty of Communication <http://www.istanbul.edu.tr/iletisim/>
- 32. Istanbul Technical University <http://www.itu.edu.tr/>
 - Fine Arts Department <http://www.gsb.itu.edu.tr/>
- 33. İzmir yüksek teknoloji enstitusu <http://www.iyte.edu.tr/>
- 34. Kafkas University <http://www.kafkas.edu.tr/>
- 35. Kahraman Maraş Sütçü İmam University <http://www.ksu.edu.tr/>
 - Faculty of Fine Arts <http://www.ksu.edu.tr/index.php?afile=bolum-&menu- =3&birim=GSF>
- 36. Karadeniz Technical University <http://www.ktu.edu.tr/>
 - Faculty of Communication <http://www.ktu.edu.tr/fakulte/iletisim/index.html>
 - Faculty of Fine Arts

37. Kırıkkale University <http://www.kku.edu.tr/>

38. Kocaeli University

- Faculty of Communication
<http://if.kou.edu.tr/akademik/akademikbirimler.htm>
<http://if.kou.edu.tr/akademik/git.htm>
- Faculty of Fine Arts <http://gsf.kou.edu.tr/>

39. Marmara University <http://www.marmara.edu.tr/>

- Faculty of Communication <http://iletisim.marmara.edu.tr/>
- Faculty of Fine Arts <http://gsf.marmara.edu.tr/>

40. Mehmet Akif Ersoy University <http://www.mehmetakif.edu.tr/>

- Faculty of Education - Fine Arts Department
<http://egitim.mehmetakif.edu.tr/>

41. Mersin University <http://www.mersin.edu.tr/>

- Faculty of Communication
<http://www.mersin.edu.tr/fakulte.php?id=6&tip=1&meu=7b2f35173567f3e1c65fb1f359486c00>
- Faculty of Fine Arts
<http://www.mersin.edu.tr/fakulte.php?id=4&tip=1&meu=9b3bcd644fa15f1c2887c15ed37f3570>

42. Mimar Sinan

- Faculty of Fine Arts <http://www.msu.edu.tr/>

43. Muğla University <http://www.mu.edu.tr/t/>

- Faculty of Fine Arts
<http://www.mu.edu.tr/t/akademik/fakulteler/gsf/program.html>

44. Mustafa Kemal University <http://www.mku.edu.tr/>

- Faculty of Fine Arts
<http://www.mku.edu.tr/genel/fakulte/gsanat/index.htm#>

45. Namik Kemal University <http://nku.trakya.edu.tr/>

46. Niğde University <http://www.nigde.edu.tr/>

47. Ondokuz Mayıs University <http://www2.omu.edu.tr/>

48. Middle East Technical University <http://www.metu.edu.tr/>

49. Osman Gazi University <http://www.ogu.edu.tr/>
50. Samukkale University <http://www.pamukkale.edu.tr/>
51. Sakarya University <http://www.sakarya.edu.tr/>
- Faculty of Fine Arts <http://www.gsf.sakarya.edu.tr/>
52. Selçuk University <http://www.selcuk.edu.tr/>
- Faculty of Communication <http://www.iletisim.selcuk.edu.tr/>
 - Faculty of Fine Arts <http://www.gsf.selcuk.edu.tr/>
53. Süleyman demirel University <http://www.sdu.edu.tr/>
- Faculty of Fine Arts
54. Trakya University <http://www.trakya.edu.tr/>
- Faculty of Fine Arts
55. Uludağ University <http://www.uludag.edu.tr/>
56. Yıldız Teknik University <http://www.yildiz.edu.tr/>
- The Arts and Design Faculty
<http://www.sts.yildiz.edu.tr/index.php?pro=fak&sayfa=gen&dil=tr>
Communication Design Department <http://www.ilet.yildiz.edu.tr/>
57. Yüzüncü Yıl University <http://www.yyu.edu.tr/>
- Faculty of Fine Arts <http://www.yyu.edu.tr/bolumler.aspx?fakulte=3>
58. Zonguldak Karaelmas University <http://www.karaelmas.edu.tr/>

FOUNDATION INSTITUTES

59. Atılım University <http://www.atilim.edu.tr/> / <http://acc.atilim.edu.tr/>
60. Bahçeşehir University <http://www.bahcesehir.edu.tr/>
- Faculty of Communication <http://iletisim.bahcesehir.edu.tr/>
Visual Arts and Visual Communication Design Department
61. Başkent University <http://www.baskent.edu.tr/>

- Communication Faculty <http://ilf.baskent.edu.tr/index>
Communication Design Department
 - The Fine Arts and Design Faculty <http://gsf.baskent.edu.tr/>
Visual Arts and Visual Communication Design Department
62. Beykent University <http://www.beykent.edu.tr/>
- Faculty of Fine Arts
<http://www.beykent.edu.tr/asgmgg.aspx?s=f&p=4>
Communication and Design Department <http://www.beykent.edu.tr/-asgmgg.aspx?s=fb&p=21>
63. Bilkent University <http://www.bilkent.edu.tr/>
- The Fine Arts and Design Faculty
Communication Design Department <http://www.bilkent.edu.tr/~comd/>
64. Çağ University <http://www.cag.edu.tr/>
65. Çankaya University <http://www.cankaya.edu.tr/>
66. Doğuş University <http://www.dogus.edu.tr/univ/edefault.aspx>
- The Arts and Design Faculty
<http://www.dogus.edu.tr/univ/stf/t2214.aspx>
Visual Communication Design <http://www.dogus.edu.tr/univ/-stf/t221472.aspx>
67. Haliç University <http://www.halic.edu.tr/>
- Faculty of Fine Arts
<http://www.halic.edu.tr/akademik/fakulte.asp?fno=5>
68. Fatih University <http://www.fatihun.edu.tr/>
69. Işık University <http://www.isikun.edu.tr/tr/>
70. İstanbul Bilgi University <http://www.ibun.edu.tr/>
- Faculty of Communication
Visual Communication Design Department <http://vcd.bilgi.edu.tr/-About.asp>
71. İstanbul Bilim University <http://www.istanbulbilim.edu.tr/>

72. İstanbul Kültür University <http://www.iku.edu.tr/>

- The Arts and Design Faculty <http://sanattasarim.iku.edu.tr/>

Visual Communication Department

Visual Arts Department

73. İstanbul Ticaret University <http://www.iticu.edu.tr/default.asp>

- Faculty of Communication
http://www.iticu.edu.tr/Iletisim/default_iletisim.htm

Visual Communication Design Department http://www.iticu.edu.tr/-Iletisim/Bolumler/gorsel_ilet/gorsel_ilet.htm

74. İzmir Ekonomi University <http://www.izmirekonomi.edu.tr/>

- Communication Faculty <http://comm.ieu.edu.tr/>
- Faculty of Fine Arts <http://fadf.ieu.edu.tr/>

Communication Design

75. Kadir Has University <http://www.khas.edu.tr/>

- Communication Faculty
Communication Design <http://www.khas.edu.tr/tr/fakulte/if/it/bh.html>
- Faculty of Fine Arts

76. Koç University <http://www.ku.edu.tr/>

77. Maltepe University

- Faculty of Fine Arts
- Faculty of Communication
Visual Communication Design <http://www.maltepe.edu.tr/-akademik/fakulteler/iletisim/git.asp>

78. Okan University <http://www.okan.edu.tr>

- Faculty of Visual Arts

79. Sabancı University <http://www.sabanciuniv.edu.tr/>

- The Faculty of Arts and Social Sciences (FASS)
Visual Arts and Visual Communication Design
<http://suis.sabanciuniv.->

edu/HbbmInst/SU_DEGREE.p_degree_detail?P_TERM=999999&P_PROGRAM=BAVACD&P_SUBMIT=&P_LANG=EN&P_LEVEL=UG

80. TOBB EKONOMİ VE TEKNOLOJİ University <http://www.etu.edu.tr/>

- Faculty of Fine Arts

81. Ufuk University <http://www.ufuk.edu.tr>

82. Yaşar University <http://www.yasar.edu.tr/>

- Faculty of Communication
<http://iletisim.yasar.edu.tr/>

83. Yeditepe University <http://www.yeditepe.edu.tr>

- Faculty of Fine Arts
Grafik tasarım / sanat tasarım / sanat (tasarım) yönetimi
- Communication Faculty
<http://vcd.yeditepe.edu.tr/>
Reklam Tasarımı ve İletişim

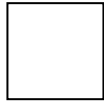
Appendix C: Research Questions

Demographic and Likert Scale Questions

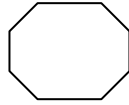
1. Age:
2. Sex a)Female b)Male
3. Do you have a computer? a) Yes b)No
4. Do anyone interest to the visual arts in your family? a)Yes b)No
5. What is your favorite color:
6. Theoretical courses improved my perception on to the visual design elements.
a) Strongly agree b) Agree c) Undecided d) Disagree e) Strongly disagree
7. Practical courses (ex: lab practices) improved my perception on to the visual design elements
a) Strongly agree b) Agree c) Undecided d) Disagree e) Strongly disagree
8. I am (amateur and /or professional) interesting (working) on 2D graphic design (ex: photo editing, poster and brochure design etc...) at electronic environment.
a) Strongly agree b) Agree c) Undecided d) Disagree e) Strongly disagree
9. I am (amateur and /or professional) interesting (working) on moving images (ex: film, video and video clips etc.)
a) Strongly agree b) Agree c) Undecided d) Disagree e) Strongly disagree
10. I am (amateur and /or professional) interesting (working) on 3D graphic design (3D model, architectural drawing etc...) at electronic environment.
a) Strongly agree b) Agree c) Undecided d) Disagree e) Strongly disagree
11. I am (amateur and /or professional) interesting (working) on web design.
a) Strongly agree b) Agree c) Undecided d) Disagree e) Strongly disagree
12. I am (amateur and /or professional) interesting (working) on photography.
a) Strongly agree b) Agree c) Undecided d) Disagree e) Strongly disagree
13. I am (amateur and /or professional) interesting (working) on artistic drawing.
a) Strongly agree b) Agree c) Undecided d) Disagree e) Strongly disagree
14. Except class hours, (ex: compulsory mass course etc.) I am especially interesting to the visual arts (ex: painting, photography etc.).
a) Strongly agree b) Agree c) Undecided d) Disagree e) Strongly disagree
15. While design in computer I prefer to use default color to paint the objects.
a) Strongly agree b) Agree c) Undecided d) Disagree e) Strongly disagree
16. While design in computer I like to use my favorite color to paint the objects.
a) Strongly agree b) Agree c) Undecided d) Disagree e) Strongly disagree
17. While design in computer, firstly I am considering to the design topic after that I am choosing color to paint the objects.
a) Strongly agree b) Agree c) Undecided d) Disagree e) Strongly disagree

Open - Ended Questions - Labeling Geometrical Shapes

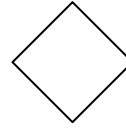
Describe what do you see and briefly explain how do you mentally state them?
(Answer each question and fill the line (.....) for your answers.)



1.



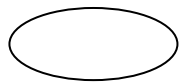
2.



3.



4.



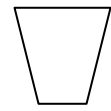
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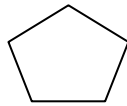
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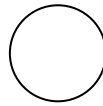
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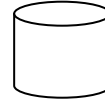
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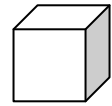
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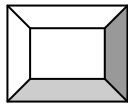
10.



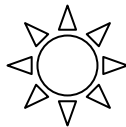
11.



12.



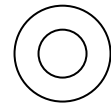
13.



14.



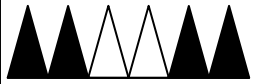
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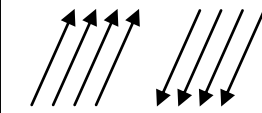
16.

Open - Ended Questions - Gestalt

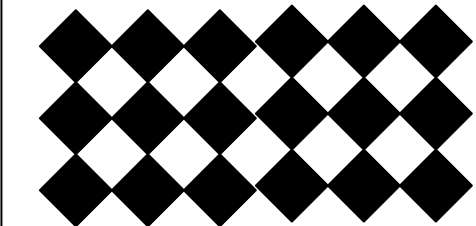
Describe what do you see and briefly explain how do you mentally state them?
(Answer each question and fill the line (.....) for your answers.)

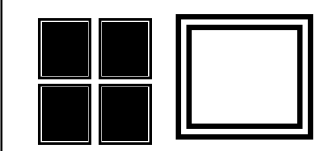
1. 

2. 

3. 

4. 

5. 

6. 

Open - Ended Questions - Color - Perfume Bottle Design

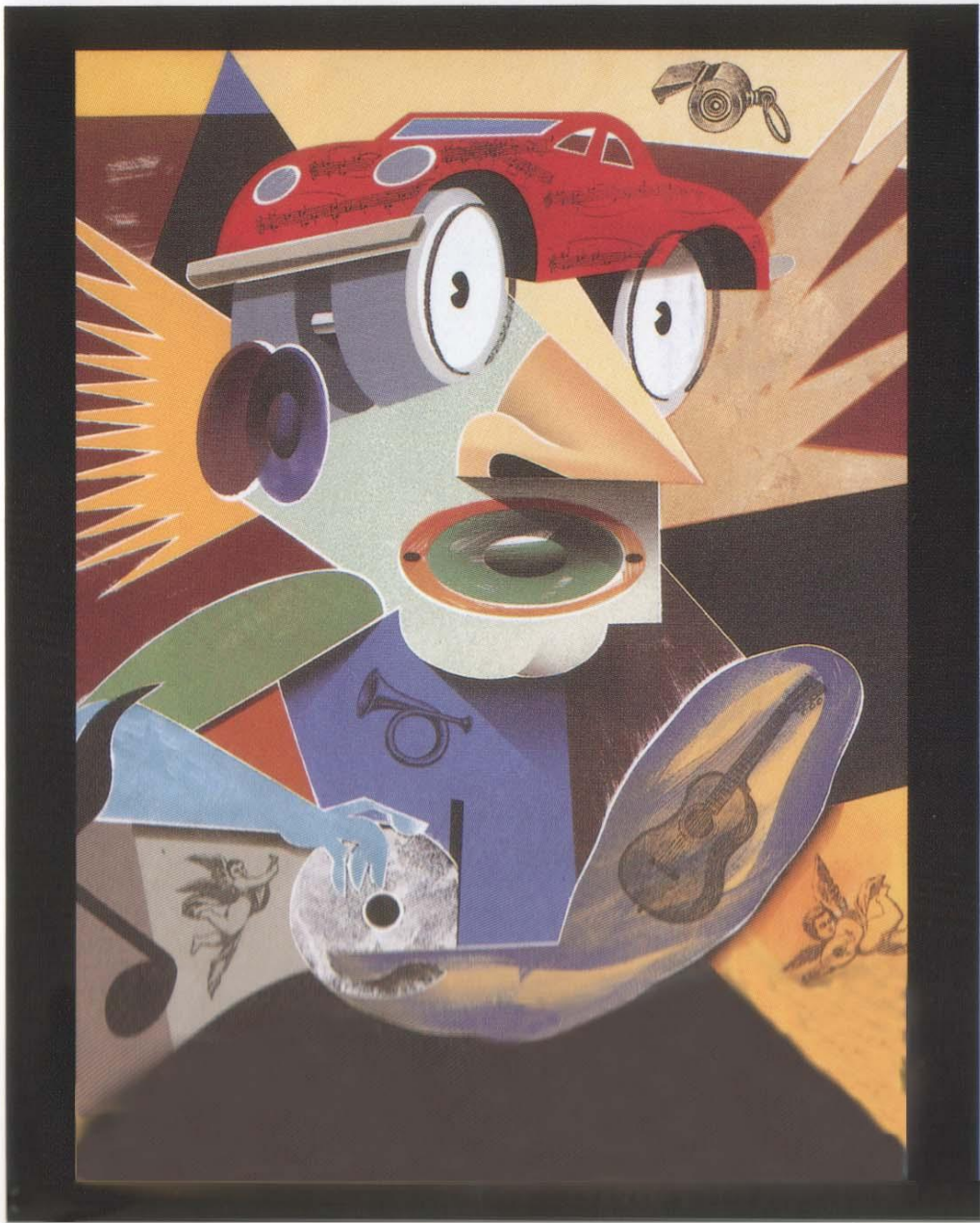


1. **Choose target audience for your design**
a) Female b) Male c) Unisex
2. **Choose color for perfume bottle:**
3. **Why do you choose this color for your perfume bottle?**
.....
.....
4. **What is the expression of this color on you?**
.....
.....
5. **What kind of sense do you feel when you see this color?**
.....
.....

Recall and Recognition

1. When you look at the image below, what do you see first?

.....



2. What do you see after that?

.....

Appendix D: ‘The Identical Twins’ (1967) of Diane Arbus’
Photographs

