# THE EFFECTIVENESS OF A FIRST-YEAR TEACHING MANUAL

# ON THE PRINCIPLES OF GRAPHIC DESIGN

**MLC Bester**

Dissertation submitted in fulfilment of the requirements for the degree

***MAGISTER TECHNOLOGIAE* (DESIGN)**

in the

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**BLOEMFONTEIN**

**July 2015**

## DECLARATION

I declare that the dissertation titled *The Effectiveness of a First-year Teaching Manual on the Principles of Graphic Design* and which is hereby submitted, is my own work, that it has not previously been submitted by me or anyone else for any degree or examination at any other university, and that the sources I have consulted and quoted have been acknowledged in a comprehensive list of references.

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MLC Bester

July 2015

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## ABSTRACT

**Key concepts: first-year teaching manual, graphic design principles, student perceptions, lecturers' perceptions, graphic design studio owners' perceptions, higher education**

The origins of design are found in the Italian word *disegnare*, which means 'create' (Pipes, 2008:8). Pipes further claims that graphic designers use their knowledge to make consumer goods and gadgets desirable. To create a design that will interest the viewer, a graphic designer uses the rules and principles of graphic design.

The vision of the Central University of Technology, Free State (CUT), is to be "a globally connected African university of technology that focuses on the needs of Southern Africa and supports graduates for citizenship with skills and competencies in appropriate technologies", while the mission of the CUT is to deliver "high-quality appropriate science, engineering and technology (SET) academic programmes supported by applied research" (Central University of Technology, Free State, *Calendar 2015*).

Having been a lecturer for more than ten years, it became clear to the researcher that students struggle to link theory to practice and application. Tempelman and Pilot (2010:262) state that "a first promising solution to this problem is to interweave theory and practice much closer". Tempelman and Pilot further mention that the interweaving of theory and practice can contribute to the building of a student's knowledge and skills. The use of graphic design principles will also lessen the time taken to complete a successful design because these principles can be used as a formula (Castelluccio, 2008:58).

A non-experimental research design which can be classified into three categories, namely relational designs, comparative designs and longitudinal designs, but for the purpose of this study a comparative design was used, because the comparative design compares two or more groups on one or more variable. In this case the effectiveness of a teaching manual was determined according to the perceptions of three groups, namely second-, third- and fourth-year graphic design students and graphic design lecturers at the CUT as well as the graphic design industry as represented in this study by a number of graphic design studio

owners. A stratified purposeful sampling method was followed which included students, lecturers and industry in the field of graphic design.

As background to the study, a literature review was conducted, providing an overview of graphic design principles and manual design and theory guiding the study. The research was conducted in three phases: (1) a quantitative research was conducted where student perception questionnaires were used to determine the respondents' (students') perceptions on *The Principles of Graphic Design* manual; (2) basic individual interviewing were used to gather information from specifically targeted participants (Munro, 2014:59) such as the lecturers of Basic Design Principles in order to determine whether the students' skills and competencies are enhanced with the aid of the aforementioned Manual and computerised self-administered questionnaires (CSAQ) were used as data collecting method for industry (design studio owners) to determine if the Manual positively influences the industry experience for the student by minimising the time spent on a design and enhance the lecturer's teaching.

It was concluded that *The Principles of Graphic Design* manual has a positive influence on the employability of the students of the Department of Design and Studio Art at the CUT and that the Manual is pitched at the appropriate level.

## LIST OF ACRONYMS

| | |
|---|---|
| CUT | Central University of Technology, Free State |
| CSAQ | Computerised self-administered questionnaires |
| SET | Science, Engineering and Technology |
| PGD | Principles of Graphic Design |

## ADDENDUMS

## ANNEXURES

TABLE OF CONTENTS

## CHAPTER 2: OVERVIEW OF LITERATURE (PRINCIPLES OF DESIGN)

## LIST OF FIGURES

## LIST OF TABLES

## DECLARATION BY LANGUAGE PRACTITIONER

I, Johan Frederick Barnard, hereby declare that I have been appointed by MLC Bester ("the Candidate") to attend to the linguistic aspects of the research report (excluding addenda) that is hereby submitted to the Central University of Technology, Free State. To the best of my knowledge, all suggestions and recommendations made by me in this regard have been attended to by the abovementioned candidate.

**Title of Dissertation:**

*The Effectiveness of a First-year Teaching Manual on the Principles of Graphic Design*

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CHAPTER 1

# INTRODUCTION, HISTORY AND BACKGROUND TO THE STUDY

## 1.1 INTRODUCTION

Boucharenc (2006:1) rightly suggests that "basic design can often be enhanced more by the curiosity and experiences of [graphic design] students than by the theoretical content of the subject matter taught." The curiosity and experiences of students are thus identified as an almost indispensable element in effective teaching and forms the foundation of the thinking that inspired this research. Wong (1993:41), in his turn, asserts that design fulfils practical needs and is a process which entails visual creation. Reading these two assertions in tandem identifies the core principles that underlie the present study.

The principles of design can be defined as the organisation and arrangement of different structural and functional elements and works of art and design (Pipes, 2008:11; Lueckenhausen, 2007:1; Cheatham, Cheatham & Owens, 1987). The principles of arranging and organising have been developed over the centuries either intuitively or according to mathematical and quasi-scientific methods (Pipes, 2008:173).

Visual awareness can be defined as the skills a graphic design student needs in order to critically analyse and constructively criticise a design project in order to aid with the solving of problems related to graphic design (Pipes, 2008:10; Lueckenhausen, 2007:1). Holtzschue and Noriega (1997:2) confirm that these fundamental skills provide the knowledge to analyse and criticise works of art or design.

De Sausmarez (2002:20) declares that "visual coherence is more related to our neural and psycho-physiological being than to our processes of intellection." This coherence cannot be defined, but we acknowledge it when we feel forces of attraction, repulsion, expansion and contraction according to the shapes and colours that are presented to our eyes. Graphic design principles now come into play as they may assist with the placement and arrangement of various elements to create a work that will interest the viewer (Pipes, 2008:11).

According to Cheatham et al. (1987), the term "design" means to plan or to scheme. Siebert and Cropper (1993:3) mention that the planning of a design will ensure that one's design is communicated effectively to one's audience. The University of the State of New York (1975:52) defines a design principle as "a distinguishable ingredient that imparts a characteristic quality." Surlin and Kosak (1974) state that the principles of design can be used to address issues such as the recall of information and the attitude to information presented.

Lichty (1994:25) describes the basic function of graphic design as communication between subject and reader. Lichty mentions, furthermore, that with the knowledge of the principles of graphic design, a designer will be able to confront design decisions with "purpose and resolve".

According to Lauer and Pentak (2000:6), students often have difficulty in getting an idea for a design and that basic design principles can be used as a process to assist problem-solving.

Wong (1993:41) draws attention to the fact that a design student uses a visual language as the basis of the design creation process and which is made up of principles and rules. Wong explains further that a thorough understanding of these principles will enhance the abilities of a designer.

## 1.2 A BRIEF HISTORY OF GRAPHIC DESIGN AND GRAPHIC DESIGN PRINCIPLES

It is noted by Triggs (2011:3) that the history of graphic design is less established than other design disciplines such as fashion and industrial design. Held in 1983, "The First Symposium on the History of Graphic Design: Coming of Age" was the first formal conference for academics, educators and design practitioners. Barbara Hodik and Roger Remington, as cited by Triggs (2011), documented that up to that point the history of graphic design was intertwined with the history of art, printing, typography, photography and advertising. The sharing of information at this conference was aimed at the recognition of design history proper that took into account diverse fields such as sociology, anthropology,

aesthetics, politics and economics. Keeping in mind that graphic designers have to keep up with the constant changing of social and cultural patterns (De Sausmarez 2002:13), the impact of diverse fields on graphic design can be easily justified.

The history of printing began in China, Korea and Japan in AD 105 (Pipes, 1997:13). Wooden blocks were used to print the oldest known printed book, the *Diamond Sutra*, dated AD 868. The words and pictures were carved together on one wooden block that could unfortunately only be used once. That meant that a new block had to be carved for every new book. By AD 1041 China was using clay type cast that could be used repeatedly and Korea casted metal type by AD 1400.

Johannes Gutenberg (1398-1468) was credited with the invention of printing some time before 1440 (Pipes, 1997:14). His invention was named the letterpress and whereby individual letters were casted and then assembled into words.

Art dates back to prehistory (c15 000 - 10 000 BC) with cave paintings and carvings (Ocvirk, Stinson, Wigg, Bone & Cayton, 2001:6). Pipes (2008:8) mentions that the Egyptians drew and carved on cave walls which dates around c1400 BC. Another milestone for graphic design history was the invention of the Western alphabet by the Phoenicians around 1100 BC (Pipes, 1997:29).

Photography was invented in the late 1830s (Pipes, 1997:18). Photography forms the basis of every printing process. The first method of reproducing photographs was called Collotype. This process used a plate coated with photographically sensitive gelatin which hardens when exposed to light. A negative was then brought into contact with this plate and the negative was subsequently moistened with water. The negative absorbed more water where there was less light exposure. Impressions were taken using greasy ink and bringing it into contact with a printing surface.

A book by Emil Ruder written in 1967 and titled *Typographie: A Manual for Design* has been recognised as a key part in graphic design literature on basic design principles (Triggs, 2011:5). De Sausmarez (2002) defines basic design as visual forms that should guide the viewer through a range of problems that can potentially illuminate the issues with the unfolding of a solution to a visual problem.

In an interview with Steven Heller (Triggs, 2011:4), Louis Danziger is noted as one of the first graphic design teachers that taught a course in graphic design history at CalArts in 1972. Triggs (2011:4) noted that "[g]raphic design must now be equally thought of as a tool for social as well as economic development."

## 1.3 BACKGROUND TO THE STUDY

The origins of design are found in the Italian word 'disegnare' which means 'create' (Pipes, 2008:8). Pipes further claims that graphic designers use their knowledge to make consumer goods and gadgets desirable. To create a design that will interest the viewer, a graphic designer uses the rules and principles of graphic design. It is furthermore important that graphic designers rely on their designs to meet the needs of their potential users.

The principles of graphic design can be summarised under 11 headings, namely: idea (Fritz & Miller, 1996:8), gestalt (Cheatham et al., 1987:2), composition (Tyler, 2006:511), shape and volume (Wong, 1993:21), space (De Sausmarez, 2002:51), contrast (De Sausmarez, 2002:89), line (Ocvirk et al., 2002:76), repetition (Cheatham et al., 1987:123), concentration (Wong, 1993:23), change with motion (Cheatham et al., 1987:132) and colour (Lauer & Pentak, 2000:133).

The Central University of Technology, Free State (CUT), then still known as the Technikon Free State, opened its doors in 1981 with 285 students enrolled in mainly secretarial, art and design programmes (CUT *Calendar 2015*, 2015:4). The current National Diploma in Graphic Design is a three-year diploma with five main subjects: (1) Communication Design, (2) Design Techniques, (3) Graphic Design Drawing, (4) Professional Graphic Design Practice and (5) History and Theory of Graphic Design (CUT *Calendar 2015*, 2015:457).

The South African Qualifications Authority (SAQA) level descriptors for the South African National Qualifications Framework (SAQA, 2012:8) describe that a learner on NQF Level 5 (that is equivalent to the first year of study by a student in the Graphic Design Programme at the CUT) should be able to solve problems and "demonstrate the ability to identify, evaluate and solve routine and new problems within a familiar context, and to apply solutions based on relevant evidence and procedures or other forms of explanation appropriate to the field, discipline or practice, demonstrating an understanding of the consequences."

On the subject of the term "graphic design", Meggs (1998:23) indicates that people have been searching for a way to bring order and clarity to information for hundreds of years. William Addison Dwiggins coined the term ‘graphic design’ in 1922. This term was used to describe a person that would bring order to information in a visual form.

Castelluccio (2008:57) aptly defines the term graphic design as the discipline that engages the intuitive and visual side of one's brain.

The researcher designed a graphic design principles manual (see Addendum D) with interweaved theory and practice for the subject Communication Design I (COD10AK) in the National Diploma of Graphic Design during 2008, where first-year graphic design students are taught the principles of graphic design as a component of the subject COD10AK.

## 1.4 PROBLEM STATEMENT

The vision of the CUT is to be "a globally connected African university of technology that focuses on the needs of Southern Africa and supports graduates for citizenship with skills and competencies in appropriate technologies", while the mission of the CUT is to deliver "high-quality appropriate science, engineering and technology (SET) academic programmes supported by applied research" (CUT *Calendar 2015*).

When students enrolled in the National Diploma in Graphic Design programme have to complete a design project, they are firstly thoroughly briefed on the project. They then have to complete literature searches to obtain background information related and/or relevant to

the project (problem). A concept then needs to be developed to solve the design problem. The final step is to use their skills to design a final product either on computer or by hand.

Having been a lecturer for more than ten years, it has become clear to the researcher that students frequently struggle to link theory to practice and application. Tempelman and Pilot (2010:262) accurately posit that "a first promising solution to this problem is to interweave [design] theory and practice much closer". Tempelman and Pilot further mention that the interweaving of theory and practice can contribute to the building of a student's knowledge and skills. The use of graphic design principles will also lessen the time taken to complete a successful design because these principles can be utilised repeatedly as a formula (Castelluccio, 2008:58) and assist the students with critically analysing and constructively criticising a design project in order to aid with the solving of problems related to graphic design.

A book for graphic design students on graphic design principles, where theory and practical application are linked, was until recently not available to students or lecturers. As such a manual on the principles of graphic design with linked theory and practice was developed by the researcher, titled *The Principles of Graphic Design* (ISBN 978-0-9802602-0-5) (hereafter referred to as the PGD manual). For the purposes of this study, a comparative non-experimental design was followed in order to determine the effectiveness of the aforementioned teaching manual, how the PGD manual can enhance and ease the teaching of graphic design principles for lecturers and how the PGD manual can assist students with the time spent on a design in the graphic design industry in Bloemfontein. The perceptions of graphic design students at the CUT regarding the first-year PGD manual formed the focus of this research.

Perceptions regarding *The Principles of Graphic Design* manual developed by the researcher needed to be established in order to determine if the Manual is pitched at the appropriate NQF level for first-year graphic design students (see 1.3). Also if, according to the vision of the CUT, the students' skills and competencies are enhanced with the aid of the aforementioned manual. The Department of Design and Studio Art at the CUT aims to produce employable students and as such it was important to determine whether the graphic

design principles being taught from the PGD manual positively influence the industry experience for the student by minimising the time spent on any given design.

### 1.4.1 Research questions

The primary research question is:

- What are the perceptions on the PGD manual for first-year graphic design students at the CUT?

The secondary research questions are:

- What constitutes an effective manual on the principles of graphic design for first-year students?
- How can the PGD manual enhance and ease the teaching of graphic design principles for lecturers at the CUT?
- In what manner do the principles of graphic design contained in the PGD manual for first-year graphic design students assist graphic design students working in the graphic design industry in Bloemfontein with time spent on a design?

### 1.4.2 Aim of the study

The aim of this study was to obtain the perceptions of second, third and fourth year graphic design students, graphic design lecturers and design studio owners to determine the effectiveness of the PGD manual for first year students at the CUT.

### 1.4.3 Objectives of the study

The objectives of the research were: (1) to determine what constitutes an effective manual on the principles of graphic design for first-year students, (2) to determine how the PGD manual can enhance and ease the teaching of graphic design principles for lecturers at the CUT, and (3) to determine how the principles from the PGD manual can assist students with the time spent on a design in the graphic design industry in Bloemfontein

## 1.5 DEMARCATION OF THE STUDY

The study focuses on teaching and learning in the graphic design field of student learning (Tight, 2012:6) at the CUT. The study furthermore focuses on the field of higher education and graphic design.

## 1.6 CLARIFICATION OF CONCEPTS

A number of terms and concepts that may be found in the dissertation are subsequently defined and/or outlined more closely for ease of reference:

***First-year teaching manual***

A book designed to improve the quality of a performed task (United Nations, 2011).

***Graphic design***

The art and practice of planning and projecting ideas and experiences with visual and textual content (Cezzar, 2014).

***Graphic design principles***

The rules, organisation and methods of using different structural and functional elements within works of art and design (Pipes, 2008:11).

***Perceptions***

Perceptions are what a person perceives about a situation. It is always different for each individual (Funch, 1998:7).

## 1.7 RESEARCH DESIGN AND METHODOLOGY

The University of the State of New York (1975) conducted research on industrial arts education using a qualitative method. Castelluccio (2008:57) also made use of qualitative methods to determine if the principles of graphic design can be used as formulas to aid with the design process. Yan, Weibel and Yang (2008:74-75) used qualitative methods to determine if the graphic design principles of gestalt can be used as guidelines and parameters to describe spatial patterns.

Against the above background — and in lieu of the statement by McMillan and Schumacher (2006:20) that qualitative research is needed for improvement of educational practice — the mixed method approach (qualitative and quantitative methodology) was used in this study, but with the main focus being on the qualitative method. The researcher attempted to understand the respondents in terms of their own definitions. According to Babbie and Mouton (2008:48), this is useful in getting to know your object of study.

### 1.7.1 Research paradigm

The research was based on the interpretive approach. Babbie and Mouton (2008) show that social scientific research serves three common purposes, namely exploration, description and explanation. Firstly, thus, a literature study involving current literature on the subject of graphic design principles is required.

The research design for this study is an interpretive case study that is analysed through qualitative methods. The defining characteristic of a case study is its emphasis on an individual unit, but it can be done of other units such as multiple individual units (Babbie & Mouton, 2008:281) which in this study consist of **second-**, **third-** and **fourth-year** graphic design students from the CUT. Questionnaires were used to determine the perceptions of 2nd, 3rd and 4th year students *on the PGD* manual which is used in their first year of study. A descriptive data analysis was used to analyse the students' perceptions and to connect one variable to another (Babbie & Mouton, 2008:459). Questionnaires, face-to-face interviews and computerised self-administered questionnaires (CSAQ) were used as data collection methods and tools. The justification for each of the data collection methods and tools used in the study will subsequently be discussed.

### 1.7.2 Research method

This study is a non-experimental research design. Non-experimental research can be classified into three categories, namely relational designs, comparative designs and longitudinal designs. In this study a comparative design was used, since the comparative design compares two or more groups on one or more variable (Mills, Van de Bunt & De Bruijn, 2006). In this case the effectiveness of a teaching manual was determined according to responses of three groups, namely (1) second-, third- and fourth-year graphic design students because they have completed the subject successfully in which the PGD manual is used in, (2) graphic design lecturers and (3) the graphic design industry. A convenience sampling method was followed which included students, lecturers and industry in the field of graphic design, because the researcher wanted the various subgroups in the sample to be representative (Teddlie & Yu, 2007:79).

The analysis of the data collected by the qualitative questions of the **questionnaires** was done by identifying themes. The process involved the reconstruction of data into smaller manageable parts (Mouton, 2006:108). The researcher captured the data onto a Microsoft Excel spreadsheet to facilitate analysis. The sample was small enough for the researcher to design a data file as described by Babbie and Mouton (2008:459-461). Data from the **interviews** were organised into themes as well. Data analysis for the CSAQs were likewise captured onto a Microsoft Excel spreadsheet to facilitate analysis.

### 1.7.3 Data collection techniques

The research was conducted in three phases:

A – *Student perceptions questionnaire*

Quantitative research was conducted where questionnaires (see Addendum A) were used to determine the perceptions of second-, third- and fourth-year graphic design students regarding *The Principles of Graphic Design* manual. In section A of the questionnaire the students had to provide background information. Section B, C, D, E and F made use of the Likert Scale where the students could either "strongly agree, agree, disagree or strongly

disagree or perhaps strongly approve and approve" (Munro, 2014:46; Babbie & Mouton, 2008:233). Section B, C, D, E and F of the questionnaire made use of open-ended and closed questions. Open-ended questions are necessary to determine how the PGD manual can be improved according to the students' responses. The researcher ensured that all questions asked and statements made were clear and unambiguous (Munro, 2014:48).

B – *Lecturer interviews*

Individual interviewing were used to gather information from specifically targeted participants (Munro, 2014:59) and which were the lecturers (see Addendum B) of the graphic design principles. This method of gathering qualitative data was used because, according to Babbie and Mouton (2008:289), it allows the object of study to speak for "himself of herself". According to Rubin and Rubin, as cited in Babbie and Mouton (2008:289), this interviewing design is characterised as "flexible, iterative, and continuous, rather than prepared in advance and locked in stone." The researcher made use of a semi-structured interview where a certain portion of the questions is set and the rest arise from the information gathered (Munro, 2014:60). This method assisted the researcher to determine possible teaching problems and how to improve the PGD manual with specifically teaching in mind.

C – *Computerised self-administered questionnaires for industry*

Computerised self-administered questionnaires (CSAQ) (see Addendum C) were used as data collecting method for industry (design studio owners). Babbie and Mouton (2008:259) describe CSAQ as the process where the respondent receives the questionnaire via CD or other electronic means. The respondent can then run the software where he or she can complete the questions and return the data file. This method was selected by the researcher because it offers convenience to the respondent. As a rule, design studio owners are very busy and this presented them with the opportunity to answer the questions at their own leisure. This method furthermore allows for more accurate answers because, as rightly proposed by Nicholls (as cited by Babbie and Mouton, 2008:260), this kind of technique is more efficient than conventional techniques, as the CSAQ can be completed in a stress-free environment at one's own leisure.

Resources for the literature study were gathered from the library at the CUT through staff, search strategies, online catalogues, indexes and abstracts, interlibrary loans, periodicals and academic papers. An electronic search was also conducted via e-mail, telnet, chat rooms, bulletin boards, newsgroups, transferring files and the worldwide web.

### 1.7.4 Data analysis

The following data analysis techniques were used:

A – *Questionnaires*

The researcher first got a sense of the whole and then organised data into categories and presented them as tables and detailed descriptions (McMillan & Schumacher, 2006:367). Data was presented in graphs and tables. The "key components of questionnaire design", as suggested by Munro (2014:47-48), was followed. A descriptive data analysis was used to analyse the students' perceptions and to connect one variable to another (Babbie & Mouton, 2008:459). Descriptive statistics is used to describe the basic features of the data in a study (Trochim, 2006). With descriptive data analysis, the researcher will describe what the qualitative and quantitative data is or what the data shows. Collected data was entered manually into Microsoft Office Excel.

B – *Basic individual interviewing*

Data was entered directly into computer data files by the researcher. Categories were subsequently assigned to the answers (cf. Babbie & Mouton 2008:418). The system of flagging and tagging was used to find recurrences (Munro, 2014:64).

C – *Computerised self-administered questionnaires*

A return rate graph was used to monitor return rates (Babbie & Mouton, 2008:260). Completed CSAQ questionnaires were opened, scanned and assigned an identification number before the data was entered directly into computer data files by the researcher.

### 1.7.5 Population and Sample

The theoretically specified aggregation of the study elements (Babbie & Mouton, 2008:173) were **second-year** (21 students), **third-year** (22 students) and **fourth-year** (13 students) students who were registered during 2013 in the Graphic Design Programme at the CUT, as well as three lecturers of the Principles of Graphic Design modules during the past four years at the CUT in the Graphic Design Programme. These lecturers included a lecturer who has been lecturing at the institution for 20 years, one lecturer who has been lecturing for nine years as well as a lecturer who has been lecturing for two years. Owners of three graphic design agencies in Bloemfontein who employs graphic design graduates from the Graphic Design Programme at the Central University of Technology, Free State, were used for the CSAQ.

Random sampling (cf. Bickman & Rog 1998:446-447) was used and five graphic design studios were selected by the researcher from the telephone directory. The five studios were subsequently contacted and three agreed to participate in the study.

## 1.8 SIGNIFICANCE OF THE STUDY

The study will provide knowledge and insight regarding the education and content of graphic design principles. In the industry time equals money (Pipes, 2008:10), and teaching a graphic design student to design using the basic design principles gives him or her a formula to design with which will ultimately save time. Graphic designers who are able to work faster are clearly able to complete more work than designers who approach each new project randomly. Pipes (2008:11) furthermore rightly claims that the graphic design principles assist with the placement and arrangement of various elements which may help students to save time when they are overwhelmed with the endless number of position possibilities of design elements.

## 1.9 ETHICAL CONSIDERATIONS

The "epistemic imperative" as mentioned by Mouton (2006:243) was adhered to and the researcher was committed to the search for truth. The researcher strived to maintain objectivity and integrity and was willing to disclose the methodology and techniques of analysis. The subjects of study had the right to privacy (including the right to refuse to

participate in the research), anonymity and confidentiality. They moreover had the right to full disclosure regarding the research and its findings and the right not to be harmed in any way whatsoever.

All participants were treated with dignity and respect. The questionnaire contained a description on how their confidentiality would be protected and their anonymity preserved (Munro, 2014:43). Participants were given the option to not complete the questionnaire and those that completed it, completed it at their own free will. A sufficient amount of information was provided to the participants to be able to make an informed decision regarding their participation and participants willing to participate in the research were requested to sign a consent form (Addendum E). This process is aptly referred to as 'Informed Consent'. None of the participants were younger than 18 years of age and as such no permission to partake in the research had to be obtained from their legal guardians (Munro, 2014:124-132).

This study, lastly, did not have any harmful effects on the environment and as the CUT does not have an ethical research committee, no ethical clearance had to be obtained from the aforementioned institution.

## 1.10 LIMITATIONS

The study was limited to the Graphic Design Programme at the CUT because the private institution that used *The Principles of Graphic Design* manual closed down at the end of 2011. Had this not happened, a comparative study could have been performed between the samples from both institutions.

## 1.11 LAYOUT OF THE CHAPTERS

This dissertation is divided into five chapters. Chapter 1 deals with the introduction, history and background to the study, while Chapter 2 focuses on the principles of design and manual design. Chapter 3 sets out the methodology employed for this study and Chapter 4 presents the results and discussions of data that was collected in Phase 1, 2 and Phase 3. Chapter 5 contains a summary of the findings to the primary objectives of the study. Recommendations for further research are also presented in Chapter 5.

## 1.12 CONCLUSION

This chapter presented an overview of the background to and history of the study. It also defined the problem statement and research questions as well as the research design and the methodology employed for the purposes of this study. The next chapter presents a literature study on the principles of graphic design.

CHAPTER 2

# OVERVIEW OF LITERATURE (PRINCIPLES OF DESIGN)

## 2.1 INTRODUCTION

"Basic design principles are used to organise or position the structural elements of design" (Swinburne Multimedia Design Tutorials, 2007:1; Lauer & Pentak, 2000:4). The organisation of elements has been developed over centuries intuitively or according to mathematical and quasi-scientific methods (Pipes, 2008:173). Evans and Thomas (2004:iv) emphasise that a designer needs to understand the principles of design to create effective communication. This organisation of elements can be seen in everyday life, where the human psyche seeks harmony and resolution in order to function productively (Evans & Thomas, 2004:4). Lichty (1994:8) asserts that design principles are necessary so that the designer does not become overwhelmed with the endless number of positioning possibilities. The design principles thus provide a plan that the designer can bring into play in the creating process (Cheatham et al., 1987:i). Castelluccio (2008:58) highlights that principles of design can be used as rules and formulas which will shorten the design process, because the designer does not have to wait for insightful epiphanies. Agrawala, Wilmot and Berthouzoz (2011:40) mention that the design principles connect the design with the viewer in a way that is understandable to the viewer.

Evans and Thomas (2004:3) as well as Wong (1993:41) pronounce that a design student uses a visual language as the basis of the design creation process and which is made up of principles and rules. This visual awareness will enable the student to communicate the key theme of a composition and aid in the solving of visual problems (Swinburne Multimedia Design Tutorials, 2007:1). The graphic design principles are used to plan, organise and assist in the creation of successful designs (Lauer & Pentak, 2000:5). For a student to value a manual visually, it is necessary to remove all visual barriers that might prevent the individual from participating in the use of the product (Story, 2007:1).

## 2.2 PRINCIPLES OF GRAPHIC DESIGN

Graphic design is more than a study of technology and technique (Bennett, 2006:11). Bennett (2006: 12-14) further argues that design “is merely an act of faith” if the reasons for a design cannot be justified or argued. The principles of graphic design are proven theories through experimentation and practice. This statement is in conflict with Buchanan (1992:12) that states that design remains a “flexible activity”.

According to Khayrazad (2012:13) it has been demonstrated by researchers that by adding graphics to text, learning can be supported. Communication graphics utilize graphics to aid with the delivering of a message.

The principles of graphic design can be summarised under 11 headings, namely **idea** (Fritz & Miller, 1996:8), **gestalt** (Cheatham et al., 1987:2), **composition** (Tyler, 2006:511), **shape and volume** (Wong, 1993:21), **space** (De Sausmarez, 2002:51), **contrast** (De Sausmarez, 2002:89), **line** (Ocvirk et al., 2001:76), **repetition** (Cheatham et al., 1987:123), **concentration** (Wong, 1993:23), **change with motion** (Cheatham et al., 1987:132) and **colour** (Lauer, 1990:133). These principles will be illuminated more closely in the paragraphs to follow.

### 2.2.1 Idea

Idea is a mental representation of "forming an object of thought", which means that the idea forms in the brain of the designer (Cheatham et al., 1987:182). The ability to verbalise an idea can make a designer more effective (Cheatham et al., 1987:183). Lauer (1990:7) confirm that the thinking process starts with the understanding of the problem. Communication is the primary function of design which begins with an idea (Cheatham et al., 1987:176). The *American Heritage Dictionary of the English Language* defines an idea as a mental representation forming an object of thought or a product of thought (cf. Cheatham et al., 1987:176-178). The thinking environment for every human being is different. A conductive thinking environment might be a noisy place to one person but which another person might find distracting. It is also possible for human beings to develop patterns of behaviour that can help in the process of generating ideas (Cheatham et al., 1987:176-178).

There are three different techniques that can be used to generate ideas, namely brainstorming, listing and verbal diagramming and which will now in turn be considered more closely.

#### 2.2.1.1 Brainstorming

Brainstorming (Figure 2.1) is a verbal exploration tool that designers can use to generate ideas (Cheatham et al., 1987:183). Verbalised ideas are recorded through free association and uncensored input of the main idea or word. The value is that ideas will come through multiple sources as a result of group participation of not less than three where one person writes down all the given associated words under the main word (Lauer & Pentak, 2000:8; Fritz & Miller, 1996:8; Cheatham et al., 1987:183).

## RESULTS OF BRAINSTORMING—ONE HOUR WITH 25 PEOPLE

### DESIGNATE

| | | |
|---|---|---|
| measure | enclose | is real |
| degree | numb | sort out |
| decision | arrow | delete |
| release | divide | useful |
| mark | in common | detail |
| typical | dissect | stipulate |
| bulletin | penetrate | proofread |
| report | death | book |
| form | earth | slogan |
| telegram | life | spot |
| shout | stand out | code |
| testify | note | plaque |
| program | glove | flash cards |
| notify | date | promote |
| dictate | shock | cancel |
| forbid | S.O.S. | pick out |
| brainwash | road | customs |
| force | stop light | signature |
| truth | flag | lazy |
| stipulate | beacon | later |
| misjudge | symbols | export |
| marker | group | calligraphy |
| the best | member | objective |
| stimulate | compartment | accommodation |
| flag | individual | remove |
| brag | different | ordeal |
| show off | rare | declare |
| examine | gifted | characterize |
| example | valuable | professional |
| focus | reward | amateur |
| replace | erase | tape off |
| provoke | elite | recognize |
| organize | raise | class |
| expel | decision | familiar |
| reveal | cut off | sought after |
| direction | set out | design |
| decode | F-stop | put together |
| move | destruct | intent |
| diagram | opaque | unique |
| clarify | step forward | pronounce |
| lead | transparent | exaggerate |
| north | plastic | intense |
| diminish | fake | excite |
| south | simple | big deal |
| compass | pride | step-by-step |
| eliminate | educate | assemble |
| notice | assign | authority |
| illegal | Chinese | power |
| mistake | loud | tragedy |
| change | silence | comedy |
| progress | explode | theater |
| growth | surround | different |
| desire | enclose | the same |
| develop | kill | make noticeable |
| anoint | manipulate | place |
| claim | show | repeat |

Figure 2.1: Brainstorming (Cheatham et al.,1987:184)

### 2.2.1.2 Listing

Listing is a further method of generating ideas, where the biggest difference is that the ideas in listing come from one source. The designer will start at the top of the page with a word and make a list of any words that is associated with the particular subject (Cheatham et al., 1987:186).

### 2.2.1.3 Verbal diagramming

Cheatham et al. (1987:186) writes that verbal diagramming (Figure 2.2) is a spontaneous approach to the generating of ideas, which is seen as the best process to encourage creative thought. A designer is always free to insert additional information with this process. The main idea is written down in the centre of the page and lines are used to branch out other related ideas.

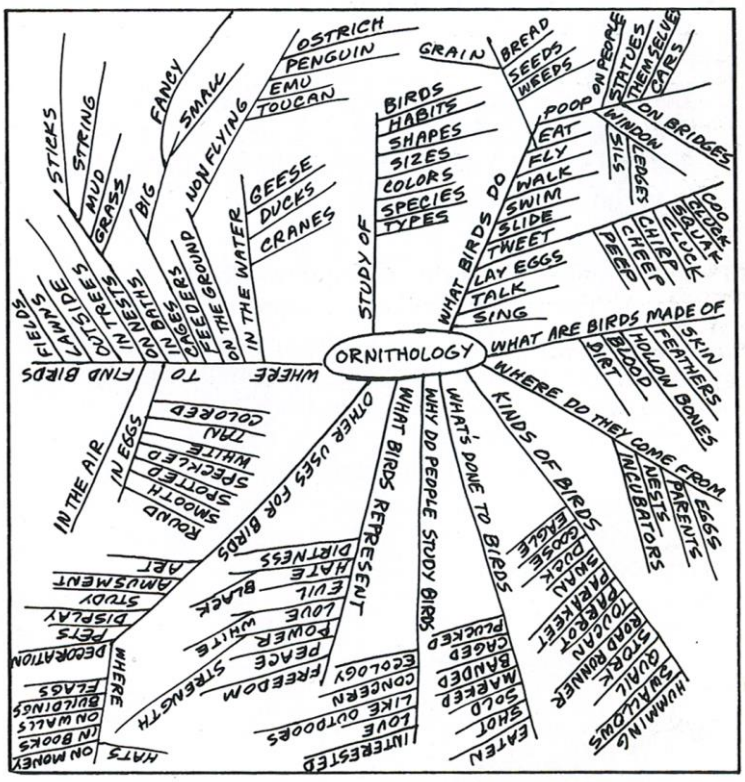


Figure 2.2: Verbal diagramming (Cheatham et al.,1987:187)

Although the technique of mind mapping can be traced back centuries, the term "mind map" itself was first introduced by Tony Buzan in the 1970s and subsequently became popularised. Mind mapping is an approach similar to verbal diagramming (Buzan, 2011). Mind mapping (Figure 2.3) is a powerful graphic technique which provides a universal key to unlock the potential of the brain. Mind mapping encapsulates word, image, number, logic, rhythm, colour and spatial awareness.

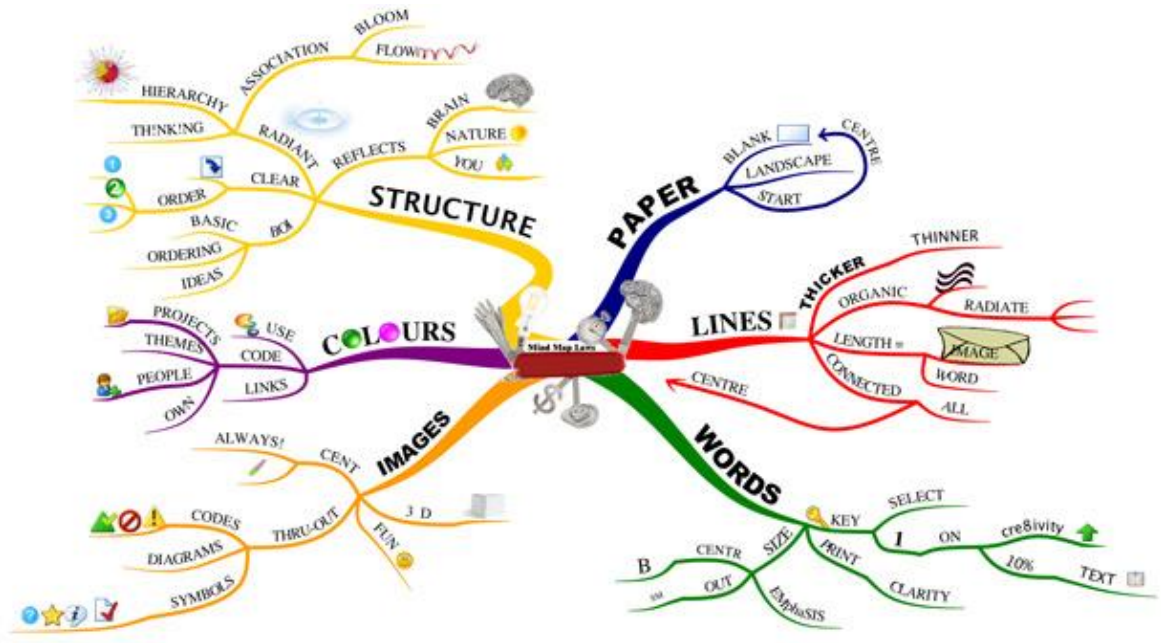


Figure 2.3: Mind mapping (Buzan, 2011)

### 2.2.2 GESTALT

Evans and Thomas (2004:38) pronounce that "[o]rganisation is central to good design." Cheatham et al. (1987:2) claim that gestalt psychologists have concluded that the eye/brain organises individual components into a unified whole. The theory claims that the brain is constantly organising, simplifying and unifying to produce a harmonious whole (Evans & Thomas, 2004:38; Lauer & Pentak, 2000:24). Cheatham et al. (1987:3) further claim that a poor gestalt (an image lacking visual unity or harmony) will create the impression that something is wrong and the image will be rejected (Figure 2.4). The designer's job is to create visual unity because the viewer does not want to see confusion or chaos (Lauer & Pentak, 2000:24). The human brain also tends to relate and group objects of a similar shape

(Lauer & Pentak, 2000:25) because of the ability and propensity of the brain to look for similar elements and organise them into a cohesive design (Figure 2.5).

Figure 2.4: Poor gestalt (Cheatham et al.,1987:3)

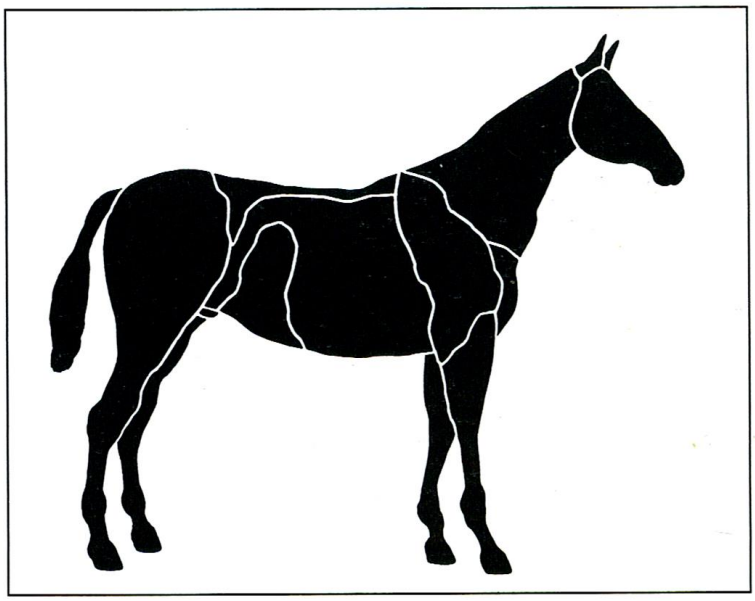

Figure 2.5: Gestalt (Cheatham et al.,1987:3)

Gestalt can also be achieved through the use of the principle of deletion and the principle of proximity.

#### 2.2.2.1 Deletion

Deletion (Figure 2.6) occurs when nonessential material is constantly removed so that only the components that are absolutely necessary remain (Cheatham et al., 1987:4).

Figure 2.6: Deletion (Cheatham et al.,1987:4)

#### 2.2.2.2 Proximity

Proximity is a way to gain unity by placing separate elements close together (Figure 2.7) to make them look as if they belong together (Yan et al., 2008:73; Lauer & Pentak, 2000:26; Skaalid, 1999:1). The space between two or more elements affects their relationship (Castelluccio, 2008:58; Evans & Thomas, 2004:17). Through proximity we are able to read (Pipes, 2008:178; Evans & Thomas, 2004:15; Lauer & Pentak, 2000:26). Individual units that are not similar in colour and value will still group (Cheatham et al., 1987:6).

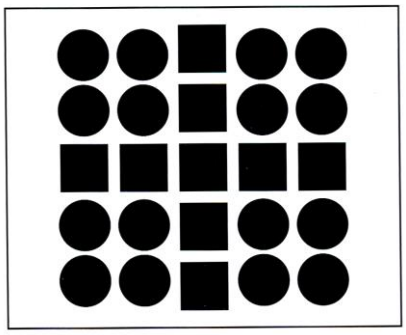

Figure 2.7: Proximity (Lauer & Pentak, 2000:24)

Cheatham et al. (1987:6) assert that visual grouping can be achieved through the proximity process of close edge relation where units are placed close together without touching (Figure 2.8). The units are so close together that the space between the objects does not separate the objects, but instead the objects appear visually locked.

Figure 2.8: Close edge relation, Design Motifs of Ancient Mexico by Jorge Enciso (Cheatham et al., 1987:7)

Individual units can also be physically combined (Figure 2.9) where smaller units are placed inside a larger unit which serves as a container for the smaller units (Cheatham et al., 1987:8).

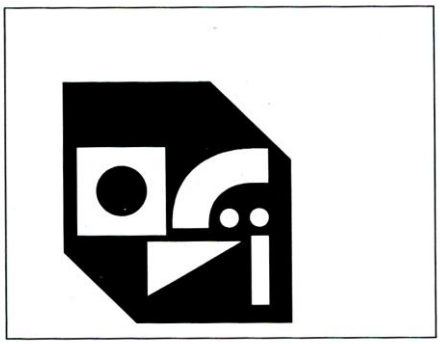

Figure 2.9: Combining (Cheatham et al., 1987: 8)

The design principle where individual units are placed close enough together to touch each other, is known as touching (Figure 2.10). These units form a larger visual unit when they touch (Cheatham et al., 1987:10).

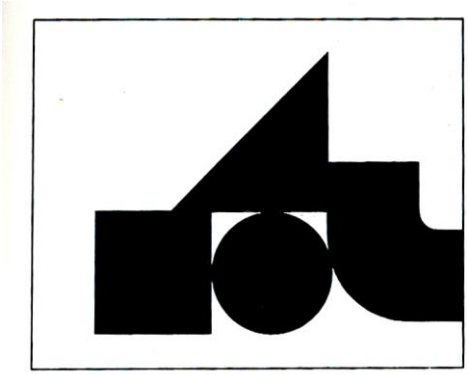

Figure 2.10: Touching (Cheatham et al., 1987:11)

Overlapping (Figure 2.11) occurs when individual units become virtually attached because they physically overlap (Cheatham et al., 1987:13).


Figure 2.11: Overlapping (Cheatham et al., 1987:13)

### 2.2.2.3 Pattern

A pattern (Figure 2.12) is a repetitive design of the same motive that appears more than once and that is appealing to the eye (Herberholz, 2010:15; Holtzschue & Noriega, 1997:94; Wong, 1993:203; Lauer, 1990:160). These motives or elements produce interconnections and directional movements (Ocvirk et al., 2002:32). Pipes (2008:64) indicates that patterns involve a degree of regularity and some symmetry.

Figure 2.12: Pattern (Holtzschue & Noriega, 1997:94)

### 2.2.2.4 Texture

Texture (Figure 2.13) refers to the surface quality of objects and is closely related to our sense of touch and memory which will provide a sensory reaction or sensation of touch. This can also be called visual texture (Pipes, 2008:72; Ocvirk et al., 2002:135; Lauer & Pentak, 2000:164; Wong, 1993:43; Lauer, 1990:150). Texture in a two-dimensional design invites touch (Holtzschue & Noriega, 1997:67). The physical texture of the paper that the designer uses plays an important role in the way a user will interact with the design (Evans & Thomas, 2004:28).

Figure 2.13: Texture: Andrew Newell Wyeth, "Spring beauty", 1943 (Ocvirk et al., 2000:135)

### 2.2.2.5 Closure

Humans have the ability to complete incomplete images by mentally filling in the missing pieces (Evans & Thomas, 2004:52; Ocvirk et al., 2002:43). If the elements are too far apart, there is no relationship and the viewer will not be able to complete it in his or her mind's eye (Evans & Thomas, 2004:52-54). "Closure" is illustrated in Figure 2.14 below.

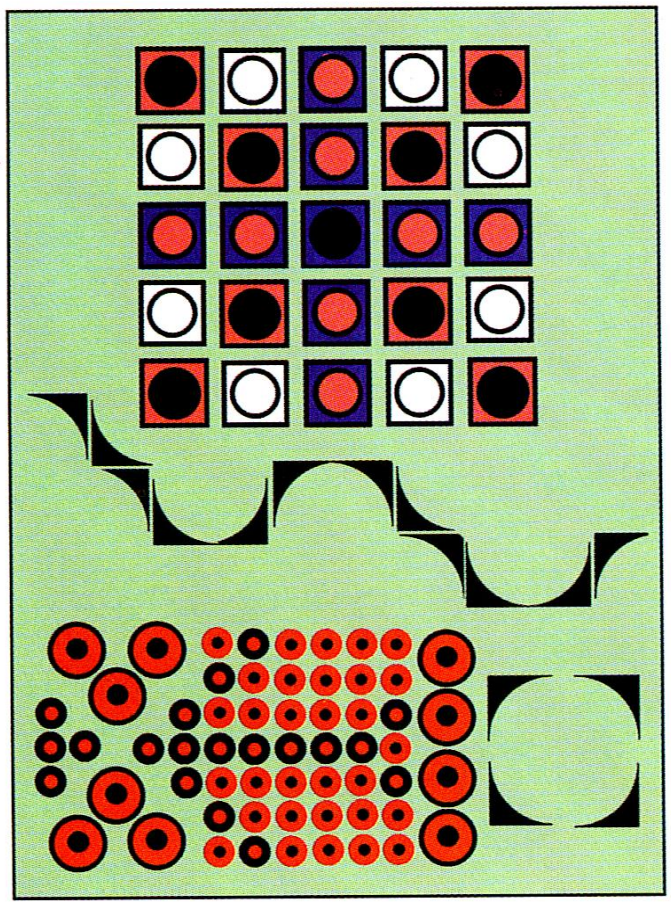

Figure 2.14: Closure (Ocvirk et al., 2002:44)

### 2.2.2.6 Alignment

Physical alignment (Figure 2.15) comes about when the line that is used in a design to line-up images or text, can actually be seen (Holtzschue & Noriega, 1997:88; Evans & Thomas, 2004:139).

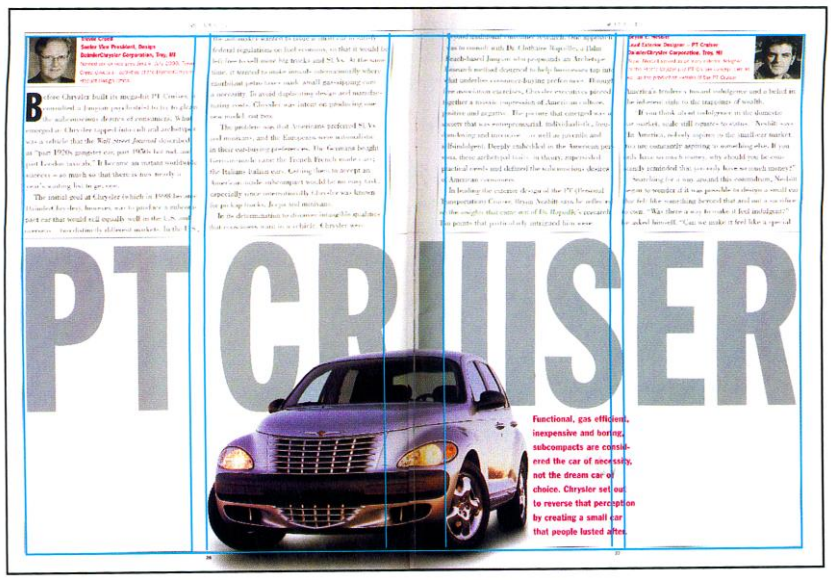


Figure 2.15: Alignment (Evans & Thomas, 2004:140)

Optical alignment may be observed when two or more images or shapes are placed on a common line where the line, which aligns the images or shapes, cannot be seen (Holtzschue & Noriega, 1997:88).

### 2.2.2.7 Grid systems

A grid (Figure 2.16) is a series of nonprinting horizontal and vertical guidelines on the page which is used to achieve good organisation in a design (Pipes, 2008:178; Evans & Thomas, 2004:41; Lichty, 1994:123; Cheatham et al., 1987:25). Evans and Thomas (2004:41-42) indicate that graphic designers use grid systems to organise and determine where to place graphic elements.

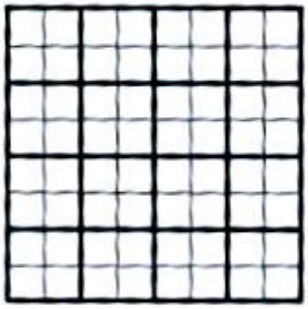

Figure 2.16: Grid (Evans & Thomas, 2004:42)

### 2.2.3 SIMILARITY

Similarity occurs when forms resemble one another in size, shape, direction, colour, value or volume (Arnston, 2006:149). Wong (1993:69) proclaims that forms can resemble each other and not be identical. Similar units have the tendency to group together visually. When individual units appear similar in size, they appear to belong together and to be part of a larger visual grouping. Units of a similar shape or volume tend to be perceived as a group. Various lines, shapes and forms can appear similar if it appears that they are travelling in the same direction (Figure 2.17). When individual units have a similar colour of value, they appear to be part of a larger visual group (Cheatham et al., 1987:26-31).

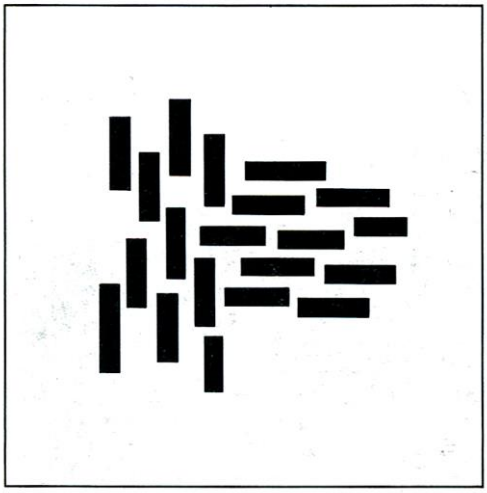

Figure 2.17: Similarity of direction (Cheatham et al., 1987:30)

### 2.2.4 COMPOSITION

When various parts of images are arranged within the boundaries of an image area, the result is composition (Lauer, 1990:28; Cheatham et al., 1987:34). Cheatham et al. (1987:34) also claim that composition (Figure 2.18) is the method that is used when the designer organises a whole image.

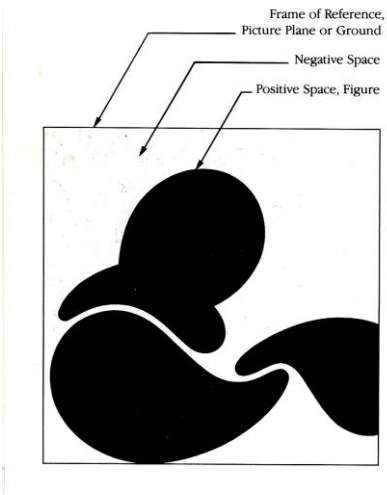


Figure 2.18: Composition (Cheatham et al., 1987:34)

Cheatham et al. (1987:35) describe symmetrical composition as the process whereby two identical images are formed when the image is divided from a central axis. Asymmetrical balance is obtained when the parts of an image are arranged so that they cannot be divided by or positioned equally from a central axis. Symmetry in composition has a natural feeling (Holtzschue & Noriega, 1997:89).

### 2.2.5 SHAPE AND VOLUME

The term shape (Figure 2.19) is used to describe two-dimensional form while volume (Figure 2.20) is used to describe three-dimensional form (Evans & Thomas, 2004:20; Ocvirk et al., 2002:233; Cheatham et al., 2000:48; Holtzschue & Noriega, 1997:70-71; Lauer, 1990:130).

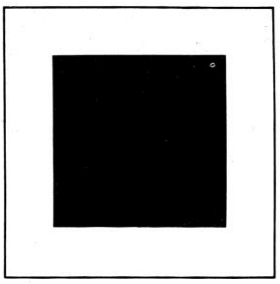

Figure 2.19: Shape, Cheatham et al., 1987

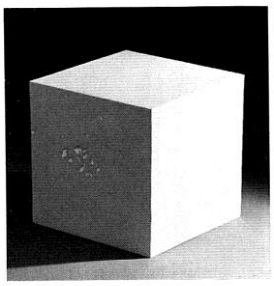

Figure 2.20: Volume, Cheatham et al., 1987

Simple geometric shape and volume consists of basic geometric shapes like squares, circles and triangles (Cheatham et al., 1987:49).

Complex geometric rectilinear shape and volume (Figure 2.21) is created by combining simple, geometric shapes or volumes that result in straight line and surface combinations with no curved lines or circles. Complex geometric curvilinear shape and volume occurs when simple geometric shapes, of which one has to be a circle, are combined to result in curved lines and surfaces as well as straight ones (Pipes, 2008:46-48; Cheatham et al., 1987:50-52; Lauer, 1990:141).

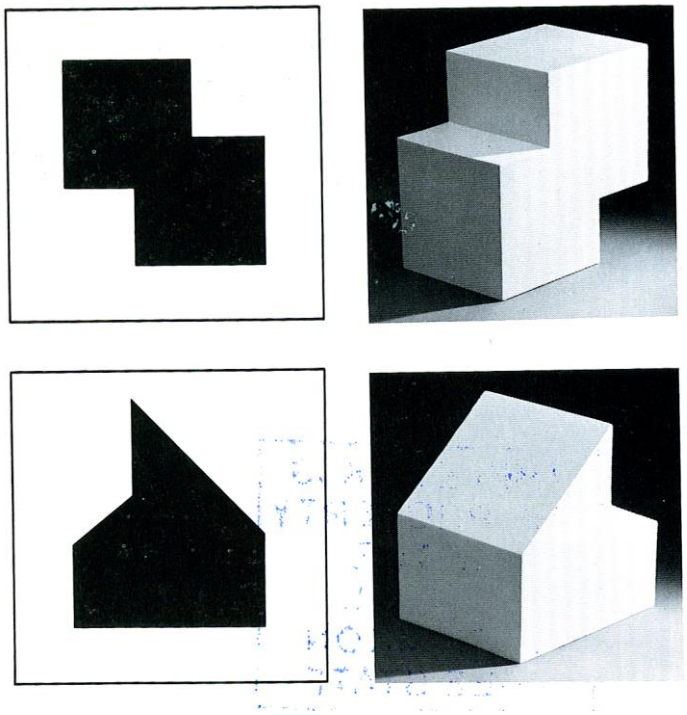

Figure 2.21: Complex geometric rectilinear shape and volume (Cheatham et al., 1987:51)

Cheatham et al. (1987:54) as well as Evans and Thomas (2004:20) indicate that organic shapes and forms (Figure 2.22) are made up of free-flowing curves with shapes that are mostly found in nature and are frequently seen in plants, animals and insects.

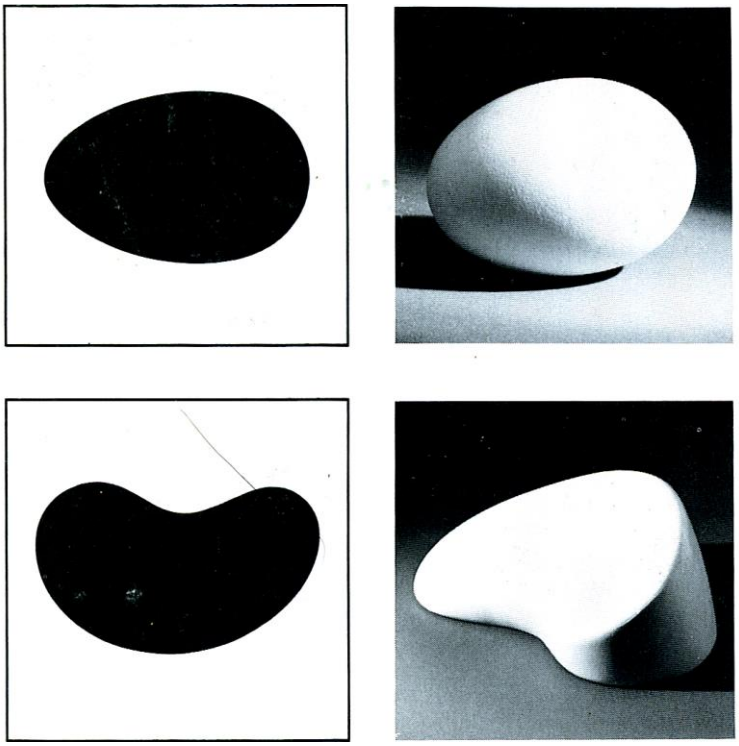

Figure 2.22: Organic shape and volume (Cheatham et al., 1987:54)

### 2.2.6 SPACE

Space is the voids between forms and the voids that surround forms or unoccupied space (Pipes, 2008:80; Wong, 1993:127; Cheatham et al., 1987:60). The area stands out from the space next to or around it (Evans & Thomas, 2004:21; Ocvirk et al., 2002:96). According to Wong (1993:127-131) and Cheatham et al. (1987:60), space can be divided into flat space, flat fluctuating space and illusionary space.

Flat space is the space on a two-dimensional picture plane (Wong, 1993:127). Some forms may appear to advance, some to recede and some to show their oblique, thus creating the illusion of depth or the feeling of space (Wong, 1993:127-129; Cheatham et al., 1987:61). Flat fluctuating space (Figure 2.23) may be seen where space appears to advance and recede continually (Wong, 1993:131; Cheatham et al., 1987:62). It can also be seen as a two-dimensional design where the image and the ground cannot easily be distinguished from one another (Wong, 1993:129-131).

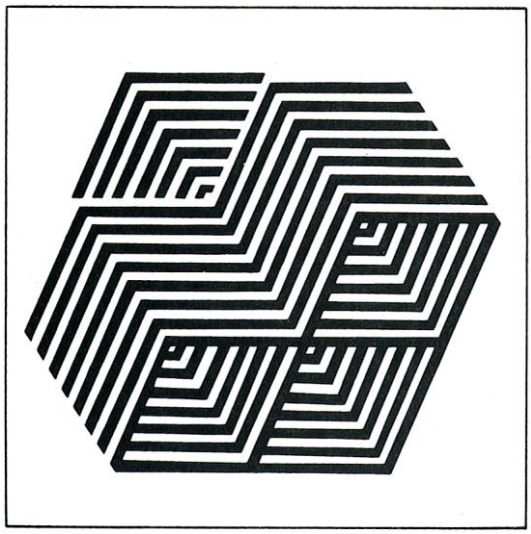

Figure 2.23: Flat fluctuating space (Wong, 1993:134)

The design principle of illusion is a "visual experience that is mistaken for reality and occurs when a visual stimulus misleads the brain" (Holtzschue & Noriega, 1997:101). Illusionary space is an illusion, because the images are rendered on paper which is flat (Lauer, 1990:164). Illusionary space can be created by overlapping (cf. par. 2.2.2.2 and Fig. 2.11 above), which occurs when one form overlaps another and it is seen as being in front or above the other (Pipes, 2008:81; Ocvirk et al., 2002:102; Wong, 1993:129; Lauer, 1990:170). An increase in the size of a form suggests that it is getting nearer which also creates illusionary space (Lauer & Pentak 2000:182; Holtzschue & Noriega, 1997:104; Wong, 1993:129; Lauer, 1990:167). Darker colours appear closer than lighter colours which creates an illusion if depth (Lauer & Pentak, 2000:183; Wong, 1993:129).

Another form of illusionary space may be observed when coarser textures appear closer than finer textures (Wong, 1993:127). A designer can add volume to a form by adding perspective. This can also be seen as a change in view or one's point of view (Lauer, 1990:174; Cheatham et al., 1987:72-74). Perspective drawings (Figure 2.24) have a horizon line, station point and vanishing point (Pipes, 2008:84; Lauer & Pentak, 2000:184; Holtzschue & Noriega, 1997:107; Lauer, 1990:178).

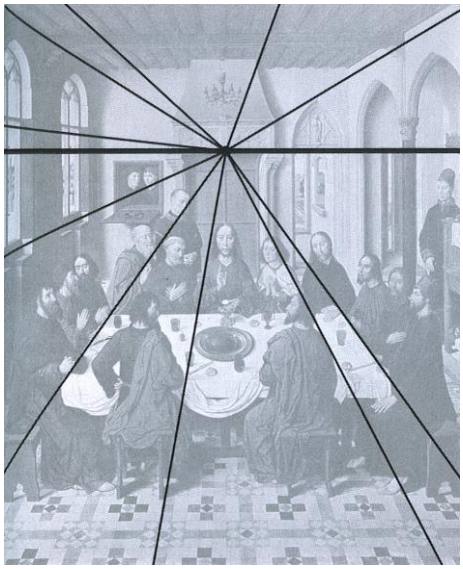

Figure 2.24: Perspective drawing (Lauer & Pentak, 2000:187)

### 2.2.7 CONTRAST

A focal point results when one element differs from the other elements, which is referred to as the principle of contrast (Lauer & Pentak, 2000:48). Wong (1993:345) explains that contrast is used to emphasise difference in shape, size (Figure 2.25), colour, texture, direction and/or position in relating forms. Contrast also creates visual interest (Evans & Thomas, 2004:55).

Figure 2.25: Contrast in size; Fernando Botero, "Night in Colombia", 1980 (Lauer & Pentak, 2000:48)

Contrast introduces visual variety into a design which enhances the visual appearance thereof (Cheatham et al., 1987:89).

### 2.2.8 LINE

A line is a form that has length and width, but the width is far less than the length or there is no width present (Pipes, 2008:16; Evans & Thomas, 2004:22; Holtzschue & Noriega, 1997:60; Cheatham et al., 1987:110). Line is the most versatile and fundamental of all the design principles because lines are the first kind of marks children learn to make (Pipes, 2008:16; Lauer, 1990:106). Lauer (1990:108) states that line are used to describe shape. The shape illustrated in Figure 2.26 below consists of line only and does not have colour or texture, but is still recognisable as a figure.

Figure 2.26: Line; Henri Matisse, "Portrait of a Woman" (Pipes, 2008:16)

### 2.2.9 REPETITION

Repetition occurs when individual design elements are repeated more than once. Repetition suggests stability and visual unity (Lauer & Pentak, 2000:28; Holtzschue & Noriega, 1997:91; Cheatham et al., 1987:122). Types of repetition can be simplified into four basic

categories, namely repetition of shape/volume, size, position and direction (Cheatham et al., 1987:122-129).

The composition presented in Figure 2.27 is based on one shape, namely a circle with two removed pieces. This shape is repeated in different sizes and positions which results in a unified composition that is not predictable.

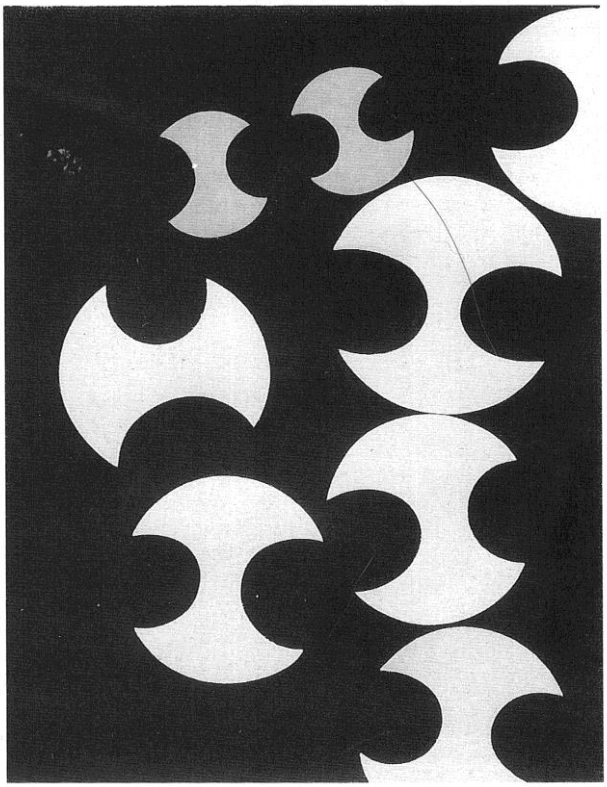

Figure 2.27: Repetition; Sophie Taueber-Arp, "Composition with circles shaped by curves" (Lauer & Pentak, 2000:28)

### 2.2.10 CONCENTRATION

Concentration refers to how unit forms are distributed in a design. They can be thickly gathered or thinly scattered. The thick gathering of units can be the centre of attention (Wong, 1993:113). Concentration can be made in three ways, namely frequent absences, positional changes and quantitative changes.

#### 2.2.10.1 Frequent absences

The uneven distribution of forms may lead to a concentration in chosen areas of the design. The resultant pattern absences can be regular or irregular (Wong, 1993:113). Frequent absences (Figure 2.28) can in its turn result in uneven distribution of unit forms.

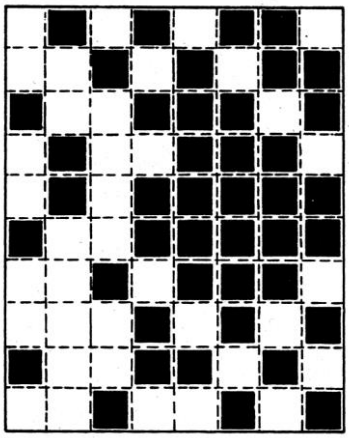

Figure 2.28: Frequent absences (Wong, 1993:112)

#### 2.2.10.2 Positional changes

Another way of achieving concentration is to use structural subdivisions with forms that change position inside. The highest concentration could be where the forms take up most space and the viewer could be drawn to the highest concentration area (Wong, 1993:113). The concentration can be noted when the space that is occupied is more than the space that is unoccupied (Figure 2.29).

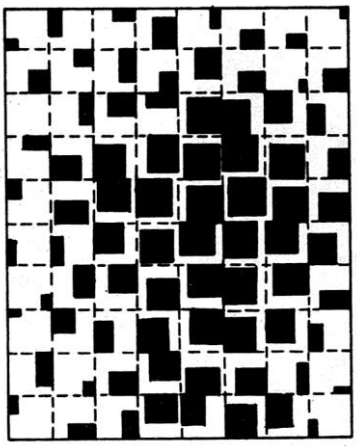

Figure 2.29: Positional changes (Wong, 1993:112)

#### 2.2.10.3 Quantitative changes

When structural subdivisions can house more than one form (Figure 2.30) because the forms are small, quantitative changes can be made in order to achieve the effect of concentration (Wong, 1993:113).

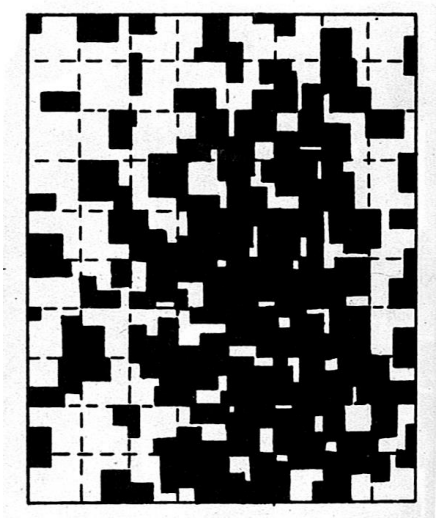

Figure 2.30: Quantitative changes (Wong, 1993:112)

### 2.2.11 TIME, CHANGE AND MOTION

In order to communicate a passage of time, a change in appearance or an object in motion, the graphic design principle of time, change and motion will be used. There are several basic sequences that can be used in stationary frames of references, namely (1) additive sequence, (2) subtractive sequence, (3) direction-change sequence, (4) size-change sequence, (5) position-change sequence, (6) metamorphic sequence and (7) distortion/destruction sequence (Cheatham et al., 1987:132-145).

#### 2.2.11.1 Additive sequence

An additive sequence (Figure 2.31) consists of two- or three-dimensional images that develop additional visual characteristics progressively and which result in a physical change in appearance (Cheatham et al., 1987:134-135).

Figure 2.31: Additive sequence (Cheatham et al., 1987:134)

#### 2.2.11.2 Subtractive sequence

A subtractive sequence (Figure 2.32) is the opposite of additive sequence. Two- or three-dimensional images lose their visual characteristics progressively (Cheatham et al., 1987:136-137).

Figure 2.32: Subtractive sequence (Cheatham et al., 1987:136)

#### 2.2.11.3 Direction-change sequence

A direction-change sequence (Figure 2.33) is a visual change of an element's direction in sequence (Cheatham et al., 1987:138).

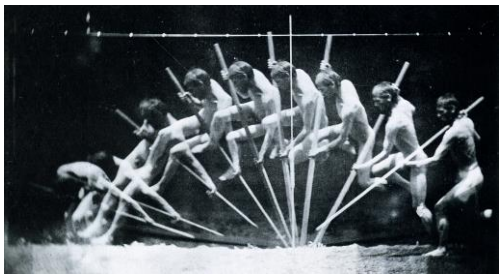

Figure 2.33: Direction-change sequence; Thomas Eakins, "Pole-Vaulter: Multiple Exposure Photograph of George Reynolds" (Cheatham et al., 1987:138)

#### 2.2.11.4 Size-change sequence

A size-change sequence (Figure 2.34) comes about when two- or three-dimensional images change in size from large to small or from small to large (Cheatham et al., 1987:139).

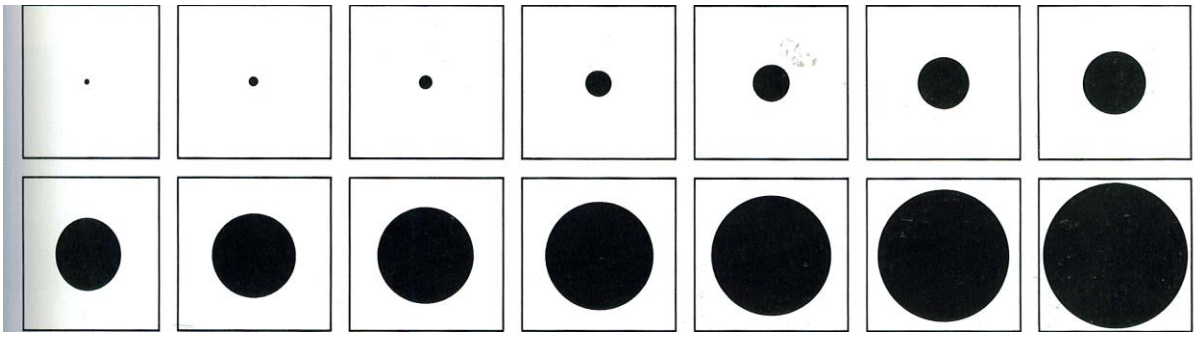

Figure 2.34: Size-change sequence (Cheatham et al., 1987:139)

#### 2.2.11.5 Position-change sequence

A position-change sequence (Figure 2.35) varies the placement of two- or three-dimensional elements to communicate motion (Cheatham et al., 1987:140).

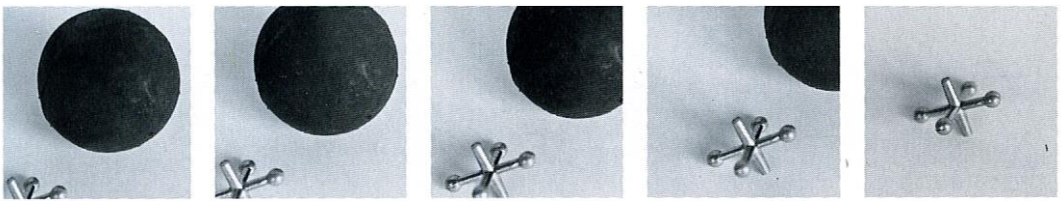

Figure 2.35: Position-change sequence (Cheatham et al., 1987:141)

#### 2.2.11.6 Metamorphic sequence

A metamorphic sequence (Figure 2.36) transforms one image into a completely different image in sequence (Cheatham et al., 1987:142).

Figure 2.36: Metamorphic sequence (Cheatham et al., 1987:143)

#### 2.2.11.7 Distortion/destruction sequence

A distortion/destruction sequence (Figure 2.37) distorts or destroys an image in sequence to communicate a change in appearance (Cheatham et al., 1987:144).

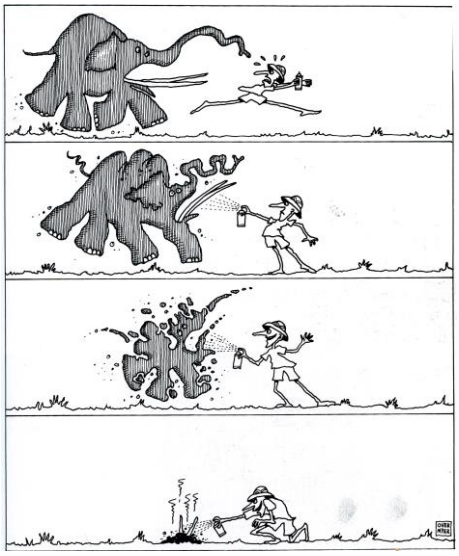

Figure 2.37: Metamorphic sequence (Cheatham et al., 1987:145)

### 2.2.12 COLOUR

Colours are also referred to as hues. There are a number of ways to classify colours. One of these is the twelve-part colour wheel (Figure 2.38). A variety of colours can be developed by mixing different colours. The naming of colours depends on the purpose of the intended use like colour marketing, colour quality control and colour mixing (Lauer & Pentak, 2000:230-232; Cheatham et al., 1987:152).

Figure 2.38: Twelve-step colour wheel, Johannes Itten (Lauer & Pentak, 2000:235)

Colour is a property of light and objects have no colour but only the ability to reflect certain rays of white light, which consists of all the colours (Lauer & Pentak, 2000:230).

When the three primary colours of light (namely red, green and blue) overlap, yellow, cyan and magenta (Figure 2.39) are produced. These colours (i.e. yellow, cyan and magenta) are used by printers to print.

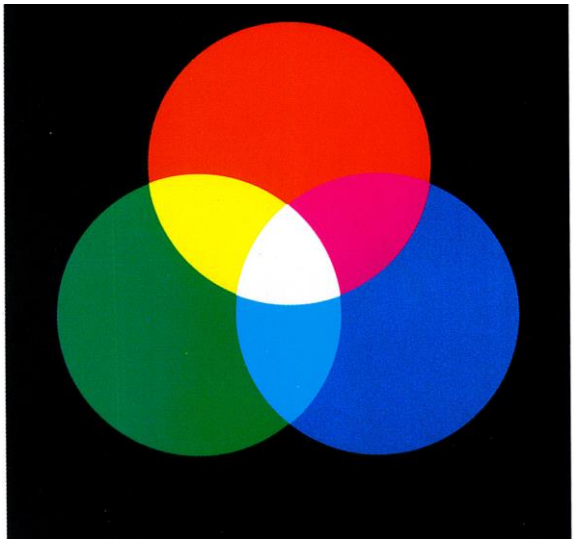

Figure 2.39: Subtractive colours (Pipes, 2008:148)

## 2.3 MANUAL DESIGN

Manuals for education are designed to inform and enhance learning effectiveness. The combination of words and images can enhance the learning process. The balance between the use of words and images needs to be maintained (Khayrazad, 2012:15).

Khayrazad (2012:14) references Clark and Lyons (2004) and confirms that graphic design has psychological functions when it comes to learning material design. The graphics must draw attention to important elements in the material and make the learning material more interesting.

### 2.3.1 Caps and lower case

Using upper and lower case type makes it easier for the reader to recognise the words faster, which results in more legible text (Tinker, 1963:34). Bringhurst (1992:55) states that "all caps" uses 35 to 50 per cent more space which results in slower reading. Arditi and Cho (2007) contradicts these statements by Tinker and Bringhurst and found that upper-case text is more legible in terms of reading speed for low vision readers and for those viewing visually small text.

### 2.3.2 Line length

Tinker and Paterson (1929) found that line lengths between 75 to 90 mm yielded the fastest reading performance. Paragraphs with line lengths of 185 mm were read slowest because it tires the eyes.

### 2.3.3 Leading

Leading is the distance between the baseline of one line of text and the baseline of the next. Tinker and Paterson (1929) compared leading in combination with 10-point type and 19 pica line width and found that reading speed is best when 2-point leading was used.

### 2.3.4 Word spacing

Tinker (1963) explains that too much word spacing can affect visual tracking on the line.

### 2.3.5 Letter spacing

Too much letter spacing impairs word form recognition by distorting familiar word outlines (Tinker, 1963).

### 2.3.6 Weight

Tinker (1963) mentioned that type legibility is affected by the heaviness of a stroke. Tinker and Paterson (1929) concluded that different type faces in common uses are equally legible (Tinker and Paterson, 1929).

## 2.4 CONCLUSION

In this chapter the principles of graphic design were discussed as well as the design principles that should be applied in manual design. The visual language that the student uses as the basis of the design creation process is made up of principles and rules. These principles and rules are used to plan, organise and assist in the creation of successful designs.

Manuals can have more than one function (to inform, persuade, sell or entertain), but educational manuals are designed to inform because it is perceived as an instructional aid.

The following chapter deals with the design of the study and the methodology applied.

CHAPTER 3

# METHODOLOGY

## 3.1 INTRODUCTION

In this chapter a mixed method research design is discussed. This study is a non-experimental research design and can be classified into three categories, namely relational designs, comparative designs and longitudinal designs. In this study a comparative design was employed, because the comparative design compares two or more groups on one or more variables. In this case the effectiveness of a teaching manual was determined according to responses of three groups, namely graphic design students, graphic design lecturers and the graphic design industry. Purposeful convenient sampling technique, as explicated upon by Bickman and Rog (1998:446-447), was used and which included students, lecturers and owners of graphic design studios (industry) in the field of graphic design. The theoretically specified aggregation of the study elements was 21 **second-year**, 22 **third-year** and 13 **fourth-year** students who were registered during 2013 in the Graphic Design Programme at the CUT. It also included three graphic design lecturers who taught the subject "Principles of graphic design" during the past four years at the CUT in the Graphic Design Programme and three owners of graphic design agencies in Bloemfontein who employs students from the Graphic Design Programme at the CUT, Free State.

## 3.2 RESEARCH PROBLEM

Graphic design is built on the foundation of principles and elements. A design principle is defined as a set of functions that must be provided "to provide some high-level functionality" (Kelly, 2002). The term "pragmatic" means that which is "concerned with practical". As soon as students have knowledge of what works in practice and why it works, their capacity for effectiveness is greatly increased (Cavaleri, 2004:313).

Having been a lecturer for more than ten years, it became clear that students regularly struggle to link theory to practice and application. Tempelman and Pilot (2010:262) state that "a first promising solution to this problem is to interweave theory and practice much closer". Tempelman and Pilot further mention that the interweaving of theory and practice can contribute to the building of a student's knowledge and skills. The use of graphic design

principles will also lessen the time taken to complete a successful design because these principles can be used as a formula (Castelluccio, 2008:58) and assist students with critically analysing and constructively criticising the design project in order to aid with the solving of problems related to graphic design.

Graphic design students in the Graphic Design Programme at the CUT are taught the principles of graphic design to provide a foundation in their graphic design studies during their first year of study. As a suitable manual on graphic design principles with theory and practice did not exist, the researcher created a teaching manual titled *The Principles of Graphic Design* with interweaved theory and practice with visual applications. The question what the perceptions are on the PGD manual for first-year graphic design students at the CUT subsequently arose. Secondary questions that arose were: *What constitutes an effective manual? How can the PGD manual enhance and ease the teaching of graphic design principles for lecturers at the CUT? How can the PGD manual assist graphic design students with time spent on a design in the graphic design industry in Bloemfontein?* It was the express objective of this study to determine the answers to the above questions and so learn the perceptions regarding the PGD manual.

## 3.3 RESEARCH QUESTIONS

The primary research question is:

- What are the perceptions regarding the PGD manual for first-year graphic design students at the CUT?

The secondary research questions are:

- What constitutes an effective manual on the principles of graphic design for first-year students?
- How can the PGD manual enhance and ease the teaching of graphic design principles for lecturers at the CUT?
- In what manner do the principles of graphic design contained in the PGD manual for first-year graphic design students assist graphic design students working in the graphic design industry in Bloemfontein with time spent on a design?

## 3.4 RESEARCH AIM AND OBJECTIVES

The aim of this study is to determine the effectiveness of the manual titled *The Principles of Graphic Design* for first-year graphic design students at the CUT.

The primary objective of the researcher is to determine the perceptions of second-, third- and fourth-year graphic design students on *The Principles of Graphic Design* manual for first-year graphic design students at the CUT.

The secondary objectives of the researcher are to determine what constitutes an effective manual on the principles of graphic design for first-year students, how such a manual can enhance and ease the teaching of graphic design principles for lecturers at the CUT and how the principles from the manual can assist students working in the graphic design industry in Bloemfontein with the time spent on a design.

## 3.5 RESEARCH DESIGN AND METHODOLOGY

A research design is a plan of how the researcher intends to conduct the research (Fouché, Delport & De Vos, 2011:143). The mixed method approach (qualitative and quantitative methodology) was used in this study, but with the main focus being on the qualitative method. The researcher attempted to understand the respondents in terms of their own definitions. According to Babbie and Mouton (2008:48), this is useful in getting to know your object of study.

The researcher designed a manual on graphic design principles (see Addendum D) with interweaved theory and practice for the subject Communication Design I (COD10AK) in the National Diploma of Graphic Design during 2008, where first-year graphic design students are taught the principles of graphic design as a component of the subject COD10AK. In order to determine the perceptions of students of this teaching manual, a non-experimental descriptive analytical research design was followed.

In this study a comparative non-experimental design was used because the perceptions of three groups were compared on one variable, namely students, lecturers and the graphic

design industry. Non-experimental research describes things that have occurred and examines the relationship between things without any direct manipulation of conditions (McMillan & Schumacher, 2006:24).

Comparative research includes both the quantitative and qualitative comparison of social entities (Mills et al., 2006:621) while focusing on the similarities and differences (Mouton, 2006:154). Comparative research investigates the differences between two or more groups on a variable (McMillan & Schumacher, 2006:219). The researcher aims to access the opinions and the values of participants (Munro, 2014:56).

## 3.6 TARGET POPULATION AND SAMPLING

The researcher made use of convenient sampling methods because the selected individuals who fit the criteria of desirable participants such as students that have completed the Communication Design I subject of which Principles of Graphic Design forms a part of. Three groups were used, namely students, lecturers and design studio owners. For the purpose of this study the researcher selected participants who could possibly provide answers to the research questions (Munro, 2014).

As they could provide information rich data (Munro, 2014:53), students who have completed "Principles of Graphic Design" as part of the first-year graphic design subject Communication Design I were used in Phase 1. Phase 1 students consisted of 21 second-, 22 third- and 13 fourth-year students in the Graphic Design programmes. The researcher set a time and date for them to complete the questionnaires in their classroom. The questionnaire was handed to them by the researcher as well as *The Principles of Graphic Design* manual for reference. The students are familiar with the PGD manual and each student does own one, but they do not always have it readily available in class. The questionnaire clearly explained the aim of the research and gave effective navigation tools regarding how the questionnaire should be completed. All the statements, questions and Likert Scale descriptors were clear and unambiguous (Munro, 2014:48). The students were allowed five minutes each to page through the PGD manual to refresh their memories. They also signed the consent form at this time (Addendum E).

In Phase 2, lecturers that had previously taught or were teaching the subject Principles of Graphic Design were selected to be interviewed by the researcher. According to Babbie and Mouton (2008:168), it is important to choose only persons that are "rich in data" on the specific topic. Notes were used to record information during the interview protecting the participants' anonymity and confidentiality (Munro, 2014:59). One lecturer has been teaching at the CUT for 20 years and was the first lecturer to teach "the principles of graphic design" that forms part of the subject Communication Design I. The second lecturer has been teaching at the CUT for nine years and the third lecturer has been teaching for two years. These lecturers have experience in higher education and graphic design. All three participants were asked if they would be willing to participate anonymously in the research and a consent form was signed that stated the aims of the research. After they agreed to be interviewed they were contacted telephonically and an appropriate time and place for the interviews were set. Permission was also asked if they could be recorded. All three participants declined, but nonetheless agreed that the researcher could take notes during the interview.

In Phase 3, design studio owners were selected to complete the CSAQ. Babbie and Mouton (2008:259) describe CSAQ as the process where the respondent receives the questionnaire via CD or other (electronic) means. The design studio owners could thus run the software at their leisure in order to complete the questions and return the data file. The researcher selected Survey Monkey (www.surveymonkey.com) for this process, which is accessible with a standard computer, tablet or smart phone with no special programmes required. The researcher designed the CSAQ on the Surveymonkey website and then selected the participants by entering their email addresses. The link to the questionnaire was then emailed to them directly from the Surveymonkey domain. Design studio owners who regularly appoint graphic design students from the CUT were formally invited to take part in the research with the aid of an email two weeks beforehand. The aim of the research was also explained to them as well as the fact that they would remain anonymous. A week before the questionnaires were emailed to them, they were sent a reminder.

## 3.7 DATA COLLECTION PROCEDURES

### 3.7.1 Introduction

The research was conducted within the mixed method research design (qualitative and quantitative) with the main focus on the qualitative research. The researcher attempted to understand the respondents in terms of their own interpretations. This is useful in getting to know your object of study (Babbie & Mouton, 2008). To gather the required data, the researcher made use of questionnaires, interviews and computerised self-administered questionnaires (QSAC).

### 3.7.2 Questionnaire

In the designing of the questionnaire, the researcher paid special attention to the order, structure, wording and type of questions that were asked to ensure that the appropriate data was collected for analysis. The questions in the questionnaire were spread out and uncluttered as suggested by Babbie and Mouton (2008:239). The researcher made sure that all statements and open-ended and closed questions were clear and unambiguous by means of a pilot study of the questionnaire by distributing it amongst ten first-year graphic design students. The pre-test subjects did not comprise of a representative sample, but the questionnaire was nonetheless relevant to them (Babbie & Mouton, 2008:244). This ensured that the participants understood what had to be done and was clear about the questions and statements and knew how to respond (Munro, 2014:46). The same questionnaire (see Addendum A) was used for the second-, third- and fourth-year Graphic Design students. A five-point Likert Scale was used with response categories such as (1) "strongly agree", (2) "agree", (3) "neither agree nor disagree", (4) "disagree" and (5) "strongly disagree" (Babbie & Mouton, 2008:153).

Permission for students to complete the questionnaires was arranged with lecturers during normal lecture time. The researcher had 4$^{th}$-year students complete the questionnaire during their supervision period with the researcher because the researcher is the 4$^{th}$-year lecturer.

The questionnaire contained clear basic instructions and introductory comments (Babbie & Mouton, 2008:243; Fink, 2009:13-14). Respondents were requested to indicate their answers with an "X" in the box beside the appropriate question as well as writing in an

answer when asked to do so. As suggested by Munro (2014:43) and Fink (2009:44), the respondents' privacy was protected and all information was confidential. A copy of *The Principles of Graphic Design* manual was also provided to them.

As suggested by Babbie and Mouton (2008:240), boxes were used where the respondents had to indicate their answers with an "X". Contingency questions were asked in Section B, where the respondents were given the option to select "Yes" or "No" in order to determine if they have been introduced to any form of principles of graphic design before commencing their formal studies. The format of selecting "Yes" or "No" and only those respondents selecting "Yes" having to answer the next question was constructed to ensure that respondents did not become confused (Babbie & Mouton, 2008:240-241). Each section was also introduced with a short introduction explicating the purpose of the section.

Open-ended questions were asked to give the respondents the opportunity to express their own opinions (Fink, 2009:17) as well as closed-ended questions for relative ease of interpretation.

The questionnaire was used to gather data on the perceptions of graphic design students on *The Principles of Graphic Design* manual of graphic design students at the Central University of Technology. The researcher personally administered the questionnaire. The questionnaire consisted of open- and closed-ended questions. Open-ended questions are necessary to determine how the Manual can be improved according to the respondents.

### 3.7.3 Interviews

Semi-structured interviews were used with standardised questions in order to provide the researcher with latitude to move into another direction should the need arose (Du Plooy, 2002:177). A certain portion of the questions were nonetheless set (cf. Munro 2014:60). Interviews were selected to determine how to improve the PGD manual with teaching in mind.

### 3.7.4 Computerised self-administered questionnaires

Nicholls (as cited by Babbie and Mouton, 2008:260) reports that techniques such as CSAQ are more efficient than conventional techniques. The researcher came to the conclusion that

using this technique would give the design studio owners time to complete the questionnaire at their own leisure. This tool is also appropriate because the population have access to a computer or computers (Babbie & Mouton, 2008:258). The CSAQ was used to gather data regarding the studio owners' knowledge of their employees' insight into and use of the design principles when newly appointed staff start working in the graphic design industry in Bloemfontein.

## 3.8 DATA ANALYSIS AND INTREPRETATION

As indicated above, the research was conducted in three phases, namely by means of (1) student perceptions questionnaires, (2) lecturers interviews and (3) computerised self-administered questionnaires of studio owners from industry.

### 3.8.1 Quantitative data analysis

Data analysis for the student perception questionnaires was done by identifying themes. This process involved the reconstruction of data into smaller manageable parts (Mouton, 2006:108). For the purpose of this study, the researcher captured the data gathered from the questionnaire onto a Microsoft Excel spread sheet to facilitate analysis. The sample was small enough for the researcher to design a data file for data capturing as described by Babbie and Mouton (2008:459-461). Data files on computer were constructed for documenting the survey process. Data items were then converted into numerical codes and the data file for each variable was collected into a data bank that details the content of each file (Bickman & Rog, 1998:394). The files included the cleaned data and derived variables indicating the attributes composing each variable (Babbie & Mouton, 2008:414). This data were presented in tables and discussions in this chapter. The researcher clearly organised the data into graphs and tables and, as suggested by McMillan and Schumacher (2006:367), explained it in words.

### 3.8.2 Qualitative data analysis

Data gathered from the interviews with the lecturers was organised into themes in order to interpret the information which has the effect of enabling the researcher to determine the significance thereof more clearly (Gillham, 2003:73). A phenomenological research approach was followed. It is a holistic approach which probes into the contexts within which

human experiences arise and is thus concerned with learning from particular instances. Qualitative research explores the inner world of perception and meaning-making in order to understand, describe and explain certain processes from the perspective of the participants (Bazeley, 2009).

### 3.8.3 Computerised self-administered questionnaire

Data analysis for the computerised self-administered questionnaires for industry were captured onto a Microsoft Excel spread sheet to facilitate analysis (Babbie & Mouton, 2008). Data was examined and interpreted (McMillan & Schumacher, 2006:417). The researcher subsequently compared the differences between the three groups namely students, lecturers and studio owners from industry. There was furthermore no manipulation (McMillan & Schumacher, 2006:25).

## 3.9 REPORTING OF DATA

The researcher got a sense of the whole and then organised the data into categories and presented it as graphs and tables and detailed descriptions as suggested and set out by McMillan and Schumacher (2006:367).

During the data collection and analysis, each question was analysed. Each response of every participant was studied in order to get an overview of the situation. Next the responses were compared. The constant comparative method has four stages, namely (1) comparing incidents applicable to each category, (2) integrating categories, (3) delimiting and (4) writing (Maykut & Morehouse, 1994). These stages were followed in this research. This method was used to group answers and analyse different perceptions (Dye, Schatz, Rosenberg & Coleman, 2000:1).

## 3.10 TRUSTWORTHINESS OF RESEARCH

The questionnaire that was used as data collection instrument to determine the perceptions of students regarding the PGD manual was piloted by the researcher by disseminating it amongst ten first-year graphic design students. The pre-test subjects did not comprise of a representative sample, but the questionnaire was nonetheless relevant to them (Babbie &

Mouton, 2008:244). The pre-testing was conducted to eliminate any mistakes, for example questions that people would not understand or would be unable to answer. The researcher subsequently corrected all errors and remedied any inadequacies as indicated by the groups of students (Babbie & Mouton, 2008:245; Bickman & Rog, 1998:343).

The four stages of trustworthiness as identified by Lincoln and Guba (1985) were adhered to. Credibility was established as the researcher searched for the "truth". The researcher also established transferability by showing that the findings have applicability in other contexts than this research alone. The dependability of the research will be established by showing the findings are not only consistent but could also be repeated.

Validity refers to the truthfulness of findings and conclusions (McMillan & Schumacher, 2006:134). According to De Vos, Strydom, Fouché and Delport (2005:362), the term triangulation refers to a multi-method approach to research in order to enhance the credibility of a study. The researcher provided for triangulation in the following ways:

- Multiple data sources were used to collect data through questionnaires, interviews and literature readings.
- Fifty-six students who have completed the subject Communication Design I, and which included the component Basic Design Principles as part of the module and for which the manual *The Principles of Graphic Design* were compiled, were included in the research.
- Three lecturers who taught the subject Basic Design Principles, with different educational and qualification backgrounds, were included.
- Three owners of graphic design agencies who employ students from the Graphic Design Programme who completed the National Diploma in Graphic Design were included.
- Transferability can be seen as external validity. Transferability in qualitative research is mostly verified through "thick" descriptions.

### 3.10.1 Role of the researcher

The researcher is a junior lecturer at the Central University of Technology in the Graphic Design Programme. The researcher collected data in various forms systematically and logically in order to analyse the data for the purpose of the research (McMillan & Schumacher, 2006:9). The researcher remained objective during the study.

### 3.10.2 Ethical considerations

The "epistemic imperative" as mentioned by Mouton (2006:243) were adhered to and the researcher were committed to the search for truth. The researcher strived to maintain objectivity and integrity and will be willing to disclose the methodology and techniques of analysis.

The subjects of study had the right to privacy (including the right to refuse to participate in the research). Anonymity and confidentiality were maintained during the study. Participants had the right to full disclosure with regard to the research and the right not to be harmed in any way.

The researcher dealt with the participants with dignity and respect. The gathering of information that could in any way be unlawful or infringe upon the rights of any individual was not pursued (Munro, 2014:43).

Students were asked if they were willing to participate in the research process. The participants were provided enough information regarding the research in order to make an informed decision about their participation. The participants signed a consent form (see Addendum E) and their confidentiality and anonymity were guaranteed (Munro, 2014:124).

During the individual interviews, the researcher informed the participants about the aim of the research project which was to determine if the PGD manual enhances and facilitates lecturers' teaching of graphic design principles at the Central University of Technology, Free State.

The CUT does not have an ethical research committee, no ethical clearance had to be obtained from the aforementioned institution.

## 3.11 LIMITATIONS OF THE STUDY

The study was limited to the Graphic Design Programme at the Central University of Technology, Free State, because the private institution that used *The Principles of Graphic Design* manual closed down at the end of 2011. Otherwise a comparison study could have been performed between the samples from both institutions.

The case study was conducted at the CUT which means that results cannot be generalised to other Universities of Technology.

The owners of the design agencies in Bloemfontein are quite busy and as such a specific date and time had to be arranged for them to receive the CSAQ electronically.

## 3.12 SUMMARY AND CONCLUDING REMARKS

In this chapter the research methodology and design were discussed. The researcher created a teaching manual with interweaved theory and practice with visual applications. The effectiveness of this teaching manual was determined for this study. For the purpose of this research a comparative non-experimental design was used because three groups were compared, namely students, lecturers and the graphic design industry. Data analysis procedures for data collection from the questionnaires, interviews and CSAQ were furthermore discussed in detail in this chapter. The researcher captured the data gathered from the questionnaire onto a Microsoft Excel spread sheet to facilitate analysis. Data gathered from the interviews were organised into themes in order to interpret the information. Lastly, possible limitations of the study was discussed. The results of and discussions on the student questionnaires, lecturer interviews and CSAQ will be discussed in the following chapter.

CHAPTER 4

# RESULTS AND DISCUSSION

## 4.1 INTRODUCTION

In this chapter the results of the questionnaires that the students completed, the data collected during the interviews with the lecturers and the computerised self-administered questionnaires for the owners of graphic design studios are presented. The demographic data of the participants will be clarified as well as the perceptions of three student groups concerning *The Principles of Graphic Design* manual, the possible enhancement of the students' skills and competencies and the effectiveness of the PGD manual on the students' industry experience.

## 4.2 PHASE 1: RESULTS REGARDING THE SECOND-, THIRD- AND FOURTH-YEAR STUDENTS

Twenty-one second-year, 22 third-year and 13 fourth-year graphic design students completed the same questionnaire (Addendum A). The questionnaire was disseminated amongst the students by the researcher in their classroom. To ensure that all the completed questionnaires were returned, the researcher monitored the returns closely and also made sure that all questions were answered (Fink, 2009:39). The captured data was discussed with the aid of tables. The data that was collected from the questionnaire are reported with reference to Section A (Questions 1-3), Section B (Questions 1-5) and Section C (Questions 1-26) below.

### 4.2.1 SECTION A (Questions 1-3)

This section of the questionnaire referred to the background and biographical information of the second-, third- and fourth-year year students.

**Table 4.1**: Age and gender of the second-, third- and fourth-year year students (n=56)

| Year | Age | Male | Female | Total students | Average age |
|---|---|---|---|---|---|
| 2nd year | 19-25 | 8 (38%) | 13 (62%) | 21 | 22 |
| 3rd year | 20-26 | 19 (86%) | 3 (14%) | 22 | 24 |
| 4th year | 21-25 | 5 (38%) | 8 (62%) | 13 | 23 |
| TOTAL | | | | 56 | |

Eight of the 21 (38%) second-year respondents were male and 13 (62%) of the 21 respondents were female. Their ages ranged from 19-25 years, with the average age being 22 years. Nineteen of the 22 (86%) third-year respondents were male and three of the 22 (14%) respondents were female with the average age of 24. Five of the 13 (38%) fourth-year respondents were male and 8 of the 13 (62%) respondents were female. Their ages ranged from 21-25 years with an average age of 23 (Table 4.1). According to the demographic findings there were more male students amongst the second, third and fourth-year students who completed the questionnaire.

### 4.2.2 SECTION B (Questions 1-5)

This section of the questionnaire referred to their background knowledge of the principles of graphic design before the second-, third- and fourth-year year students commenced their studies with the Graphic Design Programme.

**Table 4.2**: Background knowledge of the principles of graphic design (n=56)

| Parameters | 2nd Years True (n=21) | 2nd Years False (n=21) | 3rd Years True (n=22) | 3rd Years False (n=22) | 4th Years True (n=13) | 4th Years False (n=13) |
|---|---|---|---|---|---|---|
| Graphic designers make use of rules in order to design | 21 (100%) | 0 (0%) | 21 (95%) | 1 (5%) | 13 (100%) | 0 (0%) |
| The rules of graphic design are called the principles of graphic design | 21 (100%) | 0 (0%) | 22 (100%) | 0 (0%) | 13 (100%) | 0 (0%) |

Twenty-one of the 21 (100%) second-year respondents selected "True" to the statement that the rules of graphic design are called the principles of graphic design. The second-year graphic design students thus realise that the rules of graphic design are called the graphic design principles (see par. 2.1).

Twenty-one of the 22 (95%) third-year respondents selected "True" to the statement that graphic designers make use of the rules in order to design (Table 4.2). The majority of the third-year graphic design students confirmed that the graphic design principles can be used as rules and formulas (see par. 2.1).

All 13 (100%) of the fourth-year respondents selected "True" (Table 4.2). It appears as if the fourth-year graphic design students realise that the graphic design principles that consists of arranging and organising have been developed over the centuries either intuitively or according to mathematical and quasi-scientific methods which are considered the foundation and rules of graphic design (see par. 2.1).

The question "Were you ever introduced to any form of principles of graphic design before you commenced your studies at the Graphic Design Programme?" (Question 3) were posed and seven of the 21 (33%) second-year respondents selected "Yes" and 14 of the 21 (67%) second-year respondents selected "No" (Table 4.3). One may assume from this answer and the results presented in Table 4.2 above that the majority of the second-year students (67%) were introduced to the design principles as CUT students, but that 100% of them knew

beforehand what design principles are. Six of the 22 (27%) third-year respondents selected "Yes" and 16 of the 22 (73%) respondents selected "No" (Table 4.3). The researcher can deduct from this answer and the results of Table 4.3 that the majority of the third-year students (73%) were only introduced to the design principles as CUT students, but that 100% of them knew what design principles are, by selecting that the rules of graphic design are called the principles of graphic design. Four of 13 (31%) fourth-year respondents selected "Yes" and nine of the 13 (69%) respondents selected "No" (Table 4.3). It can be assumed that the majority of the fourth-year students (69%) were only introduced to the design principles as CUT students, but that 100% of them probably knew what design principles are.

The majority of the second-, third- and fourth-year students were thus introduced to the graphic design principles at the CUT.

**Table 4.3**: Introduction to graphic design principles (n=56)

| Parameters | 2nd Years Yes (n=21) | 2nd Years No (n=21) | 3rd Years Yes (n=22) | 3rd Years No (n=22) | 4th Years Yes (n=13) | 4th Years No (n=13) |
|---|---|---|---|---|---|---|
| Were you ever introduced to any form of principles of graphic design before you commenced your studies at the Graphic Design Programme? | 7 (33%) | 14 (67%) | 6 (27%) | 16 (73%) | 4 (31%) | 9 (69%) |

It was expected of the students to answer "Yes" or “No” to indicate where they were introduced to the principles of graphic design.

With question 4 the students who responded “Yes” to question 3 had to select an option of where they were introduced to the principles of graphic design. From the seven second-year respondents (n=21) who selected that they were introduced to the graphic design principles before commencing their studies at the Central University of Technology, five (72%) selected that they were introduced to the principles in school, one (14%) selected during private art class and one (14%) selected the Internet (Question 4).

From the six third-year respondents (n=22) who indicated that they were introduced to the graphic design principles before commencing their studies at the CUT, one (5%) selected that he/she was introduced to the principles in school, one (5%) selected during private art class, one (5%) selected the Internet and one (5%) selected "Other" and explained that he/she was introduced to the principles during the Foundation Course in Graphic Design offered by the CUT. When a student has an M-Score of below 27 (a value assigned to each symbol obtained by a learner at Grade 12 level) (which is required for a first-year student to apply for the National Diploma in Graphic Design), he or she can register for the ECP (Foundation Course). This entails an additional year of study.

From the four fourth-year respondents (n=13) who selected that they were introduced to the graphic design principles before commencing their studies at the CUT, three (75%) selected that they were introduced to the principles in school and one (25%) selected that he/she was introduced to the graphic design principles during private art class. There were no responses under the option "Other" from the fourth-year students.

### 4.2.3 SECTION C (Questions 1-10)

This section of the questionnaire refers to the second-, third- and fourth-year year students' perception of *The Principles of Graphic Design* manual used to lecture the principles of graphic design in the subject Communication Design I at the CUT.

In order to determine how valuable the students deem the principles of graphic design, the statement was made that the principles of graphic design is valuable as a subject and the students had to rate it according to a 5-point Likert Scale. The use of the Likert Scale made it possible for the researcher to determine the agreement of the students with certain statements (Babbie & Mouton, 2008:153). The researcher made sure that the statement would only test one reaction and that it was not ambiguous (Munro, 2014:47).

The second-, third- and fourth-year students had to select according to a Likert-scale if the principles of graphic design is valuable as a subject.

**Table 4.4:** Value of principles of graphic design as a subject

| The principles of graphic design is valuable as a subject (n=56) | 2nd Years (n=21) | 3rd Years (n=22) | 4th Years (n=13) |
|---|---|---|---|
| Strongly agree | 15 (71%) | 18 (82%) | 9 (69%) |
| Agree | 6 (29%) | 3 (14%) | 4 (31%) |
| Neither agree nor disagree | 0 (0%) | 1 (4%) | 0 (0%) |
| Disagree | 0 (0%) | 0 (0%) | 0 (0%) |
| Strongly disagree | 0 (0%) | 0 (0%) | 0 (0%) |

Fifteen of the 21 (71%) second-year respondents strongly agreed with the statement (Table 4.3) and six of the 21 (29%) respondents agreed with the statement. None of the respondents (0%) selected "Neither agree nor disagree" or "Disagree". None (0%) selected "Disagree" or "Strongly disagree" to this statement. The second-year graphic design students probably realised the importance of designing with the aid of graphic design principles (see par. 2.2).

Eighteen of the 22 (82%) third-year respondents strongly agreed with the statement and three of the 22 (14%) respondents agreed with the statement (Table 4.3). One of the respondents (4%) selected "Neither agree nor disagree". None (0%) selected "Disagree" or "Strongly disagree" to this statement. This could indicate that the third-year graphic design students agree with the importance of designing with the aid of graphic design principles (see 2.2). It appears from the third-year responses that the majority of students find the principles of graphic design valuable as a subject.

Nine of the 13 (69%) fourth-year respondents strongly agreed with the statement and four of the 13 (31%) respondents agreed with the statement that they value principles of graphic design as a subject. This indicates that the fourth-year graphic design students realise the importance of designing with the aid of graphic design principles as also mentioned by Evans and Thomas (2004:4) and Wong (1993:41) (see 2.1). Forty-two of 56 participants (75%) strongly agree that the Principles of Graphic Design is valuable as a subject.

It was interesting to note that the percentage of fourth-year students who strongly agreed with the statement (69%) were less than the second-year (71%) and third-year (82%) students who agreed with the statement. Perhaps it is because the fourth-year students are so used to using the principles in their designs that they might feel that it comes natural to them.

In Question 2 the students were asked to motivate their responses to Question 1. A summary of the second-year respondents' answers is listed in Annexure A.

The second-year graphic design students agreed that graphic design principles are needed to aid with the design process and to help ensure that a design effectively communicates an idea to an audience. Respondent 8 stated that "It improves your designs in the practical subjects as you apply knowledge". Respondents 8 and 18 made the connection of theory and practical assignment, which is the process of building a student's knowledge and skills as mentioned by Tempelman and Pilot (see 1.4). Respondents 11 and 12 mentioned that the graphic design principles help one to "design correctly" which is confirmed by Lichty (1994:25) and Siebert and Cropper (1993:3) (see 1.1).

Respondent 3 reflected that design problems can be solved quicker, thus saving time and money in the industry as confirmed by Castelluccio (see 2.1). Respondent 19 states that "all designs are based on the principles of graphic design". This sentiment is also reflected by Lueckenhausen (2007) and Pipes (1997; 2008) (see 1.1).

It appears from the responses that the second-year graphic design students have an understanding of the graphic design principles and the importance of the graphic design principles in the design process as discussed by Wong (see 1.1).

A summary of the third-year respondents' answers is listed in Annexure B.

It seems that the third-year graphic design students confirmed that graphic design principles are needed to aid one in the design process so that one can effectively communicate, as Evans and Thomas (2004:3) (see 2.1) explains, with a design that can be understood, as mentioned by Agrawala et al. (2011:40) (see 2.1) (Respondents 7, 9, 12 and 13). Respondents 3, 4, 17 and 20 stated that the principles will make one a better designer. Respondent 22 stated that it makes his/her designs functional. Siebert and Cropper (1993:3) (see 1.1) is of the opinion that the planning of a design will ensure that the design is communicated effectively which makes it functional, as Respondent rightly 22 mentions. Respondents 9, 13 and 15 made the connection of theory and practice, which the second-year respondents (8 and 18) also made (see Annexure A).

It appears as if the third-year graphic design students have an understanding of the graphic design principles and the importance of the graphic design principles in the design process as well as an awareness of the capacity of the principles to make a design understandable to the viewer.

A summary of the fourth-year respondents' answers are listed in Annexure C.

One may assume that the fourth-year graphic design students realise that graphic design principles are needed to assist students in the design process. It may also be assumed that the fourth-year graphic design students know that one's design effectively communicates one's idea to the audience makes one's work more visually attractive. Respondent seven made the connection of theory and practical assignments which is the process of building a student's knowledge and skills, as mentioned by Tempelman and Pilot (2010:262) (see 1.4). This corresponds with the second-year Respondents 8 and 18 (Annexure A) and third-year Respondents 9, 13 and 15 (Annexure B) who also made the connection of theory and practice.

Respondent four responded that design problems can be solved quicker which saves time and money in the industry – a notion confirmed by Castelluccio (2008:58) (see 2.1).

Respondents also answered that the graphic design principles enhance one's design skills. It seems from the responses that the fourth-year graphic design students have an understanding of the graphic design principles and the importance of the graphic design principles in the design process.

Next the statement was made that the PGD manual explained clearly the principles theoretically (in words) (Question 3). The students had to rate it according to a 5-point Likert Scale whether they thought that the given principle was clearly explained. As indicated above, the Likert Scale is commonly used in questionnaires (Babbie & Mouton 2008:154).

**Table 4.5:** Explanation by means of words

| The Manual explained clearly the principles theoretically (in words) (n=56) | 2nd Years (n=21) | 3rd Years (n=22) | 4th Years (n=13) |
|---|---|---|---|
| Strongly agree | 7 (33%) | 5 (23%) | 9 (69%) |
| Agree | 14 (67%) | 17 (77%) | 4 (31%) |
| Neither agree nor disagree | 0 (0%) | 0 (0%) | 0 (0%) |
| Disagree | 0 (0%) | 0 (0%) | 0 (0%) |
| Strongly disagree | 0 (0%) | 0 (0%) | 0 (0%) |

Seven of the 21 (33%) second-year respondents strongly agreed with the statement and 14 of the 21 (67%) respondents agreed with the statement that the principles of graphic design were theoretically explained in the PGD manual (Table 4.5). There were no responses that selected "Neither agree nor disagree", "Disagree" or "Strongly disagree". It seems that the PGD manual clearly explained the principles in words. It can also be deduced that the pitch level of the PGD manual is at the appropriate level (see 1.4) because the students understood the principles as explained in the PGD manual. The South African Qualifications Authority (SAQA) describes the first-year learner on NQF Level 5 (see 1.3) and all students are taught the principles of graphic design during their first year of study as part of the subject Communication Design I.

Five of the 22 (23%) third-year respondents strongly agreed with the statement that the PGD manual clearly explained the principles theoretically and 17 of the 22 (77%) respondents agreed with the statement (Table 4.5). None (0%) selected "Neither agree nor disagree", "Disagree" or "Strongly disagree". The researcher assumes from the responses that the Manual clearly explained the principles in words and furthermore that the pitch level is possibly at the appropriate level (see 1.4) as prescribed by the South African Qualifications Authority for the first-year learner on NQF Level 5 (see 1.3).

Nine of the 13 (69%) fourth-year respondents strongly agreed with the statement and four of the 13 (31%) respondents agreed with the statement. This is remarkably higher than the second- and third-years (see Table 4.5). This might be because the fourth-year students are senior students doing research themselves and it appears that they read more than the second- and third-year students. None (0%) selected "Neither agree nor disagree", "Disagree" or "Strongly disagree". This could mean that the PGD manual clearly explained the principles in words. This result may also confirms that the pitch level is at the appropriate level (see 1.4). The South African Qualifications Authority describes the learner on NQF Level 5 (and which is equivalent to the first-year of study by a student in the Graphic Design Programme at the CUT) (refer to 1.3) as a student who should be able to solve problems and -

> "demonstrate the ability to identify, evaluate and solve routine and new problems within a familiar context, and to apply solutions based on relevant evidence and procedures or other forms of explanation appropriate to the field, discipline or practice, demonstrating an understanding of the consequences".

A 5-point Likert Scale was used to determine the agreement of students with the statement that the PGD manual clearly illustrates the principles by means of an image (Question 4).

**Table 4.6:** Explanation by means of an image

| The Manual explained clearly the principles by means of an image (n=56) | 2nd Years (n=21) | 3rd Years (n=22) | 4th Years (n=13) |
|---|---|---|---|
| Strongly agree | 10 (48%) | 11 (50%) | 5 (38%) |
| Agree | 10 (48%) | 8 (36%) | 7 (54%) |
| Neither agree nor disagree | 1 (4%) | 2 (14%) | 1 (8%) |
| Disagree | 0 (0%) | 0 (0%) | 0 (0%) |
| Strongly disagree | 0 (0%) | 0 (0%) | 0 (0%) |

Ten of the 21 (48%) second-year respondents strongly agreed with the statement and ten of the 21 (48%) respondents agreed with the statement (Table 4.6). One of the 21 (4%) selected "Neither agree nor disagree". None (0%) selected "Disagree" or "Strongly disagree". It seems as if the majority of the second-year graphic design students (96%) felt that the images aided in the understanding of the principles, while 4% did not feel that the image had any effect, positive or negative, on the understanding of the principle.

Eleven of 22 (50%) third-year respondents strongly agreed with the statement and eight of the 22 (36%) respondents agreed with the statement (Table 4.6). Two of the 22 (14%) selected "Neither agree nor disagree". None (0%) selected "Disagree" or "Strongly disagree". It is possible that the majority of the third-year graphic design students (86%) felt that the images aided in the understanding of the principles, while 14% did not feel that the image had any positive or negative effect on the understanding of the principle.

Five of the 13 (38%) fourth-year respondents strongly agreed with the statement that the PGD manual clearly explained the principles by means of an image and seven of the 13 (54%) respondents agreed with the statement. One of the 13 (8%) selected "Neither agree nor disagree". None (0%) selected "Disagree" or "Strongly disagree". One may assume that the majority of the fourth-year graphic design students (92%) felt that the images aided in the understanding of the principles, while 8% did not feel that the image had either a positive or negative effect on the understanding of the principle.

To determine how understandable the written explanations contained in the PGD manual is, the statement was tendered that "I understood the principles after reading the written explanation in the Manual (without looking at the images)" (Question 5).

**Table 4.7:** I understood the principles after reading the written explanation in the Manual (without looking at the images)

| I understood the principles after reading the written explanation in the Manual (n=56) | 2nd Years (n=21) | 3rd Years (n=22) | 4th Years (n=13) |
|---|---|---|---|
| Strongly agree | 3 (14%) | 0 (0%) | 1 (8%) |
| Agree | 14 (67%) | 19 (86%) | 9 (69%) |
| Neither agree nor disagree | 4 (19%) | 3 (14%) | 3 (23%) |
| Disagree | 0 (0%) | 0 (0%) | 0 (0%) |
| Strongly disagree | 0 (0%) | 0 (0%) | 0 (0%) |

Three of the 21 (14%) second-year respondents strongly agreed with the statement and 14 of the 21 (67%) respondents agreed with the statement (Table 4.7). Four of the 21 respondents (19%) selected "Neither agree nor disagree". None (0%) selected "Disagree" or "Strongly disagree". One may assume that the PGD manual clearly explains in words that are understandable and which are at the appropriate pitch level (see 1.4), because the majority of the second-year graphic design students (81%) appeared to understand the principle by just reading the written information, while 19% did not agree nor disagree.

None (0%) of the third-year respondents strongly agreed that they understood the principles after reading the written explanation in the PGD manual (without looking at the images). Nineteen of the 22 (86%) respondents agreed with the statement (Table 4.6). Three of the 22 (14%) selected "Neither agree nor disagree". None (0%) selected "Disagree" or "Strongly disagree". It appears as if the PGD manual clearly explains in words that are understandable and are at the appropriate pitch level (see 1.4), because the majority of the third-year graphic design students (86%) appears to have understood the principle by just reading the written information, while three (14%) did not agree nor disagree.

One of the 13 (8%) fourth-year respondents strongly agreed with the statement and nine of the 13 (69%) respondents agreed with the statement. Three of the 13 (23%) selected "Neither agree nor disagree". None (0%) selected "Disagree" or "Strongly disagree". The researcher deducts that the majority of the fourth-year graphic design students (77%) understood the principle by just reading the written information, while 23% did not agree neither disagreed. It can be further deduced that the principles are clearly explained in words in the PGD manual.

The next statement posed in the questionnaire was "I had to study the image of the principle to understand the principle" (Question 6). As proposed by Tempelman and Pilot (2010:262) (see 1.4), the images in the book were designed in such a way that the students would make the connection between theory and practice. It is thus important for the student to study these images.

**Table 4.8:** Studying the image of the principle to understand the principle

| I had to study the image of the principle to understand the principle (n=56) | 2nd Years (n=21) | 3rd Years (n=22) | 4th Years (n=13) |
|---|---|---|---|
| Strongly agree | 5 (24%) | 5 (22%) | 2 (15%) |
| Agree | 13 (62%) | 11 (50%) | 9 (70%) |
| Neither agree nor disagree | 3 (14%) | 6 (28%) | 2 (15%) |
| Disagree | 0 (0%) | 0 (0%) | 0 (0%) |
| Strongly disagree | 0 (0%) | 0 (0%) | 0 (0%) |

Five of the 21 (24%) second-year respondents strongly agreed with the statement and 13 of the 21 (62%) respondents agreed with the statement (Table 4.8). Three of the 21 (14%) selected "Neither agree nor disagree". None (0%) selected "Disagree" or "Strongly disagree". Although 81% of the second-year graphic design students as indicated in Table 4.7 selected that they did not need the image to understand the principle, it appears from these 18 (86%) responses that the image was studied in order to understand the principle. It further appears that the images in the PGD manual that were designed to illustrate the link

between theory and practice (see 1.4) were studied by the students and that these images did in fact aid in the understanding of the principle.

**Table 4.9:** I only listened to the lecturer and did not need the Manual in order to understand the principles

| I only listened to the lecturer and did not need the Manual in order to understand the principles (n=56) | 2nd Years (n=21) | 3rd Years (n=22) | 4th Years (n=13) |
|---|---|---|---|
| Strongly agree | 1 (5%) | 0 (0%) | 1 (8%) |
| Agree | 4 (19%) | 1 (5%) | 2 (15%) |
| Neither agree nor disagree | 7 (33%) | 6 (27%) | 0 (0%) |
| Disagree | 9 (43%) | 13 (59%) | 10 (77%) |
| Strongly disagree | 0 (0%) | 2 (9%) | 0 (0%) |

None of the 21 second-year students (0%) strongly disagreed with the statement "I only listened to the lecturer and did not need the Manual in order to understand the principles" (Question 7). Nine students (43%) did, however, disagree. Seven students (33%) did not agree nor disagreed and four students (19%) agreed. One student (5%) strongly agreed. It can be assumed that the PGD manual was needed in order to understand the principle as the majority of students (43%) disagreed with the statement and 33% did not agree neither disagreed.

Two of the 22 third-year students (9%) strongly disagreed and 13 students (59%) disagreed with the statement "I only listened to the lecturer and did not need the Manual in order to understand the principles". Six students (27%) did not agree nor disagreed and one student (5%) agreed. The researcher deduced that the PGD manual was needed in order to understand the principle as 68% selected that they strongly disagree or disagree with the statement above.

Two of the 13 (15%) fourth-year respondents agreed with the statement that "I only listened to the lecturer and did not need the Manual in order to understand the principles" and ten of the 13 (77%) respondents disagreed with the statement. None of the 13 (0%) selected "Neither agree nor disagree". Although 77% of the respondents responded in Table 4.8 that they did not have to look at the images in order to understand the principle, 85% of the respondents indicated that they had to study the image in order to understand the principle. It could mean that the image example was necessary for the majority of students to understand the principle.

It seems that the students value the PGD manual because 43% of the second-years, 59% of the third-years and 77% of the fourth-years disagreed with the statement that they did not need the Manual to understand the principles and only had to listen to the lecturer.

The second-year students were asked to rate the chapters in the PGD manual on how well they could remember each chapter (Question 8) and their responses are reported in Table 4.10.

**Table 4.10**: Second-year respondents' rating regarding the memorability of the various chapters (n=21)

| Parameters | **Rating (1-11),** with 1 being the chapter remembered best and 11 being the chapter you remembered least (n=21). | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** |
| Idea | 5 (23.8%) | 3 (14.4%) | 4 (19%) | 2 (9.5%) | 4 (19%) | 1 (4.8%) | 0 (0%) | 0 (0%) | 0 (0%) | 2 (9.5%) | 0 (0%) |
| Gestalt | 8 (38.1%) | 4 (19%) | 2 (9.5%) | 0 (0%) | 0 (0%) | 1 (4.8%) | 0 (0%) | 1 (4.8%) | 1 (4.8%) | 0 (0%) | 4 (19%) |
| Composition | 1 (4.8%) | 5 (23.3%) | 3 (14.4%) | 1 (4.8%) | 3 (14.4%) | 2 (9.5%) | 3 (14.4%) | 1 (4.8%) | 1 (4.8%) | 1 (4.8%) | 0 (0%) |
| Shape and volume | 0 (0%) | 2 (9.5%) | 1 (4.8%) | 2 (9.5%) | 2 (9.5%) | 7 (33.4%) | 2 (9.5%) | 2 (9.5%) | 1 (4.8%) | 2 (9.5%) | 0 (0%) |
| Space | 0 (0%) | 0 (0%) | 2 (9.5%) | 4 (19%) | 2 (9.5%) | 2 (9.5%) | 1 (4.8%) | 2 (9.5%) | 1 (4.8%) | 2 (9.5%) | 5 (23.3%) |
| Contrast | 3 (14.4%) | 1 (4.8%) | 1 (4.8%) | 3 (14.4%) | 0 (0%) | 1 (4.8%) | 5 (23.3%) | 4 (19%) | 0 (0%) | 2 (9.5%) | 1 (4.8%) |
| Line | 0 (0%) | 1 (4.8%) | 3 (14.4%) | 0 (0%) | 3 (14.4%) | 2 (9.5%) | 3 (14.4%) | 1 (4.8%) | 5 (23.3%) | 3 (14.4%) | 0 (0%) |
| Repetition | 0 (0%) | 0 (0%) | 0 (0%) | 3 (14.4%) | 2 (9.5%) | 3 (14.4%) | 2 (9.5%) | 4 (19%) | 1 (4.8%) | 4 (19%) | 2 (9.5%) |
| Concentration | 0 (0%) | 2 (9.5%) | 0 (0%) | 2 (9.5%) | 2 (9.5%) | 1 (4.8%) | 3 (14.4%) | 2 (9.5%) | 0 (0%) | 4 (19%) | 5 (23.3%) |
| Change and motion | 0 (0%) | 0 (0%) | 2 (9.5%) | 2 (9.5%) | 3 (14.4%) | 0 (0%) | 1 (4.8%) | 3 (14.4%) | 7 (33.4%) | 0 (0%) | 3 (14.4%) |
| Colour | 4 (19%) | 2 (9.5%) | 4 (19%) | 2 (9.5%) | 1 (4.8%) | 1 (4.8%) | 1 (4.8%) | 0 (0%) | 4 (19%) | 1 (4.8%) | 1 (4.8%) |

This question was asked in order for the researcher to determine which chapters of the PGD manual were memorable and which were not and the reason for the students' responses in the follow-up question. From the second-year students' responses it seems that the chapter on gestalt was most memorable with eight (38.1%) of the students rating it as such, while the chapters on space and concentration was least memorable with a rating of 23.3% each.

In the next question (Question 9), the second-year students had to provide a reason for their choice of the chapter that they rated as the most memorable. The second-years' responses are listed in Annexure D with their "Number 1" choice in italics before the answer.

From the responses of Respondents 1, 5, 6, 14, 16, 18, 20 and 21, it appears as if the influence of the lecturer can be deduced as the reason for them remembering the gestalt principle the best. Respondents 4 and 18 indicated the images (pictures) in *The Principles of Graphic Design* manual as a reason for remembering the gestalt principle. The images were probably important for these students in order for them being able to connect theory and practice.

In the next question (Question 10), the second-year students had to provide a reason for their choice of the chapter that they rated as the least memorable. The second-years' responses are listed in Annexure E with their "Number 11" choice in italics before the answer.

From the respondents that selected "Space" as the least memorable, it could be that they simply did not remember it. Respondent 11, however, mentioned that he/she remembered "Space". Respondent 1 mentioned that it was not asked often. It seems that there were no specific reason for not remembering a principle and that it is a possibility that the chapter on space was not examined repetitively in tests. The students completed four tests on theory during the year.

The respondents who selected "Concentration'" as the least memorable graphic design chapter mentioned that they could not remember the principle at all. Respondent 3 remembered the principle, but could not remember what the principle was about.

Table 4.11 reports on the responses of third-year students regarding the most and least memorability of the chapters in the PGD-manual.

**Table 4.11**: Third-year respondents' rating regarding the memorability of the various chapters (n=22)

| Parameters | **Rating (1-11),** with 1 being the chapter remembered best and 11 being the chapter you remembered least (n=22). | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** |
| Idea | 11 (50%) | 3 (14%) | 2 (9%) | 2 (9%) | 0 (0%) | 1 (4.5%) | 0 (0%) | 1 (4.5%) | 1 (4.5%) | 1 (4.5%) | 0 (0%) |
| Gestalt | 3 (14%) | 3 (14%) | 2 (9%) | 3 (14%) | 3 (14%) | 0 (0%) | 1 (4.5%) | 3 (14%) | 1 (4.5%) | 0 (0%) | 3 (%) |
| Composition | 4 (18%) | 2 (9%) | 1 (4.5%) | 1 (4.5%) | 1 (4.5%) | 3 (14%) | 2 (9%) | 2 (9%) | 3 (14%) | 1 (4.5%) | 2 (9%) |
| Shape and volume | 0 (0%) | 2 (9%) | 4 (18%) | 1 (4.5%) | 5 (23%) | 2 (9%) | 3 (14%) | 2 (9%) | 2 (9%) | 0 (0%) | 1 (4.5%) |
| Space | 1 (4.5%) | 1 (4.5%) | 4 (18%) | 5 (23%) | 2 (9%) | 2 (9%) | 2 (9%) | 3 (14%) | 0 (0%) | 0 (0%) | 2 (9%) |
| Contrast | 0 (0%) | 1 (4.5%) | 3 (14%) | 3 (14%) | 6 (27%) | 1 (4.5%) | 1 (4.5%) | 2 (9%) | 2 (9%) | 3 (14%) | 0 (0%) |
| Line | 0 (0%) | 2 (9%) | 2 (9%) | 4 (18%) | 2 (9%) | 3 (14%) | 3 (14%) | 2 (9%) | 2 (9%) | 1 (4.5%) | 1 (4.5%) |
| Repetition | 2 (9%) | 4 (18%) | 2 (9%) | 0 (0%) | 1 (4.5%) | 3 (14%) | 2 (9%) | 3 (14%) | 0 (0%) | 3 (14%) | 2 (9%) |
| Concentration | 0 (0%) | 2 (9%) | 0 (0%) | 0 (0%) | 0 (0%) | 4 (18%) | 5 (23%) | 0 (0%) | 4 (18%) | 5 (23%) | 2 (9%) |
| Change and motion | 0 (0%) | 0 (0%) | 1 (4.5%) | 0 (0%) | 0 (0%) | 1 (0%) | 3 (14%) | 1 (4.5%) | 5 (23%) | 6 (27%) | 5 (23%) |
| Colour | 1 (4.5%) | 1 (4.5%) | 2 (9%) | 3 (14%) | 3 (14%) | 3 (14%) | 0 (0%) | 2 (9%) | 2 (9%) | 3 (14%) | 2 (9%) |

From the third-year respondents' answers it can be deduced that the chapter titled "Idea" was most memorable with 11 (50%) of the students rating it as such, while the chapter "Change and motion" was least memorable with 5 students (23%) selecting it as such (Table 4.11). The second-year students selected the chapter titled "Idea" (Table 4.10) as their second most memorable.

In the next question (Question 9), the third-year students had to give a reason for their choice of the chapter that they rated as the most memorable. The responses of the third-years are listed in Annexure F with their "Number 1" choice in italics before the answer.

It appears that the most memorable chapters for the third-year students were "Idea" and "Composition" (see Table 4.11). It is possible that the PGD manual clearly explains these principles with words and images and that it was often used in projects (see Respondents 3, 8 and 10):

3. *Idea* – "Explained very well in the manual"
8. *Composition* – "Most assignments were mostly based on composition"
10. *Idea* – "Lecturers ask for brainstorm before you show roughs"

"Idea" was also a chapter that was most remembered by the second-year students (see Table 4.10). The reasons for this were similar to the third-years. Respondents 3, 8, 9 and 15 (Annexure D) concurred that the principle was used often:

3. *Idea* – "There was more than one and we use it often"
8. *Idea* – "It's something that you deal with every day and probably one of the most fun parts of designing"
9. *Idea* – "Because we are reminded of it every day"
15. *Idea*- "We use it for every project in all the classes"

From the responses of Respondents 2, 3, 14 and 21, one can assume that the PGD manual clearly illustrated the principles. Respondents 13 and 17 mentioned that the principles that they remembered most clearly were used by them a lot.

Next the third-year students had to provide a reason for their choice of the chapter that they rated as "Number 11" and least memorable (Question 10). The answers to this question are listed in Annexure G with their "Number 1" choice in italics before the answer.

From the respondents that selected the chapter titled "Change and motion" as the least memorable, it could be possible that they do not remember it because they do not use it often. Respondent 9 mentioned that he/she remembered space but "one of the chapters had to be remembered last".

Table 4.12 reports on the memorability of fourth-year students regarding the chapters of the PGD manual.

**Table 4.12**: Fourth-year respondents' rating regarding the memorability of the various chapters (n=13)

| Parameters | **Rating (1-11),** with 1 being the chapter remembered best and 11 being the chapter you remembered least (n=13). | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** |
| Idea | 4 (30.7%) | 2 (15.4%) | 2 (15.4%) | 1 (7.7%) | 1 (7.7%) | 1 (7.7%) | 0 (0%) | 0 (0%) | 0 (0%) | 2 (15.4%) | 0 (0%) |
| Gestalt | 4 (30.7%) | 2 (15.4%) | 0 (0%) | 0 (0%) | 0 (0%) | 1 (7.7%) | 0 (0%) | 1 (7.7%) | 2 (15.4%) | 0 (0%) | 3 (19%) |
| Composition | 0 (0%) | 4 (30.7%) | 3 (23%) | 1 (7.7%) | 2 (15.4%) | 1 (7.7%) | 3 (14.4%) | 0 (0%) | 1 (7.7%) | 0 (0%) | 0 (0%) |
| Shape and volume | 0 (0%) | 2 (15.4%) | 0 (0%) | 0 (0%) | 0 (9.5%) | 5 (33.4%) | 1 (7.7%) | 2 (15.4%) | 1 (7.7%) | 2 (15.4%) | 0 (0%) |
| Space | 0 (0%) | 0 (0%) | 1 (7.7%) | 2 (15.4%) | 2 (15.4%) | 1 (7.7%) | 1 (7.7%) | 2 (15.4%) | 1 (7.7%) | 1 (7.7%) | 2 (15.4%) |
| Contrast | 2 (14.4%) | 1 (7.7%) | 1 (7.7%) | 1 (7.7%) | 0 (0%) | 1 (7.7%) | 2 (15.4%) | 3 (23%) | 0 (0%) | 2 (15.4%) | 0 (0%) |
| Line | 0 (0%) | 1 (7.7%) | 3 (23%) | 0 (0%) | 2 (15.4%) | 0 (0%) | 2 (15.4%) | 0 (0%) | 3 (23.3%) | 2 (15.4%) | 0 (0%) |
| Repetition | 0 (0%) | 0 (0%) | 0 (0%) | 2 (15.4%) | 1 (7.7%) | 2 (15.4%) | 1 (7.7%) | 2 (15.4%) | 1 (7.7%) | 3 (23%) | 2 (15.4%) |
| Concentration | 0 (0%) | 1 (7.7%) | 0 (0%) | 2 (15.4%) | 2 (15.4%) | 0 (0%) | 1 (7.7%) | 2 (15.4%) | 0 (0%) | 1 (7.7%) | 4 (30.7%) |
| Change and motion | 0 (0%) | 0 (0%) | 2 (15.4%) | 2 (15.4%) | 2 (15.4%) | 0 (0%) | 1 (7.7%) | 1 (7.7%) | 4 (30.7%) | 0 (0%) | 1 (7.7%) |
| Colour | 3 (23%) | 0 (0%) | 3 (23%) | 2 (15.4%) | 1 (7.7%) | 1 (7.7%) | 1 (7.7%) | 0 (0%) | 1 (7.7%) | 0 (0%) | 1 (7.7%) |

From the fourth-year respondents' answers it can be deduced that the chapters titled "Idea" and "Gestalt" were equally most memorable with 30.7% of the students rating it as such, while the chapter titled "Concentration" was least memorable with a rating of 30.7%.

The fourth-year students had to give a reason for their choice of the chapter that they rated as "Number 1" and most memorable (Question 9). The answers to this question are listed in Annexure H, with their "Number 1" choice in italics before the answer.

From the explanations of respondents that found the chapter titled "Idea" the most memorable, it was probably the most memorable because it was used often (Respondents 3, 8 and 9):

3. *Idea* – "The lecturers forces us to use this principle with every project"
8. *Idea* – "You can't start a project without an idea and I wanted to know how to start and idea"
9. *Idea* –"The lecturers repeat it every day and we have to show them our ideas"

It seems from the respondents that found "Gestalt" most memorable that the lecturer had an influence on them remembering it. The repetition of the principle of gestalt as mentioned by Respondent 6 might also have had an influence. It seems that Respondents 4 and 5 remembered the gestalt principle the best because of the images in the PGD manual:

4. *Gestalt* – "I remember it because of the images in the book. They were very bold"
5. *Gestalt* – "We worked a lot on it in class and the images were very different from the others so I remember them"

"Idea" being the most memorable chapter as far as the fourth-year students are concerned, concurs with the **third-year** students where 50% of them rated it most memorable (see Table 4.11). "Gestalt" also being most memorable for the fourth-year students is similar to the ***second-year*** students where 38.1% of them rated it as most memorable (see Table 4.10).

The fourth-year respondents then had to provide a reason why they found their choice (11) the least memorable (Question 10). The answers to this question are listed in Annexure I, with their "Number 11" choice in italics before the answer.

It seems as if the fourth-year respondents who selected the chapter titled "Concentration" as the least memorable simply do not remember it. Respondents 3 and 12 mentioned that they remembered the principle of concentration but not what the content of the chapter was:

3. *Concentration* – "Remember that it is a principle, but cannot demonstrate it"
12. *Concentration* – "Don't know how to apply it"

### 4.2.4 SECTION D: Quality of the PGD manual

This section of the questionnaire refers to the visual impact of *The Principles of Graphic Design* manual used to lecture the principles of graphic design in the subject Communication Design I at the CUT.

Students were asked to rate the design elements in the PGD manual according to the quality of the Manual itself (Question 11). For a student to value a manual visually, it is necessary to

remove all visual barriers that might prevent the individual from participating in the use of the product (Heilmann, 2004:3).

Table 4.13 reflects how the second-year students rated the quality of the PGD manual.

**Table 4.13**: Quality of the Manual as rated by the second-year respondents (n=21)

| Parameters | **Rating** (1-Poor; 2-Fair; 3-Good; 4-Very good; 5-Excellent) (n=21). | | | | |
|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** |
| Images | 0 (0%) | 2 (9.5%) | 5 (23.3%) | 9 (43.9%) | 5 (23.3%) |
| Text | 0 (0%) | 0 (0%) | 3 (14.4%) | 14 (67.1%) | 4 (18.5%) |
| Layout | 0 (0%) | 0 (0%) | 8 (38.1%) | 12 (57.1%) | 1 (4.8%) |
| Use of design elements | 0 (0%) | 1 (4.8%) | 2 (9.5%) | 11 (52.3%) | 7 (33.4%) |
| Organising of content | 0 (0%) | 0 (0%) | 7 (33.4%) | 11 (52.3%) | 3 (14.4%) |
| Colour | 5 (23.3%) | 4 (18.5%) | 9 (43.9%) | 2 (9.5%) | 1 (4.8%) |
| Cover page | 1 (4.8%) | 6 (28.6%) | 2 (9.5%) | 11 (52.3%) | 1 (4.8%) |
| Open spaces for notes | 0 (0%) | 1 (4.8%) | 6 (28.6%) | 12 (57.1%) | 2 (9.5%) |
| Other | 0 (0%) | 0 (0%) | 0 (0%) | 3 (14.4%) | 0 (0%) |

The majority of the second-year graphic design students (33.4%) selected "Use of design elements" as excellent, while five students (23.3%) rated "Colour" as the poorest quality. The researcher may conclude that the students were diligent to note that the principles are used in the layout and design of *The Principles of Graphic Design* manual. Colour being rated as the poorest quality is a quality that can be corrected. In 2010 it was a departmental decision that the PGD manual should be printed in black and white with a view on saving on printing costs. This seems to be a barrier of the perception of the students about the Manual that can be removed.

It is interesting that "Text" was rated as "Very good" and "Excellent" by 85.6% and "Images" was rated "Very good" and "Excellent" by 67.2%. This is similar to the 100% of second-, third- and fourth-year students combined that "Strongly agreed" or "Agreed" that the Manual explained the principles clearly by means of words (see Table 4.5), compared to the 93% of second-, third-, and fourth-year students combined (see Table 4.6) that "Strongly agreed" or "Agreed" that the Manual explained clearly the principles by means of images.

Three second-year students selected "Other" (Question 12) and had to provide a clarification regarding their responses. One critiqued that the Manual is not well constructed and two stated that the Manual needs colour. Even though it was an option that could be selected, two students felt that it should be mentioned in their own words. The physical PGD manual is ring-bound with wire and protective plastic covers at the front and back.

**Table 4.14**: Quality of the Manual as rated by the third-year respondents (n=22)

| Parameters | **Rating** (1-Poor; 2-Fair; 3-Good; 4-Very good; 5-Excellent) (n=22). | | | | |
|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** |
| Images | 1 (4.5%) | 4 (18%) | 6 (27%) | 9 (41%) | 2 (9%) |
| Text | 0 (0%) | 2 (9%) | 3 (14%) | 10 (45%) | 7 (32%) |
| Layout | 1 (4.5%) | 1 (4.5%) | 6 (27%) | 10 (45%) | 4 (18%) |
| Use of design elements | 1 (4.5%) | 1 (4.5%) | 5 (23%) | 11 (50%) | 4 (18%) |
| Organising of content | 2 (9%) | 3 (14%) | 5 (23%) | 2 (9%) | 10 (45%) |
| Colour | 0 (0%) | 6 (27%) | 6 (25%) | 7 (32%) | 3 (14%) |
| Cover page | 3 (14%) | 7 (32%) | 2 (9%) | 8 (36%) | 2 (9%) |
| Open spaces for notes | 2 (9%) | 5 (23%) | 6 (27%) | 7 (32%) | 2 (9%) |
| Other | 0 (0%) | 1 (4.5%) | 1 (4.5%) | 0 (14.4%) | 0 (0%) |

The majority of the third-year graphic design students (45%) selected "Organizing of content" as excellent, while three students (14%) rated the “cover page” as the poorest quality (Table 4.14). It appears that the students are diligent to note that the graphic design

principles are used in the layout and design of *The Principles of Graphic Design* manual in conjunction with the organising of content. As indicated above, in 2010 it was a departmental decision that the PGD manual should be printed in black and white to save on printing costs, which included the cover page. This is a barrier in the perception of the students regarding the Manual that can be removed. Two students selected "Other" (Question 12) and one critiqued that the book needs more detail as far as each principle in concerned. The other student responded that the Manual is good overall.

It is interesting that "Text" was rated "Very good" and "Excellent" by 77% and "Images" was rated "Very good" and "Excellent" by 50%. This is similar to the 100% of second-, third- and fourth-year students who "Strongly agreed" and "Agreed" that the Manual explained the principles clearly by means of words (see Table 4.5), compared to the 93% (see Table 4.6) who "Strongly agreed" or "Agreed" that the Manual explained clearly the principles by means of images. The second-years also gave "Text" a higher ranking than "Images" (see Table 4.13).

**Table 4.15**: Quality of the Manual as rated by the fourth-year respondents (n=13)

| Parameters | **Rating** (1-Poor; 2-Fair; 3-Good; 4-Very good; 5-Excellent) (n=13). | | | | |
|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** |
| Images | 0 (0%) | 2 (15.4%) | 3 (23%) | 4 (30.7%) | 4 (30.7%) |
| Text | 0 (0%) | 0 (0%) | 2 (15.4%) | 9 (69.2%) | 2 (15.4%) |
| Layout | 0 (0%) | 0 (0%) | 5 (38.5%) | 7 (53.8%) | 1 (7.7%) |
| Use of design elements | 0 (0%) | 1 (7.7%) | 1 (7.7%) | 7 (52.3%) | 4 (30.7%) |
| Organising of content | 0 (0%) | 0 (0%) | 4 (30.7%) | 7 (52.3%) | 2 (15.4%) |
| Colour | 5 (23.3%) | 3 (23%) | 3 (23%) | 1 (7.7%) | 1 (7.7%) |
| Cover page | 1 (7.7%) | 5 (38.5%) | 1 (7.7%) | 5 (38.5%) | 1 (7.7%) |
| Open spaces for notes | 0 (0%) | 1 (7.7%) | 4 (30.7%) | 6 (57.1%) | 1 (7.7%) |
| Other | 0 (0%) | 0 (0%) | 0 (0%) | 3 (23%) | 0 (0%) |

Question 11 was asked to determine what the respondents' opinions are regarding the quality of the physical design of the PGD manual itself. The majority of the fourth-year graphic design students (23.3%) selected "Colour" as the poorest quality while 30.7% selected equally "Use of design elements" and "Images" as the best quality. It appears as if the students are diligent to note that the graphic design principles are used in the layout and design of *The Principles of Graphic Design* manual and that the images are effective in the conveying of the information of the graphic design principles. In 2010, as indicated previously, it was a departmental decision that the Manual should be printed in black and white only to save printing costs. This hindrance can be eliminated should the Manual be provided digitally to all students.

The students who selected "Other" (Question 12) explained that the manual should be professionally printed and that the manual should be smaller so that it can more easily fit into a handbag.

It is again interesting that "Text" was rated "Very good" and "Excellent" by 84.6% and "Images" was rated "Very good" and "Excellent" by 61.4% of the fourth-year students. This is similar to the 100% of the second-, third- and fourth-year students who "Strongly agreed" or "Agreed" that the Manual explained the principles clearly by means of words (see Table 4.5), compared to the 93% of fourth-year students (see Table 4.6) who "Strongly agreed" and "Agreed" that the Manual explained clearly the principles by means of images. The second-year students (see Table 4.13) and third-year students (see Table 4.14) also gave "Text" a higher ranking than "Images".

Students were also asked to select the worst quality of the PGD manual (Question 13). This question was asked to determine the overall worst quality of *The Principles of Graphic Design* manual as a whole (content included).

**Table 4.16**: The worst quality of *The Principles of Graphic Design* manual

| Parameters | 2nd Years (n=21) | 3rd Years (n=22) | 4th Years (n=13) |
|---|---|---|---|
| Images | 1 (5%) | 2 (9%) | 1 (8%) |
| Text | 0 (0%) | 0 (0%) | 0 (0%) |
| Layout | 2 (10%) | 0 (0%) | 1 (8%) |
| Use of design elements | 0 (0%) | 0 (0%) | 1 (8%) |
| Organising of content | 0 (0%) | 1 (4.5%) | 0 (0%) |
| Colour | 5 (23%) | 5 (23%) | 5 (37%) |
| Cover page | 5 (23%) | 7 (32%) | 1 (8%) |
| Open spaces for notes | 6 (29%) | 8 (36%) | 3 (23%) |
| Other | 1 (5%) | 1 (4.5%) | 1 (8%) |

One of 21 (5%) second-year respondents selected "Images" as the worst quality of the PGD manual while none (0%) selected "Text". Two of the 21 (10%) respondents selected "Layout" as the worst quality of the Manual and one of the 21 (5%) respondents selected "Use of design elements". None of the respondents (0%) selected "Organising of content" and five of the 21 (23%) respondents selected "Colour". Five of the 21 (23%) respondents selected "Cover page" as the worst quality of the Manual and six of the 21 (29%) respondents selected "Open spaces for notes" (Table 4.16). One of the 21 (5%) respondents selected "Other". "Open spaces for notes" was selected by six (29%) of the respondents. *The Principles of Graphic Design* manual is printed one-sided to provide extra space for notes, but with not much space between the typography. "Colour" and "Cover page" were selected by 5 (23%) respectively as the worst quality of the Manual. Since 2011 the cover page was not printed with the Manual in order to save printing costs. It is possible that the PGD manual not being printed in colour is a recurring bad quality according to the second-year graphic design students. One respondent selected "Other" and responded that he/she thought that there were no worst qualities in the PGD manual.

Two of the 22 (9%) third-year respondents selected "Images" as the worst quality of the PGD manual while none (0%) selected "Text" and none (0%) selected "Layout". None of the

respondents (0%) selected "Use of design elements" while one (4.5%) selected "Organising of content" as the worst quality of the Manual. Five of the 22 (23%) respondents selected "Colour" as the worst quality and seven (32%) selected "Cover page". Eight of the 22 (36%) respondents selected "Open spaces for notes" as the worst quality (Table 4.16). One of the 22 (4.5%) respondents selected "Other". "Open spaces for notes" was selected by eight (36%) of the respondents. *The Principles of Graphic Design* manual is only printed one-sided to provide extra space for notes, but with not much space between the typography. "Colour" and "Cover page" were selected by twelve (55%) combined as the worst quality of the Manual. Since 2011 the cover page has not been printed with the Manual in order to save printing costs. The researcher can deduce that colour is a recurring bad quality according to the second-, third- and fourth-year graphic design students (Table 4.16). The majority of the third-years selected "Open spaces for notes" as the worst quality. The majority of the second-year graphic design students also selected "Open spaces for notes" as the worst quality. One respondent selected "Other" and responded that he/she thought that there should be virtual elements of design as well. Virtual design is currently not being offered by the CUT's Department of Design and Studio Art.

One of the 13 (8%) fourth-year respondents selected "Images" as the worst quality of *The Principles of Graphic Design* manual, while none (0%) selected "Text". One of the 13 (8%) respondents selected "Layout" and one (8%) selected "Use of design elements" as the worst quality. None (0%) selected "Organising of content", five (37%) selected "Colour", and one of the 13 (8%) selected "Cover page" as the worst quality. Three of the 13 (23%) respondents selected "Open spaces for notes" and one of the 13 (8%) selected "Other". "Colour" was selected by 37% of the respondents as the worst quality of the Manual. The PGD manual is printed in black and white to save on printing costs. The respondent that selected "Other" explained that the Manual should "be like a real book".

The students had to rate according to the 5-point Likert Scale (Question 15) whether the principles of graphic design as explained in the PGD manual were understood. This question was asked to confirm responses in previous questions on the understanding of the Manual with theory only (see Table 4.5) and the understanding of the Manual after studying the images (see Table 4.6).

Table 4.17 reports if the second-, third- and fourth-year students understood the principles in the PGD manual.

**Table 4.17:** I understand the principles in the Manual

| I understand the principles in the Manual (n=56) | 2nd Years (n=21) | 3rd Years (n=22) | 4th Years (n=13) |
|---|---|---|---|
| Strongly agree | 10 (48%) | 6 (27%) | 2 (15%) |
| Agree | 11 (22%) | 13 (59%) | 9 (70%) |
| Neither agree nor disagree | 0 (0%) | 3 (14%) | 2 (15%) |
| Disagree | 0 (0%) | 0 (0%) | 0 (0%) |
| Strongly disagree | 0 (0%) | 0 (0%) | 0 (0%) |

Ten of the 21 (48%) second-year respondents strongly agreed with the statement and eleven (22%) respondents agreed with the statement (Table 4.17). The researcher may affirm that the PGD manual is pitched at the appropriate level (Level 5) as required by SAQA (see 1.3).

Six of the 22 (27%) third-year respondents strongly agreed with the statement and 13 of the 22 (59%) respondents agreed with the statement. Three students (14%) neither agreed nor disagreed. It seems that the Manual is pitched at the correct level (Level 5) as required by SAQA (see 1.3) and that the majority of third-year graphic design students understand the principles contained in the Manual.

Two of the 13 (15%) respondents strongly agreed with the statement and nine of the 13 (70%) respondents agreed with the statement. It appears that the Manual is pitched at the correct level (Level 5) as required by SAQA (see 1.3).

Table 4.18 reports on how often students made use of *The Principles of Graphic Design* manual (Question 16). Students had to indicate if they made use of the PGD manual on a daily, weekly, monthly or almost never basis.

**Table 4.18:** How often the Manual is used

| How often the Manual is used by students (n=56) | 2nd Years (n=21) | 3rd Years (n=22) | 4th Years (n=13) |
|---|---|---|---|
| Daily | 10 (48%) | 8 (36%) | 6 (47%) |
| Weekly | 6 (29%) | 4 (18%) | 2 (15%) |
| Monthly | 4 (19%) | 7 (32%) | 4 (30%) |
| Almost never | 1 (4%) | 2 (14%) | 1 (8%) |

Ten of the 21 (48%) second-year respondents selected "Daily", six (29%) used the PGD manual weekly and four of the 21 (19%) used it monthly. One of the 21 respondents (4%) used it almost never (Table 4.18). It seems that 48% relies on the physical manual on a daily basis, while only 4% almost never used it.

Eight of the 22 third-year respondents (36%) used the PGD manual daily and four (18%) indicated that they used it weekly. Seven (32%) respondents used the Manual monthly and two respondents (14%) almost never used it (Table 4.18). This could mean that 36% of the third-year respondents have been relying on the physical manual on a daily basis, while 14% almost never used it.

Six of the 13 (47%) fourth-year respondents selected "Daily", two (15%) used the Manual weekly, four (30%) used it monthly and one of the 13 respondents (8%) almost never used it. It seems that 47% of the fourth-year respondents have been relying on the physical manual on a daily basis, while only 8% almost never used it. This may be because they do more time-consuming projects in their fourth year of study which may include only one or two projects per month.

### 4.2.5 SECTION E: Application in the industry

This section of the questionnaire refers to the application of the principles of graphic design in industry which the owners of studio could answer based on their experience.

The next question was set to determine if the respondents deem the design principles important for application in the industry (Question 17) and is reported on in Table 4.19. The question was posed if the principles of graphic design make the student a more effective designer. The researcher asked this question to determine if the students were using the graphic design principles in practice and if they were experiencing them as having an influence on the way they design.

**Table 4.19:** The principles of graphic design make me a more effective designer

| The principles of graphic design make me a more effective designer (n=56) | 2nd Years (n=21) | 3rd Years (n=22) | 4th Years (n=13) |
|---|---|---|---|
| Strongly agree | 12 (57%) | 15 (68%) | 7 (54%) |
| Agree | 8 (38%) | 7 (32%) | 5 (38%) |
| Neither agree nor disagree | 0 (0%) | 0 (0%) | 0 (0%) |
| Disagree | 1 (5%) | 0 (0%) | 1 (8%) |
| Strongly disagree | 0 (0%) | 0 (0%) | 0 (0%) |

Twelve of the 21 (57%) second-year respondents strongly agreed with the statement that the principles of graphic design make them a more effective designer (Table 4.19) and eight of the 21 (38%) respondents agreed with the statement. None of the respondents indicated "Neither agree nor disagree". One of the 21 respondents (5%) disagreed and none (0%) strongly disagreed. It seems from the responses that 95% of the second-year graphic design students strongly agreed that knowing and using the principles of graphic design makes one a more effective designer as rightly indicated by Lueckenhausen (2007) and Pipes (2008) (see 1.1).

Fifteen of the 22 (68%) third-year respondents strongly agreed with the statement and seven (32%) respondents agreed with the statement. None of the respondents selected "Neither agree nor disagree". None of the 22 respondents (0%) disagreed and none (0%) strongly disagreed. The researcher may deduce from the responses that 100% of the third-year graphic design students strongly agreed that knowing and using the principles of graphic design makes one a more effective designer as proposed by Lueckenhausen (2007:1) and Pipes (2008:10) (see 1.1).

Seven of the 13 (54%) fourth-year respondents strongly agreed with the statement and five (38%) respondents agreed with the statement. One respondent disagreed (8%). It seems from the responses that 92% of the fourth-year graphic design students strongly agreed that knowing and using the principles of graphic design makes one a more effective designer as proposed by Lueckenhausen (2007:1) and Pipes (2008:10) (see 1.1).

In Question 18 the students were asked to describe in no more than two sentences what an effective graphic designer is. This was asked to validate the previous question and make sure that students understand the concept "effective designer". The responses to Question 18 are listed in Annexure J.

Respondents 3, 8 and 11 responded that an effective graphic designer can solve problems. This coincides with a statement by Lauer and Pentak (2000:6) who also mentioned that basic principles can be used as a process to assist problem-solving (see 1.1):

3. “A fast problem solver with designs that all clients want to pay for”
8. “Someone that can identify a need and solve the problem to that need in a creative and individualistic manner”

11. “A designer that communicates the required message correctly and efficiently”

Respondents 1, 6, 7, 10, 11 and 12 responded that an effective graphic designer knows how to communicate effectively through their designs which also corresponds with sentiments raised by Lichty (1994:25) (see 1.1). It appears as if the second-year students understood what an "effective designer" entails:

1. “A designer that leaves an impact on his/her audience. Their work communicates to the target market and has an effect on those who see it”
6. “Someone that understand the needs of a client and can design exactly what he wants and needs. Someone that communicates through their designs”
7. “Can clearly communicate through design. Can attract attention”
10. “An effective designer is someone that can portray a message successfully to the viewer by only using their design”
11. “A designer that communicates the required message correctly and efficiently”
12. “One who can communicate with society through designs with very few words”

The responses to Question 18 from the 22 third-year respondents are listed in Annexure K.

Respondent 7 mentioned that an effective designer is someone who uses their time efficiently and Respondent 21 stated that it is someone who is fast as also pointed out by Castelluccio (2008:58) (see 2.1). Respondents 12, 14 and 15 state that it is someone that uses graphic design principles. One may assume that the third-year students understood what an "effective designer" entails.

The responses to Question 18 from the 13 fourth-year respondents are listed in Annexure L.

Respondents 1, 6, 11 and 12 responded that an effective graphic designer can communicate an idea. This response coincides with the statement by Lauer and Pentak (2000:5) that basic principles can be used as a process to assist problem-solving (see 1.1). Respondents 1, 6, 7, 10, 11 and 12 responded that an effective graphic designer knows how to communicate effectively through his or her designs as rightly observed by Siebert and Cropper (1993) (see 1.1). It appears that the fourth-year students understand what an effective designer is.

### 4.2.6 SECTION F: Pitch level

This section of the questionnaire refers to the pitch level of the PGD manual.

A question was posed to determine whether the respondent thinks that he or she will be able to teach a first-year student the principles of graphic design using *The Principles of Graphic Design* manual (Question 19). The researcher asked this question to determine if the

respondents thought that the PGD manual is written in such a way that it is possible to teach it to students without a teaching background. Table 4.20 reflects the responses of second-, third- and fourth-year students to Question 19.

**Table 4.20:** I will be able to teach first-year students with the Manual

| I will be able to teach first year students with the Manual (n=56) | 2nd Years (n=21) | 3rd Years (n=22) | 4th Years (n=13) |
|---|---|---|---|
| Strongly agree | 7 (33%) | 6 (27%) | 4 (31%) |
| Agree | 8 (38%) | 12 (55%) | 6 (46%) |
| Neither agree nor disagree | 6 (29%) | 3 (14%) | 3 (23%) |
| Disagree | 0 (0%) | 0 (0%) | 0 (0%) |
| Strongly disagree | 0 (0%) | 0 (0%) | 0 (0%) |

Seven of the 21 (33%) second-year respondents strongly agreed with the statement (Table 4.20) and eight (38%) respondents agreed with the statement. Six (29%) of the respondents neither agreed nor disagreed. None of the 21 respondents (0%) disagreed and none (0%) strongly disagreed. It is possible that the second-year graphic design students feel that the PGD manual is written in an easy-to-understand manner that can easily be understood by other graphic design students.

Six of the 22 (27%) third-year respondents strongly agreed with the statement and 12 of the 22 (55%) respondents agreed with the statement (Table 4.20). Three (14%) of the respondents neither agreed nor disagreed. None of the 21 respondents (0%) disagreed and none (0%) strongly disagreed. The researcher deduced from these responses that the third-year graphic design students feel that the PGD manual is written in an easy-to-understand manner that can be easily understood by other graphic design students.

Four of the 13 (31%) third-year respondents strongly agreed with the statement and six (46%) respondents agreed with the statement. Three (23%) neither agreed nor disagreed. None disagreed or strongly disagreed (0%). It seems from these responses that the fourth-

year graphic design students were of opinion that the PGD manual is written in a manner that can be easily understood by other graphic design students.

Table 4.21 reflects the respondents' answers regarding the question whether they deem it necessary for first-year students to use the PGD manual to learn the principles of graphic design (Question 20). This question was asked to determine if the respondents felt that the PGD manual is an important learning aid for first-year students.

**Table 4.21:** Necessity for first-year students to use the Manual

| Necessity for first-year students to use the Manual (n=56) | 2nd Years (n=21) | 3rd Years (n=22) | 4th Years (n=13) |
|---|---|---|---|
| Strongly agree | 13 (62%) | 17 (77%) | 11 (85%) |
| Agree | 8 (38%) | 3 (14%) | 2 (13%) |
| Neither agree nor disagree | 0 (0%) | 2 (9%) | 0 (0%) |
| Disagree | 0 (0%) | 0 (0%) | 0 (0%) |
| Strongly disagree | 0 (0%) | 0 (0%) | 0 (0%) |

Thirteen of the 21 (62%) second-year respondents strongly agreed with the statement (Table 4.21) and eight of the 21 (38%) respondents agreed with the statement. None (0%) of the respondents chose "Neither agree nor disagree". None of the 21 respondents (0%) disagreed or strongly disagreed. It seems that the second-year graphic design students think that the Manual is important to be used by first-year graphic design students.

Seventeen of 22 (77%) third-year respondents strongly agreed with the statement and 14% of the respondents agreed with the statement. Two (9%) of the respondents neither agreed nor disagreed. None of the 22 respondents (0%) disagreed nor strongly disagreed. It appears that the third-year graphic design students think that the Manual is important to be used by first-year graphic design students. The second-year graphic design students also thought that the Manual is important to be used by first-year graphic design students.

Eleven of the 13 (85%) fourth-year respondents strongly agreed with the statement and two (15%) respondents agreed with the statement. This question was asked to determine whether the respondents felt that graphic design principles are important. It is possible to say from the responses that the fourth-year graphic design students deem the principles of graphic design important for first-year graphic design students.

Students had to rate the statement "A designer who uses the principles of graphic design is a better designer than a designer who does not make use of the principles of graphic design" (Question 21). With this question the researcher wanted to determine the importance of the graphic design principles for respondents in their profession as graphic designers and if they think that the graphic design principles can improve their skills.

**Table 4.22:** A designer who uses the principles of graphic design is a better designer

| A designer who uses the principles of graphic design is a better designer (n=56) | 2nd Years (n=21) | 3rd Years (n=22) | 4th Years (n=13) |
|---|---|---|---|
| Strongly agree | 7 (34%) | 11 (50%) | 5 (38%) |
| Agree | 11 (52%) | 5 (23%) | 6 (46%) |
| Neither agree nor disagree | 3 (14%) | 6 (27%) | 2 (15%) |
| Disagree | 0 (0%) | 0 (0%) | 0 (0%) |
| Strongly disagree | 0 (0%) | 0 (0%) | 0 (0%) |

Seven of 21 (34%) second-year respondents strongly agreed with the statement and 11 (52%) respondents agreed with the statement (Table 4.22). Three (14%) of the respondents neither agreed nor disagreed. None of the 21 respondents (0%) disagreed nor strongly disagreed. Eighty-six per cent of the respondents strongly agreed that a designer who makes use of the principles of graphic design is a better designer than a designer who does not make use of the principles of graphic design. It seems as if the second-year graphic design students deem the principles of graphic design as important in their profession as a

graphic designer and that it improves their skills — as rightly proposed by Wong (1993:41) (see 1.1).

Eleven of the 22 (50%) third-year respondents strongly agreed with the statement (Table 4.22) and five (23%) respondents agreed with the statement. Six (27%) of the respondents neither agreed nor disagreed. None of the 22 respondents (0%) disagreed or strongly disagreed. With 73% of the respondents strongly agreeing that a designer who makes use of the principles of graphic design is a better designer than a designer who does not make use of the principles of graphic design, it seems as if the third-year graphic design students deem the principles of graphic design as important in their profession as graphic designers and that it improves their skills as proposed by Wong, 1993 (see 1.1).

Five of the 13 (38%) fourth-year respondents strongly agreed with the statement and six of the thirteen (46%) respondents agreed with the statement. Two (15%) of the respondents neither agreed nor disagreed. None disagreed or strongly disagreed (0%). With 84% of the respondents agreeing that a designer who makes use of the principles of graphic design is a better designer than a designer who does not make use of the principles of graphic design, one may assume that the fourth-year graphic design students deem the principles of graphic design as important in their profession as graphic designers and that it improves their skills as proposed by Wong, (1993) (see 1.1).

The respondents had to provide a reason for their answers in the previous question. The responses to Question 22 from the 21 second-year respondents are listed in Annexure M.

The researcher assumed that the second-year graphic design students realised that the graphic design principles must be taught from as early as possible and that it is the foundation for a graphic designer (Respondents 2, 4, 5, 8, 9, 16, 18 and 20) and that one needs rules in order to design effectively (Respondents 12 and 15). It is important that a graphic designer creates work that will interest the viewer and the graphic design principles assist with this (see 1.1) and it seems that the second-year students agreed with this statement:

12. “If you don’t know the rules of designing, you might miss some design targets”

15. “You can’t design if you don’t know the principles because they are like rules of design”

The responses to Question 22 from the 21 third-year respondents are listed in Annexure N.

The researcher assumed that the third-year graphic design students realised that the graphic design principles must be taught from as early as possible and that designers need rules to know how to design (Respondents 1, 4, 5, 7, 10, 15, 17 and 22). Respondent 20 mentioned that graphic designers need to learn how to design and that the PGD manual will teach one that.

The responses to Question 22 from the 13 fourth-year respondents are listed in Annexure O.

It seems as though the fourth-year graphic design students realised that the graphic design principles must be taught from as early as possible and that it forms the foundation for a graphic designer (Respondents 6, 7, 10 and 11) and that one needs rules in order to design effectively (Respondent 1). The fourth-year graphic design students also realised that the design principles can make you faster in the design process (Respondents 2, 5, 9 and 12). Castelluccio (2008:58) highlights that principles of design can be used as rules and formulas which will shorten the design process (see 2.1).

The respondents were asked in Questions 23 and 24 whether they make use of the graphic design principles when they are briefed on a new project and if the principles lessened the time spent on solving a design problem. The question on time spent to solve a design problem is an important question because in the industry "time is money" and Castellucio (2008:58) (see 2.1) confirms that design principles can be used to shorten the design process. Students had to respond by indicating a “yes” or “no” response to both questions (see Table 4.23).

**Table 4.23**: The use of graphic design principle responses and time spent on solving design problems

| Parameters | 2nd Years Yes (n=21) | 2nd Years No (n=21) | 3rd Years Yes (n=22) | 3rd Years No (n=22) | 4th Years Yes (n=13) | 4th Years No (n=13) |
|---|---|---|---|---|---|---|
| Do you make use of the graphic design principles when you are given a new graphic design project? | 20 (95%) | 1 (5%) | 21 (95%) | 1 (5%) | 12 (93.3%) | 1 (7.7%) |
| Do the graphic design principles lessen the time you spend on solving a design problem? | 19 (90.5%) | 2 (9.5%) | 19 (86%) | 3 (14%) | 11 (84.6%) | 2 (15.4%) |

Twenty of the 21 second-year respondents (95%) selected "Yes" and one respondent (5%) selected "No" (Table 4.23), which is an indication that they make use of the graphic design principles in their projects. The researcher assumes that most second-year graphic design students (95%) probably do make use of the graphic design principles when they are presented with a new graphic design project. It can also be assumed that they probably know the importance of using the principles of graphic design. The question whether the graphic design principles help students to lessen the time spent on a design (Question 24) was asked to determine if the respondents realised the importance of the graphic design principles in the duration of the creation process. Nineteen of the 21 respondents (90.5%) selected "Yes" and two respondents (9.5%) selected "No" (Table 4.23). It appears that the second-year respondents realise that the principles of graphic design can save time and lessen the time spent on solving a problem. In the industry time is money. In this regard Castelluccio (2008:58) highlights that principles of design can be used as rules and formulas which will shorten the design process.

Twenty-one of the 22 third-year respondents (95%) selected "Yes" and one respondent (5%) selected "No" (Table 4.23).

It appears as if most the third-year graphic design students (95%) make use of the graphic design principles. It also appears that they recognise the importance of using the principles of graphic design when solving a design problem.

Nineteen of the 22 third-year respondents (56%) selected "Yes" to Question 24 while three respondents (14%) selected "No". The researcher can once again assume that the

respondents realise that the principles of graphic design can save time by lessening the time spent on solving a design problem.

Twelve of the 13 fourth-year respondents (92.3%) selected "Yes" and one respondent (7.7%) selected "No" to Question 24. It appears as if most fourth-year graphic design students make use of the graphic design principles. It could further indicate that they know the importance of using the principles of graphic design when solving a design problem. The question whether the use of graphic design principles lessen the time spent on solving a design problem was asked to determine if the respondents realise the value of the graphic design principles in the creation process. Eleven of the 13 respondents (84.6%) selected the "Yes" option and two respondents (15.4%) selected the "No" option. This could mean that the respondents realise that the principles of graphic design can save one time by lessening the time spent on solving a problem.

To close the questions in the questionnaire, the second-, third- and fourth-year students were asked if *The Principles of Graphic Design* manual explained the principles in such a manner that they could understand them (Question 25).

**Table 4.24**: Principles explained in an understandable manner

| Parameters | 2nd Years Yes (n=21) | 2nd Years No (n=21) | 3rd Years Yes (n=22) | 3rd Years No (n=22) | 4th Years Yes (n=13) | 4th Years No (n=13) |
|---|---|---|---|---|---|---|
| Does *The Principles of Graphic Design* manual explain the principles in such a manner that you understand them? | 20 (95%) | 1 (5%) | 21 (95%) | 1 (5%) | 12 (93.3%) | 1 (7.7%) |

Twenty of the 21 second-year respondents (95%) selected "Yes" and one respondent (5%) selected "No" (Table 4.24). From the responses it appears that *The Principles of Graphic Design* manual is written in such a manner that the graphic design principles explained in it are clear and is understood by the target audience.

Twenty-one of the 22 third-year respondents (95%) selected "Yes" and one respondent (5%) selected "No". The researcher can assume that the PGD manual effectively explains the graphic design principles in such a manner that the respondents understood them.

Twelve of the 13 fourth-year respondents (93.3%) selected "Yes" and one respondent (7.7%) selected "No". It appears that the PGD manual effectively explained the graphic design principles in such a manner that the respondents understand them.

## 4.3 PHASE 2: LECTURERS' INTERVIEWS

Because the number of participants is small (Munro, 2014:59), basic individual semi-structured interviewing were used to gather information from three lecturers on the subject Principles of Graphic Design in the Graphic Design Programme at the Central University of Technology, Free State. These lecturers included a lecturer who has been lecturing at the institution for 20 years, one lecturer who has been lecturing for nine years as well as a lecturer who has been lecturing for two years. This method of gathering qualitative data was used because, according to Babbie and Mouton (2008:289), it allows the object of study to speak for him- or herself. This means that the respondent is not influenced by the researcher's hypothesis-based questions. According to Rubin and Rubin (as cited in Babbie and Mouton, 2008:289), this interviewing design is characterised as "flexible, iterative, and continuous, rather than prepared in advance and locked in stone." Interviews were selected because the answers required "depth" and "exploration" (Gillham, 2003:13). For this reason, the researcher decided to use open-ended questions (cf. Addendum B). A certain portion of the interview was set with planned questions (Munro, 2014:60). This method assisted the researcher to determine possible teaching problems and how to improve the PGD manual with teaching in mind.

Face-to-face interviews were conducted as the researcher had easy access to the participants. Interviews are generally time-consuming but were feasible in this case because only three lecturers had to be interviewed (Gillham, 2003:9).

### 4.3.1 *Question 1: For how long have you bee lecturing the principles of graphic design to first-year graphic design students at the CUT?*

The three participants indicated that they had been lecturing for 20 years, nine years and two years respectively.

### 4.3.2 *Question 2: Do you make use of the Manual to teach?*

This question was asked to determine if the lecturers make use of the PGD manual as a teaching tool for the classes that it was intended for, namely the periods set aside for Basic Design Principles in the subject Communication Design I.

All three lecturers mentioned that they do in fact make use of the PGD manual to teach. The lecturer who had been teaching graphic design principles for 20 years mentioned that it was difficult to teach the graphic design principles before 2007 because there were almost no literature in the form of publications available to work from and only one book called *Design Concepts and Applications* written by Frank Cheatham, Jane Cheatham and Sheryl Haler. He also mentioned that this book had no practical examples and contained many art principles and no design principles and which was not sufficient for graphic designers. The other two lecturers used the PGD manual during every class and even for their own referencing. Both stated that they do not know of any other books or manuals that contain only principles of graphic design.

### 4.3.3 *Question 3: Do you make use of the Manual to prepare for classes?*

This question was posed to determine if the PGD manual contains understandable information on the graphic design principles and if additional information is required.

All three lecturers made use of *The Principles of Graphic Design* manual to prepare for classes. The lecturer that has been lecturing for two years mentioned that she does additional research on the Internet so that she has additional images to show the students on the screen in class. She also mentioned that it would not be necessary to collect additional images to show with the aid of PowerPoint if the PGD manual was also provided to her in digital format. She further explained that students do not pay attention if one simply reads from the Manual. The other two lecturers mentioned that it was difficult to teach

chapters like "Colour" without any colour in the Manual. All three lecturers stated that more space for additional notes were needed, because students made drawings on the blank (open) pages while they (the lecturers) explained principles in the Manual and then there is no additional space left for extra notes.

#### 4.3.4 *Question 4: Do you find that the Manual clearly explains the principles of graphic design?*

This question was asked to determine if the PGD manual is pitched at the right level for first-year graphic designs students and if it assists in the teaching process. All three lecturers indicated that the Manual explains the principles of graphic design clearly, but two nonetheless felt that the chapter on colour did not contain sufficient information and should be more explanatory. The lecturer in charge of teaching the graphic design principles suggested that extra blank pages should be added at the end of each chapter for notes to help students with their tests. She usually gives them a scope of the work at the end of every chapter that they must pay special attention to and some of them writes it down on pieces of paper and then they complain that they had unfortunately lost these notes.

#### 4.3.5 *Question 5: Do you require additional "props" to assist you with demonstrations?*

This question was put to determine if the PGD manual requires any additional props that would aid in the teaching process.

All three lecturers responded that it would be convenient if there were ready-made L-shapes to demonstrate cropping to students (see page 20 of Addendum D). Two lecturers thought that differently shaped cartons would also be helpful to demonstrate different layouts and principles that focuses on shapes. The lecturer who had been teaching for 20 years stated that props for all the principles would be convenient and more interactive. He also indicated that he used to send students outside the lecture hall to gather natural shapes like rocks and leaves, but that it was messy for graphic designers. The other two lecturers indicated that it was very time-consuming when students had to make their own shapes from paper and carton and that they did not always have the necessary tools handy, for example scissors.

### 4.3.6 *Question 6: How do you experience the use of the Manual by students?*

The researcher asked this question to determine how the lecturers experience or experienced the students using the PGD manual. All three lecturers stated that students used the Manual in class every time and that they make notes in the Manual. Some of the students complained about the Manual not being in colour and the lecturer currently teaching the principles of graphic design mentioned that almost all of them has added their own designs on the front page in colour. This compares well with student responses in Table 4.16 where second-, third- and fourth-year students rated "colour" as one of the worst qualities of *The Principles of Graphic Design* manual.

### 4.3.7 *Question 7: Do you know of any positive feedback that the students have given about the Manual?*

The researcher asked this question to determine what positive feedback (if any) the students have given regarding the Manual and to compare this with the answers the students gave in the student questionnaire. Two of the lecturers gave feedback that some of the students go to the chapter titled "Idea" for every project that they undertake. This links well with the third-year students (see Table 4.11) and fourth-year students (see Table 4.12) who rated "Idea" as their most memorable chapter. They also enjoy the photos of animals (refer to Addendum D, pages 32 and 42). One of the lecturers indicated that some students said that they never come to class without their PGD manual and that it helps them with every project. This compares well with the responses of first-year students (see Table 4.10) who mentioned that the images ("pictures in the book") in the PGD manual was the reason for them being able to remember the gestalt principle. It also compares well with the third-year student responses (see Table 4.11) that indicated that the principles they remembered were clearly illustrated in the Manual.

### 4.3.8 *Question 8: Do you know of any negative feedback that the students have given about the Manual?*

The researcher asked this question to determine what negative feedback (if any) the students have given regarding the PGD manual and to compare this with the answers the students gave in the student questionnaire. All three of the lecturers gave feedback that some of the students constantly complained about the Manual not being in colour. The lecturer currently teaching the principles of graphic design mentioned that it is one of the reasons that she uses images from the Internet as well. This links with the responses of the second-year students that rated "colour" as the poorest quality of the PGD manual (see Table 4.13). The majority of fourth-year students also rated "colour" as the poorest quality of the Manual (see Table 4.15).

### 4.3.9 *Question 9: What is positive in your view about the Manual?*

The researcher asked this question to determine what the lecturers experienced positively about the PGD manual.

The lecturer who has been teaching for 20 years stated that the information that is concise with examples was experienced by him as positive because there has not been a manual like the PGD manual. With the PGD manual, he also did not need to do additional research in order to lecture the subject.

The lecturer who has been teaching for nine years experienced the layout and order of the principles as positive: "The layout and order that the principles are placed in the book makes them easy to find and teach."

The lecturer who has been lecturing for two years and are currently lecturing the subject mentioned that the principles all contained in one book was very convenient and she could easily find the different principles. Some of the principles that the students enjoyed a lot, for example the different ways to generate ideas. Every time she briefed a new project, the students would show her their brainstorming. This response links with the second-year student responses (see Table 4.10) where respondents indicated that they used it for every

project (Respondent 15) and that they used it often (Respondents 3 and 9). It also links with the third-year student responses (see Table 4.11) that rated the chapter titled "Idea" as the most memorable chapter. The fourth-year students also rated the "idea" principle as equally most memorable with the principle of "gestalt" (see Table 4.12).

### 4.3.10 *Question 10: What, in your view, is negative about the Manual?*

The researcher asked the question *What, in your view, is negative about the Manual?* to determine what the lecturers experienced negatively about the PGD manual.

All three lecturers experienced the lack of colour negatively which compares well with what lecturers responded on negative feedback from students (see 4.3.3) and responses from students (see Table 4.13 and Table 4.15). It also made the teaching process more difficult because additional explanation was necessary in order to explain a principle. The size of the Manual was also a problem because it gets damaged in the bags that the students use. A smaller size was suggested by all three lecturers. This links with the response from a fourth-year student (see response to open question on Page 80) who mentioned that the Manual should be smaller so that it can easily fit into a bag. A fourth-year student also suggested that the Manual should be professionally printed (see response to open question on Page 79). A second-year student mentioned that the Manual is not well constructed (see response to open question on Page 78) and two second-year students stated that the Manual needs colour.

### 4.3.11 *Question 11: What suggestions do you have on improving the Manual?*

The researcher asked the question *What suggestions do you have on improving the Manual?* in order to determine what the lecturers would suggest to improve the Manual.

The lecturer who had been teaching for 20 years suggested that the Manual should be printed in colour and that some "props" should be added to assist in the teaching process: "You need to show the students how certain principles work and you need some props like shapes and carton to do that."

The remaining two lecturers both suggested that a digital version of the Manual be provided to the lecturer. The lecturer currently teaching suggested that the Manual should be printed in colour and in a smaller version to save money.

## 4.4 PHASE 3: COMPUTERISED SELF-ADMINISTERED QUESTIONNAIRES FOR INDUSTRY

Computerised self-administered questionnaires (CSAQ) were used as data collecting method for industry design studio owners (see Addendum C). Babbie and Mouton (2008:259) describe CSAQ as the process where the respondent receives the questionnaire via CD or other electronic means. The respondent can then run the software where he or she can complete the questions and return the data file. This method was selected by the researcher because it offers convenience to the respondents. The researcher selected Survey Monkey (www.surveymonkey.com) as the most convenient CSAQ. Design studio owners are very busy and this presented them with the opportunity to answer the questions at their own leisure.

The studio owners were sent a Consent Form (Addendum E) which they signed electronically. A link to the survey (Addendum C) was emailed to three graphic design studio owners who employ students who hold graphic design qualifications from the CUT. This method furthermore allows for more accurate answers because, as rightly proposed by Nicholls (as cited by Babbie and Mouton, 2008:260), this kind of technique is more efficient than conventional techniques. As soon as the respondent had completed the CSAQ, an email with the responses were sent back to the researcher. As suggested by Babbie and Mouton (2008:260), the emails were opened and scanned immediately.

With CSAQ the researcher wanted to determine if *The Principles of Graphic Design* manual positively influenced the industry experience of the student by minimising the time spent on a design or not. The three design studio owners were asked to respond to the CSAQ. The CSAQ consisted of "True" or "False" questions as well as 5-point Likert Scale questions.

4.4.1 *Question 1: In what month and year did you employ your graphic design CUT graduate?*

Respondent 1: November 2011

Respondent 2: January 2011

Respondent 3: January 2012

4.4.2 *Question 2: What was his/her qualification?*

Respondent 1: National Diploma in Graphic Design

Respondent 2: BTech: Graphic Design

Respondent 3: National Diploma in Graphic Design

4.4.3 *Question 3: Where were you introduced to the principles of graphic design?*

Respondent 1: Tertiary level

Respondent 2: Tertiary level

Respondent 3: Design studio

The researcher asked this question to determine if the graphic design studio owners have been exposed to graphic design principles.

4.4.4 *Question 4: The principles of graphic design is valuable as a subject.*

Respondent 1: Strongly agree

Respondent 2: Strongly agree

Respondent 3: Agree

The researcher can assume that the studio owners consider the principles of graphic design as valuable.

4.4.5 *Question 5: A designer that knows the principles of graphic design works faster than a designer that does not know the principles of graphic design.*

Respondent 1: True

Respondent 2: True

Respondent 3: True

This question was asked to determine the viewpoints of the graphic design studio owners of the principles of graphic design and whether a student that knows these principles will be able to work faster.

*4.4.6 Question 6: My CUT graphic design employee makes use of the graphic design principles.*

Respondent 1: True

Respondent 2: True

Respondent 3: True

This question was asked to determine if students still make use of the graphic design principles once they leave the CUT. The researcher deducts that the students still make use of the graphic design principles once they leave the CUT for employment.

4.4.7 *Question 7: Please provide evidence for your answer in Question 6*

Respondent 1: "*My employee has to use the design principles to do the layout that is required of him. We are a publication design studio and every layout requires a grid that can only be completed by knowing the design principles. He is a very fast worker and always uses brainstorming techniques before he commences with any work*."

Respondent 2: "*We are a very small design and printing studio and we have to generate all our ideas between three people. My employee knows the principle of idea generation very well and will always take the lead when a new idea has to be pitched to clients*."

Respondent 3: "*My employee knows the design principles and it saves a lot of time because the principles ensure that the design is without errors and I do not have to double-check her designs before they are shown to the client. Thanks to her knowing the design principles, I have saved money on hiring people from outside to do pattern designing*."

It appears from the responses that their employees from the CUT make use of various graphic design principles. Respondent 1 replied that his employee uses grids and that he is a fast worker. Respondent 2 focused on the idea generating process that his employee uses with success. Respondent 3 stated that his employee saves a lot of time by using the graphic design principles.

4.4.8 *Question 8: My employee has a very good understanding of graphic design principles.*

Respondent 1: True

Respondent 2: True

Respondent 3: True

All three respondents specified that their employees have a very good understanding of graphic design principles and it appears from the responses that a good foundation was laid on tertiary level at the CUT.

### 4.4.9 *Question 9: The principles of graphic design make my employee a more effective designer.*

Respondent 1: Strongly agree

Respondent 2: Strongly agree

Respondent 3: Agree

Two respondents strongly agreed and one agreed with the statement that the principles of graphic design make their employee a more effective designer. According to industry, it is possible that the principles of graphic design is an important advantage to an employee. It is interesting to note that 96.4% of the second-, third- and fourth-year students strongly agreed or agreed that the principles of graphic design make them more effective designers (see Table 4.19).

### 4.4.10 *Question 10: The principles of graphic design lessen the time my employee spends on solving a design problem.*

Respondent 1: Strongly agree

Respondent 2: Strongly agree

Respondent 3: Strongly agree

All three respondents strongly agreed that the principles of graphic design lessen the time an employee spends on solving a design problem. It is interesting to compare the responses to this statement with the 87.5% of second-, third- and fourth-year students responses who agreed that the graphic design principles lessen the time one spends on solving a design problem (see Table 4.23).

4.4.11 *Question 11: Describe in no more than two (2) sentences what an effective graphic design employee in your company is.*

Respondent 1: "*Someone that can work fast. The more work someone can turn over, the more money the company makes."*

Respondent 2: "*A person that can take a project from scratch and turn it into a success. This person should also know how to design for their target markets."*

Respondent 3: "*A versatile person that knows the industry and someone that can time-manage. Someone that can successfully design fast without supervision*."

It seems that the studio owners' experience with their graphic design CUT graduates are positive and it appears as if the graphic design principles are considered an advantage for their graduates by saving the business time. This compares well with the second-year students who noted that an effective designer can communicate effectively (Annexure J, Respondents 1, 6, 7, 10, 11 and 12). It is also interesting to see that Respondent 7 of the third-year students (Annexure K) mentions that an effective designer is someone who uses their time effectively. Interestingly, the fourth-year students also stated that an effective designer knows how to communicate effectively through their designs (Annexure L;

Respondents 1, 7, 10 and 12). These statements also concurred with the opinions of Siebert and Cropper (1993:3) (see 1.1).

## 4.5 SUMMARY OF CHAPTER

Evans and Thomas (2004:4) as well as Wong (1993:41) point out that the visual language that a design student uses in the creation process is made up of principles and rules (see 2.1). The majority (98.2%) of the second-, third- and fourth-year students (n=56) confirmed that graphic designers make use of rules in order to design (see Table 4.2).

The design principles chapters in the PGD manual that was most remembered by the participants were "Gestalt" by the second-year students (see Table 4.10), "Idea" by the third-year students (see Table 4.11) and "Idea" and "Gestalt" equally by the fourth-year students (see Table 4.12). Their remembrance of these chapters was influenced by the lecturer (see Table 4.10). One of the lecturers mentioned that the students used the chapter titled "Idea" with every project (see 4.3.9).

Story (2007:1) explains that all visual barriers must be removed for a student to value a manual (see 2.1). The second- and fourth-year students rated the colour of the Manual as its poorest quality (see Table 4.13 and Table 4.15). The third-year students rated the cover page as the poorest quality (see Table 4.14). During the interviews, all three lecturers experienced the lack of colour negatively (refer to 4.3.10). It also made the teaching process more difficult because additional explanation was necessary in order to explain some of the principles.

"Open spaces for notes" were also highlighted as one of the worst qualities by the second-, third- and fourth-year students (see Table 4.16). The PGD manual is printed on one side only so that the students can use the blank pages for notes, but the lecturer interviews shed more light on this problem. All three lecturers stated during the interview that more space for additional notes was required, because students made drawings while they explained principles in the Manual on the blank (open) pages and then there is no other space for extra notes (see 4.3.3).

The respondents from year two, three and four mentioned that an effective designer is someone that knows how to communicate effectively with their designs and someone who uses their time efficiently by making them faster in the design process (see Table 4.19). The majority of second-, third- and fourth-year students stated that the graphic design principles lessen the time they spend on solving a problem (see Table 4.23). The graphic design studio owners that completed the CSAQ strongly agreed that the principles of graphic principles lessen the time that their employees spend on solving a design problem (see 4.4.10). The respondents also mentioned that an effective designer is someone that can work fast and manage time effectively and that the more work someone can turn over, the more money their employer can generate for the business (see 4.4.11). Castelluccio (2008:58) (see 2.1) also highlights that the principles can be used as rules and formulas which will shorten the design process.

The majority of combined second-, third- and fourth-year student respondents (96.4%) agreed that it is necessary for the first-years to use the PGD manual (n=56). Forty-five of the 56 students (80.4%) agreed that a designer who uses graphic design principles is a better designer (see Table 4.19). Fifty-three students (94.6%) stated that they make use of the graphic design principles when they are given a new project.

The lecturers confirmed that they make use of the PGD manual to teach and one lecturer mentioned that it was difficult to teach the subject before the Manual was available because there are very little literature to work from (refer to 4.3.2). It was proposed that the Manual should also be provided digitally, so that it can be shown on the projector in class (see 4.3.3). All three lecturers mentioned that it would ease the teaching process if ready-made "props", for example L-shapes that are used to demonstrate, were included already, because it is time-consuming when the students have to make these themselves (see 4.3.5). Their positive view about the Manual was that the information as well as the examples were concise. The layout and order of the principles were viewed as positive and the book as convenient (refer to 4.3.9). All three lecturers, however, suggested that the Manual should be smaller (refer to 4.3.10).

## 4.6 CONCLUSION

In this chapter the results of the student questionnaires, lecturer interviews and CSAQ were discussed to determine the possible perceptions on *The Principles of Graphic Design* manual for first year graphic design students. The chapters that were most remembered by the second-, third- and fourth-year students, namely "Gestalt" and "Idea", were determined. The perception of the second-, third- and fourth-year students on the worst qualities of the Manual was determined as well as the worst qualities according to the lecturers. The views of the owners of graphic design studios on the influence of the graphic design principles on their CUT graduate employees were also determined.

In Chapter 5 the conclusion regarding the results and implications of the study will subsequently be discussed.

CHAPTER 5

# CONCLUSIONS AND IMPLICATIONS OF THE STUDY

## 5.1 INTRODUCTION

Graphic design principles assist with the placement and arrangement of various elements to create a work that will interest the viewer (Pipes, 2008:11). Graphic design students need to critically analyse and constructively criticise a design project to quickly solve a graphic design-related problem. This is necessary because in the industry, time is money (Pipes, 2008:10). Lauer and Pentak (2000:6) also state that students may have difficulty in getting an idea for a design and that basic principles can be used as a process to assist them with problem-solving.

In Chapter 1 of this study the researcher discussed the history and background to the study. Chapter 2 presented an overview of the literature study on the principles of design. The researcher described the methodology (the mixed media paradigm (qualitative and quantitative paradigm), with the main focus on the qualitative paradigm. The researcher attempted to understand the respondents in terms of their own definitions (Babbie & Mouton, 2008) that was used for the study in Chapter 3 and in Chapter 4 the results obtained from questionnaires and interviews were discussed.

In this chapter the conclusions drawn from the research findings and implications of the research results to the study will be discussed.

## 5.2 CONCLUSIONS AND IMPLICATION OF THE STUDY

*The **primary objective** of the research was to determine the perceptions of second-, third- and fourth-year graphic design students on The Principles of Graphic Design manual for first-year graphic design students at the CUT.*

Twenty-one second-year, 22 third-year and 13 fourth-year graphic design students completed the same questionnaire (Addendum A). All the students first signed a consent form (Addendum E). The questionnaire was disseminated amongst the students by the researcher in their classroom. To ensure that all the completed questionnaires were returned, the researcher monitored the returns closely (Fink, 2009:39).

The researcher can deduce that the second-, third- and fourth-year graphic design students agree with the importance of designing with the aid of graphic design principles as elaborated upon by Evans and Thomas (2004:3) (see par. 2.1) as well as Lauer and Pentak (2000:5) (see par. 2.1).

The researcher proclaimed that students struggle to link theory to practice and application (see par. 1.4). Two second-year graphic design respondents made the connection of the value of the link of graphic design principles to theory and practical assignments. This links to the statement by Tempelman and Pilot (2010:262) that "a first promising solution to this problem is to interweave theory and practice much closer" (see par. 1.4).

The statement was posed by the researcher that the PGD manual explained clearly the principles theoretically (see Table 4.5) and by means of an image (see Table 4.6). All of the second-, third- and fourth-year students (i.e. 100%) felt that the Manual clearly explained the principles theoretically (in words) and the researcher can deduce that the PGD manual clearly explained the principles in words and furthermore that the pitch level is at the appropriate level (see 1.4) as prescribed by SAQA for the first-year learner at NQF Level 5 (see par. 1.3). The majority of the second-, third- and fourth-year students indicated that the PGD manual explained the principles clearly by means of an image (see Table 4.6). The researcher concluded from the responses that the images aided in the understanding of the principles of graphic design.

To determine whether the graphic design students are using the PGD manual in practice and if they are experiencing the principles as having an influence on the way they design, the researcher made the statement that the principles of graphic design make a student a more effective designer (see Table 4.19). From the responses the researcher concluded that

the majority of the second-, third- and fourth-year graphic design students agree that knowing and using the principles of graphic design makes one a more effective designers as rightly proposed by Leuckenhausen (2007:1) and Pipes (2008:173) (see par. 1.1).

In order to determine the perception of the graphic design students on the necessity for first-year students to use the PGD manual, the researcher asked the students to rate the necessity of first-year students to use the manual (see Table 4). The majority of the second-, third- and fourth-year students strongly agreed with the statement that it is necessary for first-year students to use the Manual. The researcher can deduce that the second-, third- and fourth-year students deem the use of the PGD manual by first-year students important.

### 5.2.1 Secondary question 1: What constitutes an effective manual on the principles of graphic design for first-year students?

The first **secondary objective** of the researcher was to determine what constitutes an effective manual on the principles of graphic design for first-year students.

The perception of the physical appearance (quality) of *The Principles of Graphic Design* manual was determined. Second-year graphic design students and fourth-year graphic design students selected "use of design elements as 'excellent'" while five students rated colour as the poorest quality (see Table 4.13 and Table 4.15). Third-year graphic design students selected "organising of content" as excellent while three students rated the cover page as the poorest quality of the Manual (see Table 4.14). Fourth-year graphic design students selected "colour" as the poorest quality. Students are diligent to notice that the principles of graphic design are used in the layout and design of the PGD manual and further stated that the colour of the Manual is a poor quality. In 2010 it was a departmental decision that the PGD manual should be printed in black and white to save on printing costs. A possible solution to this poor quality might be to publish the Manual as an e-book as suggested by two lecturers (see par. 4.3.11).

According to Cheatham et al. (1987), the term "design" means to plan or to scheme. The principles of arranging and organising have been developed over the centuries either intuitively or according to mathematical and quasi-scientific methods (Pipes, 2008:173). Lauer and Pentak (2000:6) rightly indicated that students may often experience difficulty in getting an idea for a design and that basic principles can be used as a process to assist problem-solving.

Students agreed that the PGD manual explains the principles in such a manner that they can understand them (see Table 4.24). Third-year graphic design students also agreed with this statement and the fourth-year graphic design students also agreed (see Table 4.24). The perception of the graphic design students are positive that the PGD manual effectively explains the principles of graphic design.

### 5.2.2 Secondary question 2: How can the PGD manual enhance and ease the teaching of the graphic design principles for lecturers at the CUT?

Because the number of participants is small (Munro, 2014:59), basic individual semi-structured interviewing was used to gather information from three lecturers of the subject Principles of Graphic Design at the CUT in the Graphic Design Programme. These lecturers included a lecturer who has been lecturing at the institution for 20 years, one lecturer who has been lecturing for nine years as well as a lecturer who has been lecturing for two years. This method assisted the researcher to determine possible teaching problems and how the PGD manual may enhance the teaching process.

The researcher can conclude that the manual needs additional spaces for notes as the lecturer teaching the graphic design principles suggested (see par. 4.3.4), which also links well with 17 graphic design students rating "open spaces for notes" as the worst quality of the PGD manual (see Table 4.16).

It is also possible to deduce that extra props is needed to enhance the teaching experience, namely ready0made L-shapes (see par. 4.3.5), colour (see par. 4.3.11) and a digital version of the Manual should be made available to the lecturer (see par. 4.3.11).

It is clear that the Manual enhanced and eased the teaching of graphic design principles for lecturers at the CUT.

### 5.2.3 Secondary question 3: How can the principles from the Manual assist students with the design process in the graphic design industry in Bloemfontein?

Computerised self-administered questionnaires (CSAQ) were used as data collecting method for industry design studio owners (refer to Addendum C). Babbie and Mouton (2008:259) describe CSAQ as the process where the respondent receives the questionnaire via CD or other electronic means. The respondent can then run the software where he or she can complete the questions and return the data file. This method was selected by the researcher because it offers convenience to the respondents. The researcher selected Survey Monkey (www.surveymonkey.com) as the most convenient CSAQ. A link to the survey was emailed to three graphic design studio owners who employ students with graphic design qualifications from the Central University of Technology, Free State. The link shortly explained the study and gave instructions on the completion of the online survey. Nicholls (as cited by Babbie and Mouton, 2008:260) reports that this kind of technique is more efficient than conventional techniques. As soon as the respondent had completed the CSAQ, an email with the responses were sent back to the researcher. As suggested by Babbie and Mouton (2008:260), the emails were opened and scanned immediately.

The researcher requested the studio owners to rate according to a 5-point Likert Scale (with the options of "Strongly agree", "Agree", "Neither agree nor disagree", "Disagree" or "Strongly disagree") whether the principles of graphic design is valuable as a subject. The researcher can deduce that the studio owners considered the principles of graphic design as valuable which links with the statement made by Wong (1993:41) (see 1.1). This also links with the responses by the graphic design students. Second-year, third-year and fourth-year

graphic design students agreed that the principles of graphic design is valuable as a subject (see Table 4.4).

The CSAQ summarised that the CUT graphic design employees made use of the graphic design principles (see par. 4.4.6) of which they (i.e. the studio owners) subsequently had to provide evidence for. It was mentioned that the employee uses the design principles to do the layouts required and that the employee is a very fast worker and always use brainstorming techniques before commencing with any work (see par. 4.4.7). The fact that students enjoy the principle of "idea" was confirmed by a lecturer (see par. 4.3.9). This response links with the second-year student responses (see Table 4.10) where respondents stated that they used it for every project (Respondent 15) and that they used it often (Respondents 3 and 9).

In the CSAQ it was mentioned that the CUT employee knows the principle of idea generation very well (see par. 4.4.7). This links well with the above statements from the lecturer and students.

In the CSAQ it was stated that his employee knows the design principles and that it saves a lot of time because the principles ensure that the design is without errors (see par. 4.4.7). This is confirmed by Lueckenhausen (2007:1) and Pipes (2008:10) who explained that a graphic design student needs the skills to critically analyse and constructively criticise a design project (see 1.1). Siebert and Cropper (1993:3) also stated that the planning of design will ensure one's design is communicated effectively (see 1.1). Cheatham et al. (1983:i) also confirmed that the design principles provide a plan that the designer can use (see par. 2.1). These facts are also linked well to the responses of students. A second-year graphic design student stated that an effective designer is someone who is a fast problem solver (Table 4.19). Third-year and fourth-year graphic design students mentioned that a successful designer is someone that manages their time effectively and who works fast (Table 4.19). Castelluccio (2008) also stated that the use of graphic design principles will lessen the time taken to complete a successful design because they can be used as a formula (see par. 1.4).

The researcher can conclude that the principles from the PGD manual assisted students with the design process in the graphic design industry in Bloemfontein.

It can be deduced that the graphic design students value the principles of graphic design as a subject (see Table 4.4). The importance of graphic design principles is also confirmed by Evans and Thomas (2004:4) (see par. 2.1). The graphic design students strongly agreed that the Principles of Graphic Design is valuable as a subject. With the motivations furnished by students for their answers, second-year respondents made the connection of theory and practical assignment, which is the process of building a student's knowledge and skills as mentioned by Tempelman and Pilot (see par. 1.4). It was also mentioned that the graphic design principles help one to "design correctly" which is confirmed by Lichty (1994:25) as well as Siebert and Cropper (1993:3) (see 1.1). The student questionnaire results reflected that design problems can be solved quicker with the help of design principles, thus saving time and money in the industry as confirmed by Castelluccio (2008:58) (see par. 2.1). This is also confirmed by the results of the CSAQ where it was stated that the CUT graduate employee made use of the principles of graphic design and that he is a "fast worker" (see 4.4.7). This also links with the results of the student questionnaire where it was agreed that the graphic design principles lessen the time one spends on solving a design problem (see Table 4.23).

The results of the Student Questionnaire indicated that the PGD manual explained clearly the principles theoretically (see Table 4.5). The researcher can deduce that the PGD manual clearly explains the principles in words. This result also confirmed that the pitch level is at the appropriate level that SAQA prescribed for learners on NQF Level 5 (see 1.3). The researcher can conclude that the graphic design students have a positive perception of the effectiveness of *The Principles of Graphic Design* manual.

It can be concluded that the PGD manual links theory to practice (see Table 4.10, Table 4.11 and Table 4.12) which was one of the main reasons that the researcher decided to develop the PGD manual (see 1.4). Templeton and Pilot (2010:262) also stated that the interweaving of theory and practice can contribute to the building of a student's knowledge and skills (see par. 1.4). The Student Questionnaire indicated that the most memorable chapter was the chapter titled "Idea" (see Table 4.11). This links with the feedback that two of the interviewed

lecturers gave. According to them, some of the students go to the "Idea" chapter for every project (see par. 4.1.2.7). It is also confirmed in the CSAQ where it was mentioned that the employee knows the idea principle very well and took the lead when a new idea had to be pitched to clients (see par. 4.1.3.7). The student questionnaire also indicated that the chapter on "Idea" was the most memorable (see Table 4.12) and mentioned that it was most memorable because it was often repeated by the lecturer. The researcher deducts that the lecturer has an influence on how well the students remember a certain chapter based on the number of times a principle is repeated by the lecturer.

The researcher deduces from the student questionnaire responses that the graphic design students feel that the PGD manual is written in an easy to understand manner that can easily be understood by other graphic design students and thus they agree that they would be able to teach first-year students with the PGD manual (see Table 4.20).

It was concluded that the PGD manual explains the principles in such a manner that one can understand them (see Table 4.24).

The researcher can conclude from the results of the CSAQ that additional notes were needed in the PGD manual because the students made drawings while the lecturers explained principles in the Manual on the blank (open) pages and then there are no additional space for extra notes (see par. 4.1.2.3). This links with the results from the graphic design students who rated "open spaces for notes" as the worst quality of the PGD manual (see Table 4.16).

The negative feedback the lecturers gave during the interviews regarding the PGD manual is that they experienced the lack of colour negatively (see 4.3.10). This was also mentioned by the students in the student questionnaire. Colour was rated as the poorest quality by the second- as well as fourth-year graphic design students (see Table 4.13 and Table 4.15). In 2010 it was a departmental decision that the PGD manual should be printed in black and white to save on printing costs, which included the cover page. During the interviews with the lecturers, two lecturers suggested that *The Principles of Graphic Design* manual should be provided digitally to the lecturers, so that they could show the colour version of the images

on screen in class (see par. 4.3.11). One lecturer suggested that the Manual should be printed in colour and in a smaller version to save money (see 4.3.11). This links with what a fourth-year graphic design student suggested (see Table 4.15) by mentioning that the PGD manual should be smaller so that it can more easily fit into a handbag.

The researcher can deduce from the CSAQ respondents (industry) that their employees from the CUT make use of various graphic design principles from *The Principles of Graphic Design* manual. Respondent 1 stated that his employee used grids for the layout of publications and that he uses brainstorming techniques (see par. 4.4.7). Respondent 2 mentioned that his employee knows the principle of idea generation very well and Respondent 3 stated that he saves a lot of money because his employee knows the design principles and he does not have to double-check the work (see par. 4.4.7). The fact that students used the principle of "idea" was confirmed by a lecturer (see par. 4.3.9). This links with the second-year student responses (see Table 4.10) where respondents stated that they used it for every project and that they used it often. It also links with the third-year student responses (see Table 4.11) according to which the "idea" principle was rated as the most memorable chapter. The fourth-year students also rated the "idea" principle as equally most memorable alongside the principle of "gestalt" (see Table 4.12).

The researcher deduced from this study that the *The Principles of Graphic Design* manual is one of value (see Table 4.4). The manual explains the principles of graphic design clearly in theory (see Table 4.5) as well as by means of an image (see Table 4.6). The PGD manual is written in an easy to understand manner and that it is possible for students to teach first-year graphic design students with the Manual (see Table 4.20 and Table 4.24).

The researcher also established that an effective manual has to be printed in colour (see Tables 4.13, 4.15, 4.16, 4.1.2.3 and 4.3.11). The size of the PGD manual was indicated as a problem because it gets damaged easily in the bags that the students use. Lecturers suggested a smaller size (see par. 4.1.2.10). Two fourth-year students also stated that the Manual should be smaller so that it can more easily fit into a bag (see Table 4.15). A digital version of the Manual should be provided to lecturers to enhance and ease the teaching of graphic design principles (see par. 4.3.11). The researcher can deduce that the principles from the Manual assisted students with the design process in the graphic design industry in

Bloemfontein. The studio owners confirmed that their CUT graduate employees used the graphic design principles (see par. 4.4.8) because employees work faster and take the lead in the idea generating process (see par. 4.4.7).

## 5.3 RECOMMENDATIONS

The researcher suggests a revised manual with Universal Design Principles which can be used in the Department of Design and Art for first-years enrolling in the new Diploma of Design and Studio Art which began enrolling students in 2014. In the first-year of study of this diploma, the student is introduced to five disciplines, namely (1) graphic design, (2) photography, (3) fashion and interior, (4) fine art and (5) jewellery. The student is then introduced to these five disciplines and can in the third year decide to approach a project from one of these disciplines in order to specialise in the chosen discipline with further study.

The researcher also aims to publish *The Principles of Graphic Design* manual as an e-book.

This chapter presented the conclusions drawn from the research findings and the implications of the research results.

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M.Tech.: Design

The effectiveness of a first year teaching manual on the principles of graphic design

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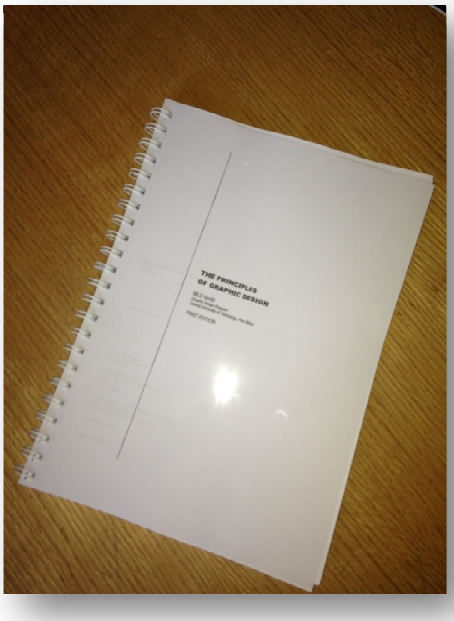
**ADDENDUM A**

# STUDENT QUESTIONNAIRE

This questionnaire will be used to determine the respondents perspective on the principles of graphic design manual **(The principles of graphic design by MLC Nortjé, ISBN 978-0-9802602-0-5)**, used in the teaching of the principles of graphic design subject during first year of study in the National Diploma in Graphic Design at the Central University of Technology, Free State.

Please do not enter your name or contact details on the questionnaire. It remains anonymous. Information provided by you remains confidential and will be reported in summary format only.

This questionnaire will take no more than 15 minutes to complete. The questionnaire will be collected upon completion.



**PLEASE ANSWER THE FOLLOWING QUESTIONS BY CROSSING (X) THE RELEVANT BLOCK OR WRITING DOWN YOUR ANSWER IN THE SPACE PROVIDED.**

**EXAMPLE of how to complete this questionnaire:**

**Your gender?**
If you are a female:

| | |
|---|---|
| **Male** | |
| **Female** | X |

## SECTION A – BACKGROUND INFORMATION

This section of the questionnaire refers to background or biographical information. Your response will remain anonymous.

1. Gender

| | | |
|---|---|---|
| Male | | 0 |
| Female | | 1 |

2. Age (in years)

| | |
|---|---|
| | |

3. In which year of study are you currently enrolled?

| | | |
|---|---|---|
| 2nd year | | 0 |
| 3rd year | | 1 |
| 4th year (B.Tech.) | | 2 |

## SECTION B

This section of the questionnaire refers to your background knowledge of the principles of graphic design before you commenced your studies at the Graphic Design Programme. Your response will remain anonymous.

1. Graphic designers make use of rules in order to design.

| | | |
|---|---|---|
| True | | 0 |
| False | | 1 |

2. The rules of graphic design are called the principles of graphic design.

| | | |
|---|---|---|
| True | | 0 |
| False | | 1 |

3. Were you ever introduced to any form of principles of graphic design **before** you commenced your studies at the Graphic Design Programme?

| | | |
|---|---|---|
| Yes | | 0 |
| No | | 1 |

4. If you answered yes in question 3, where were you introduced to the principles of graphic design?

| | | |
|---|---|---|
| School | | 1 |
| Private art class | | 2 |
| Private design class | | 3 |
| Internet | | 4 |
| Other | | 5 |

5. If you selected “other” in question 4, please specify.

_____

_____

_____

_____

_____

## SECTION C

This section of the questionnaire refers to your peception of the graphic design principles manual used to lecture the principles of graphic design in the Communication Design I subject at the Central University of Technology, Free State. Your response will remain anonymous.

1. The principles of graphic design is **valuable** as a subject.

| | | |
|---|---|---|
| Strongly agree | | 1 |
| Agree | | 2 |
| Neither agree nor disagree | | 3 |
| Disagree | | 4 |
| Strongly disagree | | 5 |

2. Motivate your answer in question 1.

_____

_____

_____

_____

_____

3. The manual **explained** clearly the principles **theoretically** *(in words).*

| | | |
|---|---|---|
| Strongly agree | | 1 |
| Agree | | 2 |
| Neither agree nor disagree | | 3 |
| Disagree | | 4 |
| Strongly disagree | | 5 |

4. The manual clearly illustrated the principles by means of an **image**.

| | | |
|---|---|---|
| Strongly agree | | 1 |
| Agree | | 2 |
| Neither agree nor disagree | | 3 |
| Disagree | | 4 |
| Strongly disagree | | 5 |

5. I understood the principles after reading the **written explanation** in the manual (without looking at the images).

| | | |
|---|---|---|
| Strongly agree | | 1 |
| Agree | | 2 |
| Neither agree nor disagree | | 3 |
| Disagree | | 4 |
| Strongly disagree | | 5 |

6. I had to study the **image** of the principle to understand the principle.

| | | |
|---|---|---|
| Strongly agree | | 1 |
| Agree | | 2 |
| Neither agree nor disagree | | 3 |
| Disagree | | 4 |
| Strongly disagree | | 5 |

7. I only listened to the **lecturer** and did not need the manual in order to understand the principles.

| | | |
|---|---|---|
| Strongly agree | | 1 |
| Agree | | 2 |
| Neither agree nor disagree | | 3 |
| Disagree | | 4 |
| Strongly disagree | | 5 |

8. Rate the following chapters in the Principles of Design manual on how well you remember their content from 1 to 11, with 1 being the chapter you remember best and 11 being the chapter you remember least.

| | | |
|---|---|---|
| Idea | | 1 |
| Gestalt | | 2 |
| Composition | | 3 |
| Shape and Volume | | 4 |
| Space | | 5 |
| Contrast | | 6 |
| Line | | 7 |
| Repetition | | 8 |
| Concentration | | 9 |
| Change and Motion | | 10 |
| Colour | | 11 |

9. Give a reason why you found your number one (1) selection in question 8 **most memorable**.

_____

_____

_____

_____

_____

10.Give a reason why you found your number eleven (11) selection in question 8 **least memorable**.

_____

_____

_____

_____

_____

## SECTION D

This section of the questionnaire refers to the visual impact of the graphic design principles manual used to lecture the principles of graphic design in the Communication Design I subject at the CUT.

*11.* Please rate the following design elements in the Principles of Design manual according to the quality. *(1-Poor; 2-Fair, 3-Good, 4-Very good, 5-Excellent). Select your option with a* **X.**

| | | | | | |
|---|---|---|---|---|---|
| Images | **1** | **2** | **3** | **4** | **5** |
| Text | **1** | **2** | **3** | **4** | **5** |
| Layout | **1** | **2** | **3** | **4** | **5** |
| Use of design elements | **1** | **2** | **3** | **4** | **5** |
| Organising of content | **1** | **2** | **3** | **4** | **5** |
| Colour | **1** | **2** | **3** | **4** | **5** |
| Cover page | **1** | **2** | **3** | **4** | **5** |
| Open spaces for notes | **1** | **2** | **3** | **4** | **5** |
| Other | **1** | **2** | **3** | **4** | **5** |

12. If you selected “other” in question 12, please specify.

_____

_____

_____

_____

_____

13. What do you consider the worst quality of the principles of graphic design manual?

| | | |
|---|---|---|
| Images | | 1 |
| Text | | 2 |
| Layout | | 3 |
| Use of design elements | | 4 |
| Organising of content | | 5 |
| Colour | | 6 |
| Cover page | | 7 |
| Open spaces for notes | | 8 |
| Other | | 9 |

14. If you selected “other” in question 14, please specify.

_____

_____

_____

_____

_____

15. I understand the principles of graphic design as explained in the Principles of Graphic Design manual.

| | | |
|---|---|---|
| Strongly agree | | 1 |
| Agree | | 2 |
| Neither agree nor disagree | | 3 |
| Disagree | | 4 |
| Strongly disagree | | 5 |

16. I make use of the Principles of Graphic Design manual …

| | | |
|---|---|---|
| Daily | | 1 |
| Weekly | | 2 |
| Monthly | | 3 |
| Almost never | | 4 |

## SECTION E

This section of the questionnaire refers to the application of the principles of graphic design in industry.

17. The principles of graphic design make me a more effective designer.

| | | |
|---|---|---|
| Strongly agree | | 1 |
| Agree | | 2 |
| Neither agree nor disagree | | 3 |
| Disagree | | 4 |
| Strongly disagree | | 5 |

18. Describe in no more than two (2) sentences what an effective graphic designer is.

_____

_____

_____

_____

_____

## SECTION F

This section of the questionnaire refers to the pitch level of the manual on the principles of graphic design.

19. I will be able to teach a first year student the principles of graphic design using the principles of graphic design manual

| | | |
|---|---|---|
| Strongly agree | | 1 |
| Agree | | 2 |
| Neither agree nor disagree | | 3 |
| Disagree | | 4 |
| Strongly disagree | | 5 |

20. It is necessary for first year students to use the Principles of graphic design manual to learn the principles of graphic design.

| | | |
|---|---|---|
| Strongly agree | | 1 |
| Agree | | 2 |
| Neither agree nor disagree | | 3 |
| Disagree | | 4 |
| Strongly disagree | | 5 |

21. A designer that uses the principles of graphic design is a better designer than a designer that does not make use of the principles of graphic design.

| | | |
|---|---|---|
| Strongly agree | | 1 |
| Agree | | 2 |
| Neither agree nor disagree | | 3 |
| Disagree | | 4 |
| Strongly disagree | | 5 |

22. Give a reason for your answer in question 21.

_____

_____

_____

_____

23. Do you make use of the graphic design principles when you are given a new graphic design project?

| | | |
|---|---|---|
| Yes | | 0 |
| No | | 1 |

24. Do the graphic design principles lessen the time you spend on solving a design problem?

| | | |
|---|---|---|
| Yes | | 0 |
| No | | 1 |

25. Does the Principles of Graphic Design manual explain the principles in such a manner that you understand them?

| | | |
|---|---|---|
| Yes | | 0 |
| No | | 1 |

*Thank you for your participation. Your input is valuable.*

**ADDENDUM B**

M.Tech: Design

The effectiveness of a first year teaching manual on the principles of graphic design

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*Study leader:*

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# LECTURER INTERVIEW

This interview will be used to determine the respondents perceptions on the principles of graphic design manual **(The principles of graphic design by MLC Nortjé, ISBN 978-0-9802602-0-5)**, used in the teaching of the principles of graphic design subject during first year of study in the National Diploma in Graphic Design at the Central University of Technology, Free State and the teaching thereof.

Answers will remain anonymous. Information provided by you remains confidential and will be reported in summary format only.

1. For how long have you lectured the principles of graphic design to first year graphic design students at the Central University of Technology?
2. Do you make use of the manual to teach?
3. Do you make use of the manual to prepare for classes?
4. Do you find that the manual clearly explains the principles of graphic design?
5. Do you require additional “props” to assist you with demonstrations?
6. How do you experience the use of the manual by students?
7. Do you know of any positive feedback that the students have given about the manual?
8. Do you know of any negative feedback that the students have given about the manual?
9. What is positive in your view about the manual?
10. What is negative in your view about the manual?

11. What suggestions do you have on improving the manual?

# ADDENDUM C

# COMPUTERISED SELF-ADMINISTERED QUESTIONNAIRES

# ADDENDUM D

# THE PRINCIPLES OF GRAPHIC DESIGN MANUAL

**ADDENDUM E**

# INFORMATION LEAFLET AND INFORMED CONSENT

PROJECT TITLE: THE EFFECTIVENESS OF A FIRST YEAR TEACHING MANUAL ON THE PRINCIPLES OF GRAPHIC DESIGN


Researcher: MLC Bester (B.Tech: Graphic Design; N.Dip: Packaging Technology)

Supervisor: FC Venter (Masters: Consumer Science; Masters: Higher Education Studies)

Co-supervisor: Dr JH van Schoor (PhD: Higher Education Studies)

OA Ojo (M.Tech: Graphic Design)


Dear Research participant

You are invited to participate in a research study that forms part of my formal M.Tech-studies. This information leaflet will provide you with the necessary information in order to make an informed decision about your participation in this study.

As a participant you will be required to complete a questionnaire that will be used to determine the respondents perspective on the principles of graphic design manual (The principles of graphic design by MLC Nortjé, ISBN 978-0-9802602-0-5), used in the teaching of the principles of graphic design subject during first year of study in the National Diploma in Graphic Design at the Central University of Technology, Free State.

If you decide to take part in the study, the following will be required from you:

- To sign this informed consent form
- To complete a questionnaire that will take no more than 15 minutes to complete.

**CONSENT**

I hereby confirm that I have been adequately informed by the researcher about the nature, conduct, benefits and risks of the study. I have also received, read and understood the above written information. I am aware that the results of the study will be anonymously processed into a research report. I understand that my participation is voluntary and that I may, at any stage, without prejudice, withdraw my consent and participation in the study. I had sufficient opportunity to ask questions and of my own free will declare myself prepared to participate in the study.

Research participant's name:_____

Research participant's signature:_____

Date:_____

Researcher's name:_____

Researcher's signature:_____

Date:_____

## ANNEXURE A

### SECTION C: Motivations of the second-year respondent's answers to Question 1

1. "You need the principles to become a better designer and to improve your designs"
2. "You need a foundation. The lecturers use it as a rule book and you lose marks if you don't use them"
3. "It helps you solve design problems quicker and more effectively"
4. "It makes you a better designer"
5. "The principles help you to have a better understanding of graphic design"
6. "It will help you understand graphic design better en express yourself better through your designs"
7. "It teaches you how to make good designs"
8. "It is important to know the theory that goes with practical designing. It improves your designs in the practical subjects as you apply knowledge"
9. "It is just very important"
10. "In order to create an effective design, you must know the principles. It helps to make your works more visually attractive"
11. "You need the correct principles of design to be able to design correctly and appropriately"
12. "It helps you in the correct way to do assignments or projects correct"
13. "They help to enhance our skills. They make us professional"
14. "You need to know how to design"
15. "It is the most important subject, because it shows you how to design"
16. "We need to learn how to make good designs"
17. "It helps you with good designing"
18. "It's a lot of theory but we need it to know it to do design better"
19. "All designs are based on the principles of graphic design"

20. “It’s in the curriculum and the lecturer said so”

21. “I understood the rules of design and know my design is effective now”

## ANNEXURE B

### SECTION C: Motivations of the third-year respondent's answers to Question 1

1. "Everything in the real world should be practical and functional"
2. "Before I knew little to nothing on design principles. Studying it helped me improve my designs"
3. "I know I can be a good designer knowing the design principles"
4. "Helps you to be the best"
5. "Looking at the past and certain movements like Dada, it is always wise to consider both sides. Anything corporate should be designed with strong principles"
6. "Many students still don't use the principles of design. Many designers forget the principles or only use a few principles"
7. "If you know the principles of graphic design you will be able to apply the knowledge to any aspect of design. The subject gives you insight on giving direction and to have an idea of what you are dealing with"
8. "Knowing basics is necessary before getting into detail about everything, so I believe principles serve enough for this purpose"
9. "It makes your design practical and understandable for the customer"
10. "I couldn't design if I don't know the principles"
11. "Because it will give guidance in each and every assignment or project you are given"
12. "Principles of graphic design help the designer to enable graphic representation"
13. "It makes design practical and understandable"
14. "Without the graphic design principles your design will never be what is expected from your client and you can't reach your full potential"
15. "It makes you understand your design"
16. "I strongly agree with the statement above because layout and overall design principles make or break your design so without principles of design it would be almost impossible to know how to design"

17. “If you use them, your design is good”

18. “You want to know how to design and if it’s effective without the principles”

19. “Without the principles your designs are no good”

20. “I could design but it made me better”

21. “It helped me improve”

22. “It helps to make designs functional”

## ANNEXURE C

### SECTION C: Motivations of the fourth-year respondent's answers to Question 1

1. "Principles are the rules that you need to follow for good designs"
2. "You cannot design without the principles and it helps you to save time"
3. "All good designers use the principles of design"
4. "It makes the design problem easier to solve because you can work with a plan"
5. "It is part of graphic design"
6. "It helps your design to communicate with the audience"
7. "You need to know the theory to communicate your design"
8. "It helps you to make your design successful"
9. "They are needed in every design"
10. "Principles are important so that you know where to start with a design"
11. "They are needed to help you to make sure your design is correct."
12. "It is used by the top designers"
13. "You will not be able to make a successful design without the principles."

## ANNEXURE D

**SECTION C:** Reason for their most memorable choice (second-years)

1. *Gestalt* – "It was explained very well by the use of images. The lecturer drew it on the board"
2. *Idea* – "It's my favourite"
3. *Idea* – "There was more than one and we use it often"
4. *Gestalt* – "I remember the images well"
5. *Gestalt* – "I remember the gestalt theory the best on what we did in class. It is the principle that is mostly used and it is easily remembered because of the good examples and the images there are"
6. *Gestalt* – "The lecturer explained it the best and used the best examples. The images attract my attention"
7. *Colour* – "I remember the colour wheel, shades and tints"
8. *Idea* – "It's something that you deal with every day and probably one of the most fun parts of designing"
9. *Idea* – "Because we are reminded of it every day"
10. *Contrast* – "I use it a lot in all of my designs"
11. *Colour* – "I use colour in almost all my designs therefor it's the chapter that I refer to back the most"
12. *Contrast* – "It is used more"
13. *Colour* – "Colour give the design abstraction and attraction"
14. *Gestalt* – "We spend a lot of time on it"
15. *Idea*- "We use it for every project in all the classes"
16. *Gestalt*- "I remember the images and the lecturer drew it on the board. She also knew this principle well because she explained it better than the other principles"
17. *Colour* – "Colour is everywhere and we talked about emotions and colour"
18. *Gestalt* – "The lecturer explained it good and I remember the picture in the book"
19. *Contrast* – "I use it a lot"
20. *Composition* – "The lecturer always mentioned if my composition was working or not and so I remembered it"
21. *Gestalt* – "The lecturer explained it a lot and gave us homework on gestalt"

## ANNEXURE E

**SECTION C:** Reason for their least memorable choice (second-years)

1. *Space* – "It wasn't asked often"
2. *Change and motion* – "Don't remember it"
3. *Concentration* – "Not sure what it is, but remember that it is a principle"
4. *Space* – "Can't remember if it's in the manual or not"
5. *Concentration* – "I really don't remember what concentration means in design"
6. *Concentration* – "I really can't remember anything about that chapter"
7. *Gestalt* – "There is so many principles that I just get confused"
8. *Gestalt* – "I can't remember the term "gestalt" I probably know what it is but it slipped my mind because it's a word that I don't use very often"
9. *Colour* – "I remember them all because we hear it at least once a day"
10. *Gestalt* – "I can't remember what it means"
11. *Gestalt* – "I don't remember even handling that chapter, so I don't remember it"
12. *Concentration* – "Can't remember what the chapter was about"
13. *Repetition* – "It is not necessarily last, it is just that when designing there's not always a repetition"
14. *Space* -"I can't remember it"
15. *Contrast* – "I didn't use it a lot"
16. *Space* – "I can't remember it"
17. *Change and motion* – "Can't remember it all"
18. *Change and motion* – "Cannot recall it"
19. *Space* – "I actually remember them all but one has to be 11"
20. *Concentration* – "Don't know if it is really a principle?"
21. *Repetition* – "I'm not sure what it is"

## ANNEXURE F

**SECTION C:** Reason for their most memorable choice (third-years)

1. *Idea*- "I didn't know how to get a product functioning and learned a lot when I learned how to generate ideas"
2. *Repetition* – "The book showed it well"
3. *Idea* – "Explained very well in the manual"
4. *Idea* – "It is an important principle"
5. *Composition* – "It's a problem that you face a lot. A good composition creates a good design"
6. *Composition* – "The composition is what we have to bring out or do at the end of the day. It takes in all the other mentioned principles in order to get a good composition"
7. *Colour* – "Through a lot of practice and understanding and physically doing the exercises it has helped me to improve my skills"
8. *Composition* – "Most assignments were mostly based on composition"
9. *Idea* – "It help with getting ideas and I always struggled. Now it's easier and I use it every day"
10. *Idea* – "Lecturers ask for brainstorm before you show roughs"
11. *Composition* – "The word composition simply means "putting together". Is like putting together different kind of shapes with different colour to form one image"
12. *Idea* – "The topic is relevant to daily lives and applicable"
13. *Idea* – "I use it every day"
14. *Gestalt* – "It was illustrated clearly in the manual"
15. *Idea* – "It is the start of any design you do"
16. *Gestalt* – "I clearly remember gestalt because took her responsibility to see to it we all learned this new word which means shape and form which I found interesting"
17. *Space* – "I use it a lot and read the chapter more than once"
18. *Idea* – "We start every project in com design with an idea with brainstorming"
19. *Gestalt* – "It was an interesting word, so I remembered it and we use it often"
20. *Idea* – "It is an important one"
21. *Repetition* – "Clearly illustrated in the book"
22. *Idea* – "I struggled to get ideas and this one helped me the most"

## ANNEXURE G

**SECTION C:** Reason for their choice of the chapter that they rated as the least memorable (third-years)

1. *Composition* – "It was memorable but not like colour"
2. *Composition* – "Colour is a major part of graphic design"
3. *Shape and volume* – "Can't remember it at all"
4. *Change and motion* – "Not so important"
5. *Concentration* – "Can't remember it"
6. *Repetition* – "Repetition is not mostly needed in every design but it is still a design principle, so what it presents mostly comes after a lot of considerations or depends on the idea"
7. *Gestalt* – "It was the one I could remember the least because we had not touched more in depth"
8. *Gestalt* – "I don't use it often"
9. *Space* – "I remembered all very good but had to rate them and one had to come In last place"
10. *Change and motion* – "I do remember it but not everything"
11. *Colour* – "It's because it consist of physical science and chemistry so it become difficult to understand especially when it comes to adding of colours to get a certain colour"
12. *Gestalt* – "Can't remember it"
13. *Change and motion* – "I can't remember now, but I know it's in the book"
14. *Space* – "Colour forms a major part of design so it is a vital element to design"
15. *Repetition* – "Will probably remember when I handle it again"
16. *Change and motion* – "Change and motion was the least memorable chapter because I cannot state facts about it"
17. *Colour* – "I use it but not often"
18. *Change and motion* – "Don't know exactly what it is"
19. *Concentration* – "I remember it but don't use it although I should"
20. *Line* – "I know it but don't use it often"
21. *Colour* – "Not so good at remembering it"
22. *Change and motion* – "I remember it but don't use it"

## ANNEXURE H

**SECTION C:** Reason for their most memorable choice (fourth-years)

1. *Gestalt* – "It was explained in detail by the lecturer with extra examples"
2. *Idea* – "It's a creative principle"
3. *Idea* – "The lecturers forces us to use this principle with every project"
4. *Gestalt* – "I remember it because of the images in the book. They were very bold"
5. *Gestalt* – "We worked a lot on it in class and the images were very different from the others so I remember them"
6. *Gestalt* – "The lecturer hammered on it and kept us busy for two periods with just this principle"
7. *Colour* – "It is my favourite topic"
8. *Idea* – "You can't start a project without an idea and I wanted to know how to start and idea"
9. *Idea* –"The lecturers repeat it every day and we have to show them our ideas"
10. *Contrast* – "The world is in contrast so I enjoyed the chapter"
11. *Colour* – "We can't design without colour"
12. *Contrast* – "We have to start our designs in black and white and the chapter interested me"
13. *Colour* – "I love colour in design and wanted to know which colours to use where"

## ANNEXURE I

**SECTION C:** Reason for their least memorable choice (fourth-years)

1. *Space* – "We did not do practical on the space chapter"
2. *Change and motion* – "Can't remember it"
3. *Concentration* – "Remember that it is a principle, but cannot demonstrate it"
4. *Space* – "Sounds unfamiliar"
5. *Concentration* – "Cannot remember it at all"
6. *Concentration* – "No memory of the workings of this principle"
7. *Gestalt* – "I know how it works but remember it the least"
8. *Gestalt* – "I was not in class when the lecturer explained this principle and had to rely on the book only but I can't remember everything about it"
9. *Colour* – "Couldn't understand which colours matches what"
10. *Gestalt* – "I think I remember it but not well"
11. *Repetition* – "It confuses me. Don't know how to use it"
12. *Concentration* – "Don't know how to apply it"
13. *Repetition* – "I don't use it so I forgot it"

## ANNEXURE J

**SECTION E:** What is an effective graphic designer? (second-years)

1. “A designer that leaves an impact on his/her audience. Their work communicates to the target market and has an effect on those who see it”
2. “One that designs big campaigns and one that makes money”
3. “A fast problem solver with designs that all clients want to pay for”
4. “It makes your work look good and you will not make “silly” mistakes if you abide by the rules”
5. “Someone that uses the principle technique and make good examples of design element in his/her work or art”
6. “Someone that understand the needs of a client and can design exactly what he wants and needs. Someone that communicates through their designs”
7. “Can clearly communicate through design. Can attract attention”
8. “Someone that can identify a need and solve the problem to that need in a creative and individualistic manner”
9. “An effective designer is the one who understands the rules and apply it”
10. “An effective designer is someone that can portray a message successfully to the viewer by only using their design”
11. “A designer that communicates the required message correctly and efficiently”
12. “One who can communicate with society through designs with very few words”
13. “It’s a designer that knows what he/she wants to design and does that perfectly. Having brilliant ideas and taking them on paper”
14. “Knowing the solutions to every design problem and getting good marks”
15. “One that knows all the short-cuts to good designs”
16. “The people buy what the designer wants to sell and he/she gets a job easy”
17. “Someone that makes good designs”
18. “Someone that can design anything”
19. “Knowing what to show people in a design so that they want your product”
20. “One that makes money”
21. “One that sells his work to potential clients”

## ANNEXURE K

**SECTION E:** What is an effective graphic designer? (third-years)

1. “Someone who comes up with better ideas over existing object and be communicative”
2. “One who understands how the viewers perceptions shape their world”
3. “One that knows how to sell stuff through advertisements”
4. “Someone who sells anything with their designs and campaigns”
5. “A person who can take an idea to screen and design it as close as possible. Creating a good composition and layout also to apply principles to your design”
6. “It’s a designer who applies his/her principles and uses them as guides to make or improve your designs rather than see them as rules. Simplify and improve whatever has been done”
7. “Someone who uses their time efficiently and principles of design makes an effective designer”
8. “An eye catching, non comprising, balanced, virtual and conceptual person in design”
9. “Someone that gets an idea fast and design good for clients”
10. “Knowing what to do with briefs”
11. “A designer who always uses principles of graphic design in each of his/her work, this includes typography, colour, white space, repetition, alignment, balance etc”
12. “An effective designer is someone who can execute the principles of design”
13. “You know how to communicate with your audience with your design”
14. “An effective graphic designer is someone who can use the graphic design principles well and can reach his full potential”
15. “Someone able to communicate with viewers making use of design elements”
16. “An effective graphic designer is someone who has good knowledge on how to use images and text to create a good design which is appealing to the eye”
17. “You can design anything and it works”
18. “You know how to approach a design and if the customer will like it”
19. “A good designer uses images and text correctly to convey a message”
20. “One who can change people’s views of advertising”
21. “One who is fast and good at designing for clients. Everyone wants this person”
22. “The one that gets the best marks and is the most creative”

## ANNEXURE L

**SECTION E:** What is an effective graphic designer? (fourth-years)

1. “A designer that uses image in combination with typography to communicate a message to the target audience”
2. “One that understands and applies the principles of graphic design in their work”
3. “One that uses principles to design fast and to sell stuff”
4. “A rich one!”
5. “Someone that knows how to sell stuff with their skills”
6. “Someone that makes advertisements that sells products effectively”
7. “The boss says I am effective because I work fast and time is money!”
8. “I solve problems always and thus I am effective as a designer”
9. “Someone that can sell anything because they know the rules”
10. “When you use the principles, your designs will work and you will be effective”
11. “Someone that can communicate with their ads”
12. “Someone who communicates effectively to a target market and conveys the message successfully”
13. “It’s a designer that everyone wants to employ”

## ANNEXURE M

**SECTION F:** Why is a designer that uses the principles of graphic design a better designer? (second-years)

1. “It is necessary for beginners to understand and learn the importance of these principles and the manual make it more understandable”
2. “It gives you confidence and good marks, so start early”
3. “It makes you a better designer”
4. “You must understand the principles before you start designing”
5. “First year students should use and learn the principles to help them have a better understanding of what they are doing and what they can do”
6. “It helps a designer that does not know anything about design. It is good because you can always go back to the manual if you need something in your design”
7. “The principles are there to make you a better designer. You make better looking designs”
8. “The first year students need a foundation that has to be laid and the principles of graphic design manual laid that foundation”
9. “The sooner you learn the principles the better you get as you move on”
10. “You learn a lot in the class, but you still need the manual to study it and to revise it”
11. “You need accurate explanatory manuals to help you study design principles”
12. “If you don’t know the rules of designing, you might miss some design targets”
13. “The principles should be used on a daily basis to make outstanding work”
14. “They should also listen in class”
15. “You can’t design if you don’t know the principles because they are like rules of design”
16. “You need a foundation”
17. “You need the rules to become good because everything has rules”
18. “It gives you a foundation to start from”
19. “It’s important to know these finer details of designing”
20. “There is no other place to learn it and it gives you a foundation”
21. “It helps you because you make less mistakes”

## ANNEXURE N

**SECTION F:** Why is a designer that uses the principles of graphic design a better designer? (third-years)

1. "In order to get accuracy, function and quality a student or designer must apply all principles of design"
2. "Most of the first years do not know or even try to know the basic design principles. (I was one of them)"
3. "They must know how to sell stuff effectively"
4. "Will make life as designer easier"
5. "Everybody needs rules"
6. "A designer can design without using the design principles but the design is going to lack some elements of design so the principles are needed in order to perfect designs"
7. "The principles are essential because they help channel your mind into thinking on a designs point of rules. It is the fundamentals and foundation of creative designing"
8. "The book should be more informational and detailed"
9. "You need to know what you do otherwise you waste time"
10. "You design wrong if you don't use the principles"
11. "It's going to get them ready for their **second year** of study because there will be no one to tell if they used the principle of graphic design in their assignment or not, which means they will be on their own"
12. "It will give them more idea and understanding of graphic design execution"
13. "You must be a quality designer otherwise you will get bad marks"
14. "No design will be up to standard without the principles"
15. "It is the foundation of any designer, a starting point"
16. "I strongly agree because this gives a first year student the understanding, the foundation and the perspective of the principles"
17. "You have to know the rules before you start!"
18. "It make an average designer a good designer"

19. “It makes you a good designer from the start”

20. “They need to learn how to design and the manual will teach you that”

21. “It makes you better than other designers that don’t know and use it”

22. “If you don’t know them, you can’t design well”

## ANNEXURE O

**SECTION F:** Why is a designer that uses the principles of graphic design a better designer? (fourth-years)

1. “The rules always make a design appear neat and constructed by a professional”
2. “By applying the principles and rules a designer can create and deliver quality work fast”
3. “You should always have the manual”
4. “You struggle if you don’t know how to go about your design”
5. “It saves you time”
6. “You cannot design without principles”
7. “You can’t design without principles and the earlier you learn them the better”
8. “It makes life easier”
9. “It makes you design fast and with confidence”
10. “If you start early you’ll be good later on in your studies”
11. “You won’t know if your designs are working”
12. “You need to be fast in the industry”
13. “They will appoint you if your work is good and you need the principles for that”