

DISSERTATION ABSTRACT

This dissertation is concerned with the encouragement of creativity in the area of design education in secondary schools. It is crucial in our fast moving society to help students adjust to the increasing demands placed on them by society. Our culture is becoming a 'design' culture. Young people will need to be flexible and innovative to compete with our changing technological era.

Chapter one explores the reasons why creative problem solving is important in our time of change. The relationship between educational change and social change is considered. Is the curriculum designed to meet the needs of society?

Sections within this chapter look at the significance of the creative thinker in the midst of social change. Is there a need for flexible problem solvers? Also the area of creativity as being essential for life will be analysed.

Chapter two defines creativity and what it means to be creative. The motivational factors behind creativity are looked at, with the help of research carried out with design students/ past pupils. Chapter three explores ways to provide the right environment to foster creativity, coming up with points and considerations for any teacher who wants to encourage creative growth.

Chapter four shows the application of the literature review and research to the classroom through two schemes, mainly scheme no. two, a graphic design project.

ACKNOWLEDGEMENTS

I would like to thank Gary Granville for his support during this work. My sincere appreciation is given to my parents and family. Without them, none of this would have been possible to achieve. My special thanks to my son Aaron for his patience. I would also like to thank all the tutors for their guidance over the years, particularly Catherine Johnston for her encouragement and inspiration.

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BA IN ART AND DESIGN EDUCATION

BY

ROISIN CAMPBELL

JUNE 1999

I hereby declare that this dissertation is entirely my own work and that it has not been submitted as an exercise for a diploma or degree in any other college or university.

Signed Lóisín Campbell.

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my own work and that it has not been submitted
in any form for a degree or degree in any
other college or university.

Signature of the Author

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INTRODUCTION


As we approach the twenty-first century there is an increasing awareness of the unpredictability of what the future holds for the next generation. Students need to be prepared for the pressures that will be placed upon them in the outside world. As educators we must look at the needs of society continuously. In our rapidly changing technological era, there is a massive demand for flexible and innovative problem solvers. Organisations are spending huge amounts of money employing people who are skilled in creative thinking.

Our culture is becoming a design culture. Creativity in design is seen as a valuable and sought after skill in our society. This view is supported by Professor Iseult McCarthy in 1995, who believes that "general attitudes in society towards design education must change". The reason being that design is not an "arty" thing to do, but it is a "hard commercial reality".¹ This positive step forward shows an increased awareness among educators of the importance of design and creative problem solving at secondary level education. This study concerns itself primarily with the concept that creativity needs to be taken as seriously in education as in successful organisations.

The question posed by Lowenfeld: "How many uses can you think of for a brick?" sets in motion creative thinking. The process of design can have a powerful effect on the development of a persons creative ability. The use of the intellect, and not just the learning of manual skills is the basis for this dissertation.

Chapter one explores ways in which social and economic change influence change in the curriculum at some point in time. This is a reminder that school was originally designed to meet survival needs in society, and argues that the

work in the classroom should be a reflection of the outside world. Chapter two defines the concept of creativity, including a survey asking past- pupils - now design students for their opinions on creativity in design at secondary level. Chapter three discusses the best environment to foster creativity thinking. Chapter four explains two schemes of work, that involve creative thinking. This also gives a criteria for developing creativity, which was used in the teaching of these schemes.



work in the classroom should be a reflection of the nature of the work
that defines the world of learning. The following sections address the
new design systems for the classroom as a community in design of learning
and Chapter three discusses the role of assessment in design learning
and the Chapter four explains how systems of work that involve creative
thinking. This also gives a criteria for developing systems which are used
in the teaching of these systems.

CHAPTER 1

CURRICULUM DECISIONS

The relationship between education and social change

Curriculum change is a variety of educational change which , in turn is one form of social change.³

Beliefs and opinions about how people learn, what human beings should be like, and what society is, are always challenged and questioned. In our changing world, it is becoming extremely difficult to meet the needs in society. We are at this present time undergoing a technological revolution. The education system is in a state of change. Curriculum decisions are being made in the senior cycle. Improvements have occurred in the junior cycle. The post-primary sector is slow to change, far slower than the primary end. Why is this the case, when the post-primary is deemed as most important in our society? Secondary education is put under the most pressure, so there is less freedom for changes. The points system limits the possibilities for change within any institution. If, for example there was not so much pressure from examinations, then there would be more freedom to take risks, and try a variety of teaching strategies. This dissertation is about bringing creative problem solving into the classroom, in order to meet those needs in society. This will be discussed in chapter two.

The pressures from society placed on pupils at Leaving Certificate age, makes it difficult for curriculum decision-makers to know what the right thing is to do. Eric Hoyle brings together key findings from sociological research into the process of curriculum change.

Hoyles' analysis is important, in order to investigate the pressures from society on curriculum decisions, exploring ways to bring our present culture and society into the classroom. Hoyle recognises the relationship between education and other institutions of society. His research shows that the values pervading education are the values pervading other parts of society. ✓

If, at the present time we are experiencing a shift in our thinking towards the educational system then is this a reflection of a shift in society in general? This opinion was referred to by Hoyle in 1969 when he found that changes in education are "in themselves a response to economic and technological pressures."⁴ Whilst this may be the case in Irish education at present, it remains true that schooling has always met a need in society. Indeed the original function of schooling was to "manage and meet the needs in society."⁵ J.A. Peddiwell acknowledges the changes society can make on the curriculum, stating that

...the curriculum was specifically designed to meet particular survival needs in the local environment and attempts to change the curriculum to meet new survival needs encounter stern opposition.⁶

As educators, we need to examine the needs of society (including the pupils) and look at how to meet those needs appropriately. Decisions about the curricula are direct decisions about the shape and future of our society. It is important to consider the following questions before claims are made for new curricula changes in the Leaving Certificate art and design programme: What does the curriculum do *to* people and *for* society other than transmit certain types of knowledge? In what way can we encourage teachers to reach the curriculum objectives as they now stand, or as they change? These challenging questions are

crucial not only for curricula decision-makers, but for the secondary school teacher. Why? For the reason that, it is the role of the teacher to make the curriculum relevant to the students. This is a reminder that schooling is not about teaching knowledge and skills alone. There are possibilities to have education for living within the constraints of any social, economic and technological pressures. In other words is it possible that teachers draw from sources in our cultural and technological changing society?

It is clear that although the curriculum will change in response to social change eventually, there is still scope for change *within* any given curriculum. This concept is reinforced by Richard Hooper who believes that

...as long as the public and society have control over the knowledge expected from pupils at school leaving age... there is room for all sorts of new techniques in getting them to this end... there are infinitely many routes to the same destination.⁷

Unfortunately for many years, developments in society and our culture have not related to the work in the classroom. Art and Design has been separated from the outside world. Through the application of two schemes which will be explained later, it is noted that particular attention is given to a cultural awareness. It is important that teachers try many 'routes to the same destination'. In Transition Year, pupils are encouraged to develop an interest in the working world. Why should this interaction finish here. There is much to be learned from our culture. Art is not about learning skills alone. It is about the development of a cultural awareness and learning how to solve problems. It is an appreciation of the art that is on our streets, in our rooms and all around us. Art appreciation and problem solving combined can make contented students. Visual stimulus is everywhere.

This stimulus can be used to help students approach interesting tasks and solve design problems creatively. The diagram below shows how as our society constantly changes, our teaching strategies could change to meet new survival needs:

The Significance of Social Change on Art and Design Education

In recent years Ireland has undergone changes in the secondary school curricula. With the outcome of difficult decision making taking place in the Leaving Certificate Art and Design Programme by the year 2000, art education is changing for the better. These changes are inevitable, as changes in society bring about in the end, changes in the educational system. With the introduction of the computer in the 1980's, technology has been moving at a fast pace. Our society today more than ever requires people who are both flexible and resourceful. Large organizations are spending huge amounts of money employing people who are skilled in creative problem solving. A good design awareness is what keeps the business ahead. Design is a problem solving activity and because of the very nature of design, it involves change. If creative problem solving in design is essential for business then how much more is it essential for education.

With less emphasis on the final product, it is the process of how an idea develops that is becoming a priority. The process of design is of primary importance in Art and Design Education. Once again, it is evident that we must educate for the future by looking at the conditions of our society. The following discussion looks at the reasons why creative problem solving is essential for life today, more than any other time in history.

The Significance of Creative Problem Solving in Art and Design Education

Having established the relationship between the changes in society and education, the concept that creativity is crucial for secondary art education will be looked at.

Education can develop flexibility, creativity and individuality. This opinion is supported by Marilyn Fryer, who believes creative skills are important to enable pupils for future decisions. Fryer says

... To cope with the demands for the future people will need to be quick thinking, flexible and imaginative. They will need to be competent in producing effective solutions to unfamiliar problems in unclear situations.⁸

This ability to solve problems, recognise and evaluate different solutions and consider a variety of paths to take is seen to be essential in our modern society. The global issues in society today reflect the urgency for people to be skilled in creative problem solving. These skills can help pupils prepare for their future, for the choices and decisions they will make in everyday life. Creativity can benefit the individual. Everything a pupil learns in art classes at school, can remain beneficial in later adult life. Leslie W. Lawley points out that that even a "sense of proportion and a knowledge of colour are essential to adult life"⁹. This is the basic requirement. However personal discovery enables pupils to have confidence and have a creative attitude to life, to work and to the future. Intelligent choices are made in the art room. Through all of this is the underlying factor that art is relevant to our changing world.

An understanding of the relevance of art and design means the needs of the pupils are met, and their awareness is heightened. The process of how an idea progresses or how a skill is developed upon should be recorded throughout the years spent at school. The final examination does not show the learning that has taken place. The aim for the Leaving Certificate course is

...to prepare pupils for immediate entry into open society or for proceeding to further education. The examination is mainly a test of achievement.¹⁰

'Open society' is becoming more and more unpredictable. Pupils need all the support they can receive. Gardner holds the view that schooling should be a vital function in society. Within the changes that take place around us, school should be a solid foundation for people. Gardner believes

...the essence of true education is timelessness. It is something that endures through changing conditions like a solid rock standing squarely and firmly in the middle of a raging torrent.¹¹

The "raging torrent" is society, and although education changes with the social conditions surrounding it, it should be strong enough to support the next generation. This includes considerations of what the future holds for society in general.

Today's educators are attempting to meet new demands for survival. The attempts of past decision-makers have focused our attention on what it is that education is expected to do for pupils. The establishment of the Intermediate in 1878, and the reform attempts of the sixties had considerable impact on schooling. The Junior Certificate was introduced in 1989. These efforts have enabled educators to make better decisions for the future. Teachers working within these decisions need to

A biology teacher gives an example of how he teaches his class to reinforce his learning objectives. To quote

...The pupils I taught were fascinated by disease and I used this interest to motivate them how to and why they should, care for their bodies.¹²

This reference shows a teachers realisation that pupils need to feel intrinsically involved. The subject relates to the pupils in this way. The investigation in this study offers clear evidence that pupils work to the best of their ability when they have reasons for doing something. The nature of creative problem solving sets in motion intrinsic motivation. The outside world is reflected in the classroom. Changes in society are of huge interest to them. These are issues that can stir an interest for them. These are the key factors in getting the best results. ✓

Creative problem solving is an area which can bring the pupils into a deeper level of understanding with their work. It is very significant today more than any other time, due to the changes in society. The rest of this study focuses on creativity, and how to foster creative thinking in the classroom. Creative thinking can be applied to the design stages of any project. Therefore, in reflection of society, creativity will be looked at, in order to meet survival needs.

CHAPTER 2

DEFINING CREATIVITY

The Concept of Creativity and the Creative Process

The words creativity, innovation and problem solving have infiltrated the previous chapter. All of these terms relate to one another intimately. Creativity is a term that most people within art and art education are tired of hearing about. The words innovative, original and inventive are referred to constantly by authors on the subject. The core meaning of creativity suggests that it is an incredibly human activity that involves a flair of originality and personal style. It is ironic therefore that peoples' general attitude towards creativity is not the same. The dictionary tells us that creativity is having the ability or power to create things. This idea seems to reflect the wider opinion of society. However, to be creative is characterized usually by originality, expressiveness and imagination. It can extend any scope beyond normal limits.

The concept of creativity is fascinating, but it is the term 'creativity' that has become tiring. Since the beginning of this century the idea that creativity has created huge interest among educators, psychologists and philosophers proves that we need it in our lives. No one has been able to give one definite meaning to creativity but there are key features evident throughout the extensive research. Donald MacKinnon points out that creativity means different things to different people. In an address to a Nobel conference on the subject, he stated that

...Many are the meanings of creativity. Perhaps for most it denotes the ability to bring something new into existence, while for others it is not an ability but the psychological processes by which new and valuable products are fashioned.¹³

For some creativity is not the process but the product. For others creativity is the ability to produce a novel idea. Creativity is often characterized by the thinking and other processes that bring about a finished product. Creativity means different things to different people. Design is a creative activity, and designers are regarded as creative people. But why is creativity necessary? Can anyone produce creative design work, if given the opportunity? The environment or task given is significant in developing creative thinking. Johnson-Laird recognizes that there must be "some given building blocks" because one "cannot create out of nothing".¹⁴ He argues that without a precise goal, creativity suffers. We all have the capacity to think creatively. So, it is possible for anyone to be creative to a certain extent.⁷ There is evidence to suggest that people become highly skilled thinkers, when immersed in something that fascinates them. ✓

What is worrying is that most educational systems only reach into a very narrow range of intellectual skills. Education has tended to focus on learning and comprehension rather than productive thinking. In problem solving and creativity, it is productive thinking that is of greater importance. Guilford devised a 3D 'Structure of the Intellect'¹⁴ to demonstrate that people have more intellectual abilities than we realize. IQ tests and examination results do not encourage productivity. A balanced approach to education requires both critical and productive skills. The growth involved in creativity covers a wide range of productive skills. ✓

It is fairly generally recognized that people associate creativity with people who are talented at art and design. Many hold the view that creativity is a rare gift, who express it through art related activities. One source of confusion that this

attitude takes is that creativity can not be nurtured. Surely it is when an individual is given the opportunity to be creative, then they can reach their fullest potential. The headmistress of an inner London school explains why she views creativity as a rare thing, not a rare gift:

... Often what you read is a re hash of what someone else has written. I'm a historian and being part of a system, involves processing received information. Creativity is rare in the sense that very few people seem to have the ability and the opportunity to get out of that, and stand back and say 'That was me; that was original'... maybe it's the opportunity that's rare, rather than the ability.¹⁵

This reference shows the importance of giving people opportunities that will raise their self-esteem, and help them to realize their abilities. Education should be one of the first categories to provide this opportunity. Carl Rogers holds the view that the creative process is connected to all areas of life. He believes that the creative process is the "emergence in action of a novel" product which grows out of the "uniqueness of the individual" on the one hand, and "events, people or circumstances"¹⁶ on the other. Reference is given here to the circumstances and availability of materials or events, to produce a creative action, which in turn creates a novel result. Often it is the provision of varying factors which encourage the creative ability in individuals.

Erich Fromm supports this opinion in his belief that "creativity is the ability to see and be aware of, and then to respond".¹⁷ This shows that creativity involves an awareness of a particular problem. The response could be filling a gap in an unusual way, that functions as an acceptable idea. Thus the creative solution

comes from the individual. The idea is seen as original and innovative at that particular time, according to that person and the group involved. Every person is different. Therefore each individual has the ability to be creative in their own way, in order to realize their own personal talent. ✓

The Motivation behind Creative Problem Solving

The level of a task has to be considered, in the same way it needs to relate to the individual. If new tasks are too difficult, they become frustrating. If they are too easy, they become boring. Bruner (1966)¹⁸ suggests that tasks should be a little different from or more difficult than previous tasks. This offers motivation to tackle them. People with high ability will need significant challenges to maintain their motivation. In a classroom situation pupils will want tasks that they find intrinsically motivating. Freedom to choose aspects in their work helps to foster a sense of ownership and responsibility. This freedom taps into their creative abilities. A major factor which boosts this area is intrinsic motivation. Torrance (1962)¹⁹ points out that creative individuals cannot stop working because they cannot stop thinking. This suggests that it is satisfying to use our creative abilities.

The opinions of a number of Design students in The National College of Art and Design, and Dun Laoighaire Art College, suggest that there is a lack of creative problem solving in secondary art education. The research includes the views of students from different schools. These past pupils talked about what they felt was missing, particularly in the Leaving Certificate course. Many believe that pupils are not encouraged or praised enough about their work. Ref.

self-esteem. It was agreed that confidence was closely connected to creative ability. Many pupils need to have confidence in order to achieve in art and design.

John Lambert, a graphic design student in Dun Laoighaire College of Art and Design believes that there was not enough freedom in his community school, to explore "unknown possibilities". He, among others feels that creativity can be fostered in the right environment. For example, when a pupil leaves school and enters an art college, this pupil is exposed to an environment that encourages investigation and exploration of materials and ideas. The classroom could offer this opportunity, whereby pupils would become intrinsically motivated. Another student believes that too often grades are the only things that indicate your ability and this is not an accurate representation of how skilled you are.

The findings from these students of Graphic Design and Industrial Design, has developed into a list of a few pointers or suggestions, that show ways to possibly nurture creative development. These are used in the classroom application section of this study. They are as follows:

-
- a. A variety of techniques/ ways of doing things.
 - b. A fail-safe environment – the classroom.
 - c. Freedom to take risks-under firm management.
 - d. Offering encouragement and constructive criticism.
 - e. Building confidence and self-esteem.
 - f. A constant teaching of other artists and designers.
-

Individuals who achieve high results in art and design, have greater confidence in their ability, than those who do not. Most likely, they have been encouraged in the

home. They have already experienced a task that was intrinsically motivating for them, at least for some of the time. There is evidence to suggest that there are tactics involved in motivating people to think creatively. So people become more creative by creating. Fryer points out that "creative problem solving training programmes" which involve people to think creatively, "do indeed produce improvements in such abilities."²⁰

Milton Glaser, a well known American graphic designer realizes that his success depended heavily on the fact that he was exposed to so many stylistic alternatives in his youth. He understands the need for fresh, innovative work in the Graphic Design world, never mind Design Education. He says that

... The penalty for consistent imitation, unfortunately is the erosion of personal vision and artistic sensibility.²¹

Intrinsic motivation is necessary to develop creativity. The role of the teacher is to provide an environment, and prepare tasks that will boost creative thinking. There is no evidence to suggest that art education is just about creating 'something'. Apart from the cognitive learning involved, there is the motivational and the emotional. Diarmuid Larkin²² shows how the learning situation starts out with a child's life. The child follows a logical progression of discovery as s/he responds to the world around him. When school begins the child is relating the world outside to his learning in the classroom.

Teachers can prepare tasks that relate to the pupils world. The environment is very important and this will be looked at in the following chapter.

CHAPTER 3

CREATING THE ENVIRONMENT

Dynamics Between Individuals and Their Environment

The importance of the environment can not be undermined. The significance of those around us enables us to develop creatively. Stein advocates the influence of teachers, peers and family on the environment, to encourage creative development. The relationships between individuals and their environment is an important factor. Stein states that creativity is

... a process that results in novelty which is accepted as useful, tenable or satisfying by a significant group of others at some point in time.²³ ✓

It is clear that the groups opinions are important and evaluations of class work is relevant. Not everyone is aware of the risks involved in being creative. A fail-safe environment is seen as crucial, at least for some time. After the creative output has been manifested, competitiveness can take over. This is no harm as long as the interests of others is cared for.

The environment needs to build confidence through praise and encouragement. Examinations and limited class time, restricts the growth of creativity in pupils. Also, teaching methods and approaches are tried and tested to teach the arts at a greater depth. Some pupils are easily discouraged and this is when relationships are important. As one teacher said in Terence Wooffs' book called Developments in Art Teaching²⁴ : ...

... I feel a lot of children who come to us do so with a sense of failure. They have perhaps been defeated by difficulties in maths and science so that when they come to us they find ways of expressing themselves and succeeding in a different way, but they need lots of help and encouragement.²⁴

Dynamics Between Life Goals and Life Satisfaction

The importance of the environment cannot be underestimated. The significance of

those areas that provide a good basis for developing a strong sense of self and the influence

of various factors and their impact on the environment is a complex process.

The relationship between individuals and their environment is an

ongoing process that is constantly changing.

The relationship between life goals and life satisfaction is a complex process.

It is a process that is constantly changing and evolving.

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Wooff goes on to discuss how some young people can feel hopeless and end up rejecting the system. Teachers have sought to meet the needs of these pupils by linking art to other subjects through projects such as those involving environmental or social studies. Design projects or community schemes enable pupils to relate to adults in the outside world. In all projects, time given for preliminary explorations is beneficial, aiding creativity. Creative thinking and bringing an idea into execution is closely linked with confidence. Pupils need to feel sure about their ability. The art room can be a place where pupils' self-esteem is raised. This can reflect in other academic subjects as well. The teachers' attitude is seen as vital in this area. In order for the process of exploration to take place successfully, the pupils will need to feel safe to take risks. The environment therefore should be one of encouragement and honest constructive criticism.

Teachers have a key role to play in the development of creativity in pupils. Einstein has always praised his teacher, Reuss for being relational with his pupils, encouraging them to be independent thinkers. A teachers' attitude can create a very special environment. Teachers can protect pupils from negative responses from other pupils and value those pupils that others do not. Teachers can persuade pupils that anything is possible, and to see potential in their pupils ability.

It is apparently the case that too much pressure does not boost creativity. In Fryers' survey on creative teaching, called Project 1000,²⁵ a head of art and design at a country high school said that "if you want pupils to be creative, you have to persuade them they can be."²⁶ One can not teach pupils how to be, but it is creating the right environment where creativity can happen.

Each individual is creative in unique ways, so it providing people with an opportunity to reach their potential. The individual responds expressively in a way that is peculiar to that individual. The environment should be one of freedom to

explore, but with a clear goal to be attained towards the end. Guidance and suggestions should be offered for a time and then the teacher should stand back and allow the student to take control of the situation. Praise is necessary of the pupil's ideas, to reinforce the concept that it is their work. This brings a sense of ownership and responsibility to the projects.

A secure, safe environment breeds creativity, where pupils feel they can trust their teacher. The teacher needs to value the pupil's, and the pupils need to feel this sense of value. Not everyone is aware of the risks involved in being creative. The notion of taking a risk or going beyond the normal limits, only comes to those with strong confidence in their ability. For this reason, the environment needs to be a stable environment, so everyone can have a chance to think positively about their ability. Only some pupils assert their own initiative through confidence of their own.

In the literature review, it has been noted that how a teacher views him/ herself can have an impact on the pupils. If a teachers' confidence is low, this does not help the pupils confidence in any given task. An adult can impose limitations on a young person by declaring something as difficult, before the youth even attempts it. A teacher needs to believe in him/ herself, and this will reflect on the pupils.

PURPOSEFUL TASKS:

The introduction of design problems is intended to promote exploratory encounters with materials and techniques. However, it also stimulates particular ways of thinking, to enable individuals to identify and analyse solutions to problems. Based on various themes, design problems given to pupils can create an industrious atmosphere in the art room. Pupils are encouraged to think about what a material is for or which material is most suitable to solve the problem. Pupils' exploration of such problems enables them to acquire necessary skills, that will be valuable for

life. Imagination and emotions can be incorporated into design activities. The utilisation of relevant support studies that stimulate pupils, aid the imagination. The environment is built up of visual stimuli. This is a key feature, that accelerates creativity in the classroom. There is a need for art practises in secondary education to move away from the learning of skills only. This is not enough to occupy the intelligent minds of our pupils. Tasks should be designed to challenge pupils intellectually.

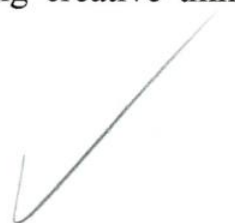
Diarmuid Larkin refers to the tendency in art education to lean towards the development of skills, without "providing any opportunity for the child to use these skills in art experiences that involve creative thinking."²⁷ Whilst art education *is* about learning, there are significant benefits for a more "enlightened art education where the child's awareness of his own experiences are utilised for creative expression."²⁸ The learning of skills would meet the needs of the pupils, if they were channelled through the pupils own ideas. This deepens the learning experience.

Media skills are of no great value until one achieves an insight into the subject at hand. The misconception happens when the learning of skills is treated in isolation from the intellectual skills. This relates to the end, rather than the means. Processes such as making rubbings, cutting and tearing papers or the ability to use tools are not enough on their own. Knowing, seeing and thinking must be connected with the doing. The end product should be a reflection of the pupils total experience of skills, feelings and cultural awareness. This should include responses to the outside world, creative brainstorming of ideas and an investigation of processes. What pupils understand, they do not forget. Real involvement brings a deeper level of understanding. Creative problem solving requires a commitment to the task. Therefore the task should encompass all areas, not only the teaching of skills. The task needs to challenge the pupils' intellect to think creatively.

SUMMARY:

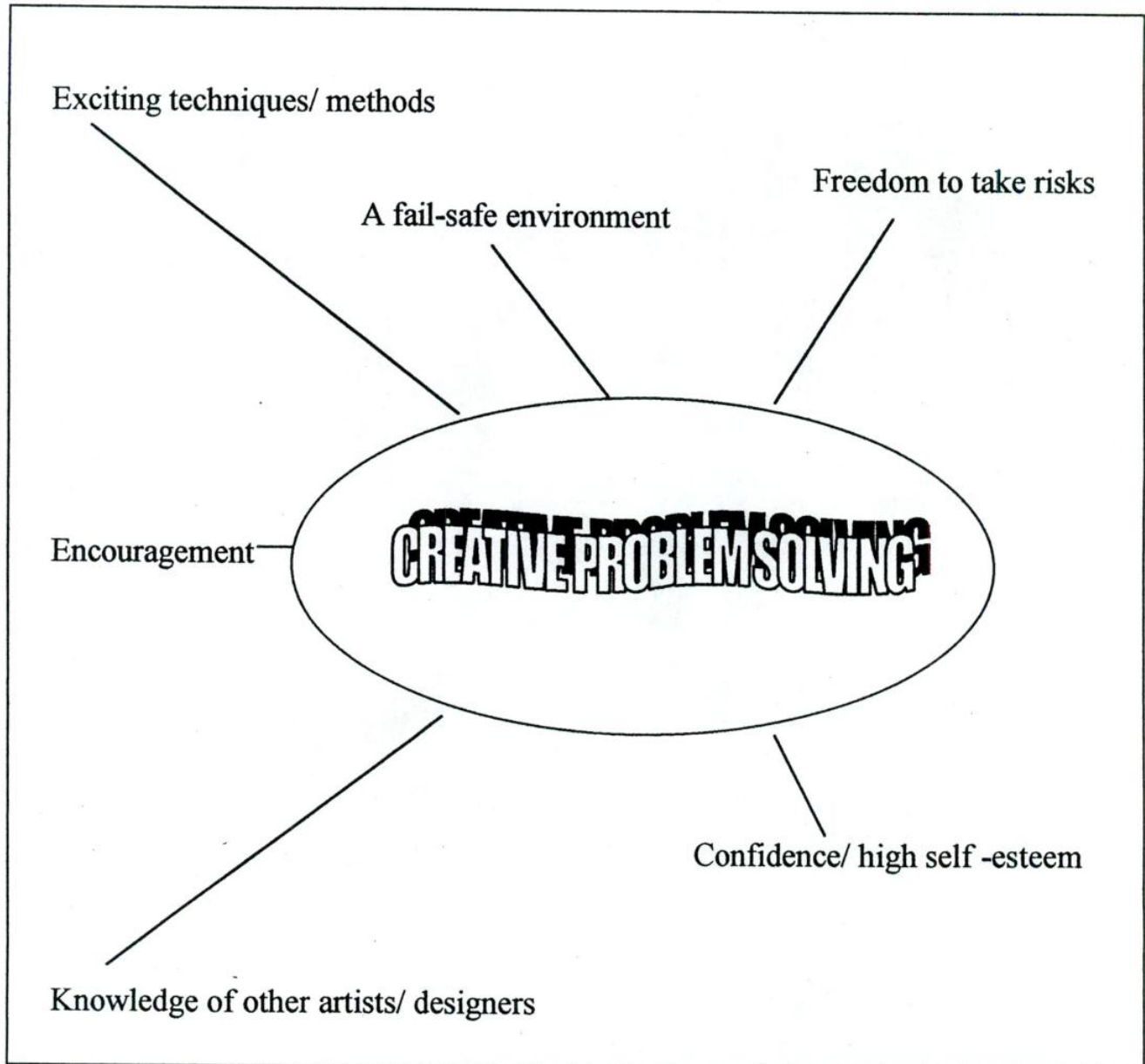
The needs in society have to be met through education. If education is to stand firm in the middle of all these changes, it will have to be flexible. The roots can be embedded, but there has to room for the branches to move with time. Creative thinking is incredibly relevant for today. There has been much written about creativity, which makes it sound tiresome. The word has been used too loosely, but all that it stands for remains to fascinate.

The following methodology goes through a series of stages to foster creativity, innovation and inventiveness in design education. The research so far has outlined the importance of creative thinking not only for the individual, but for secondary school pupils. It is significant that there are ways to encourage creative thinking, and through the research and literature reviews this learning has been applied to a classroom situation. The following chapter includes questionnaire sheets given to pupils before and after the projects. Also included is a list of criteria for developing creative thinking and other diagrams and illustrations.



Ref?

RESEARCH:
FROM INTERVIEWS WITH PAST PUPILS: NOW DESIGN STUDENTS
Tips on how to how to develop creative thinking



CHAPTER 4
METHODOLOGY:
INTRODUCTION TO SCHEME OF WORK
AND PREVIOUS SCHEME:

Background to Schemes:

These progressive schemes of work were designed for a fifth year group, with incredibly mixed ability and backgrounds. The use of support studies and motivational tools helped the development of creativity in these pupils. The aim was to develop creative thinking in design problems and to enable pupils to reach their creative potential throughout both schemes. For the purpose of this dissertation, a variety of methods and teaching approaches were used. These were learned from the literature review and from interviews with past pupils – now design students/ graduates. The overall motivational tool, which consisted of a number of factors combined together, was creating the right environment.

Scheme No. 1

This scheme of work was a continuation of the same theme given for the last project. It is relevant to discuss to some degree scheme no. 1, before explaining scheme no.2. The aim was to design and make a three dimensional shoe, using the structure as a form of expression. Pupils had to choose personal themes, and incorporate their ideas on to the building of a shoe. The shape of the shoe had to be based on drawing from observation, which took place for two sessions before brainstorming could begin. As the ideas were generated, the shapes could be altered, whereby soles and heels could be added or taken away, only if this helped to express the idea. The design process was emphasised as having equal marks as the end product. The time spent on creative thinking resulted in a high achievement of skill for each pupil, even for those who would not usually excel.

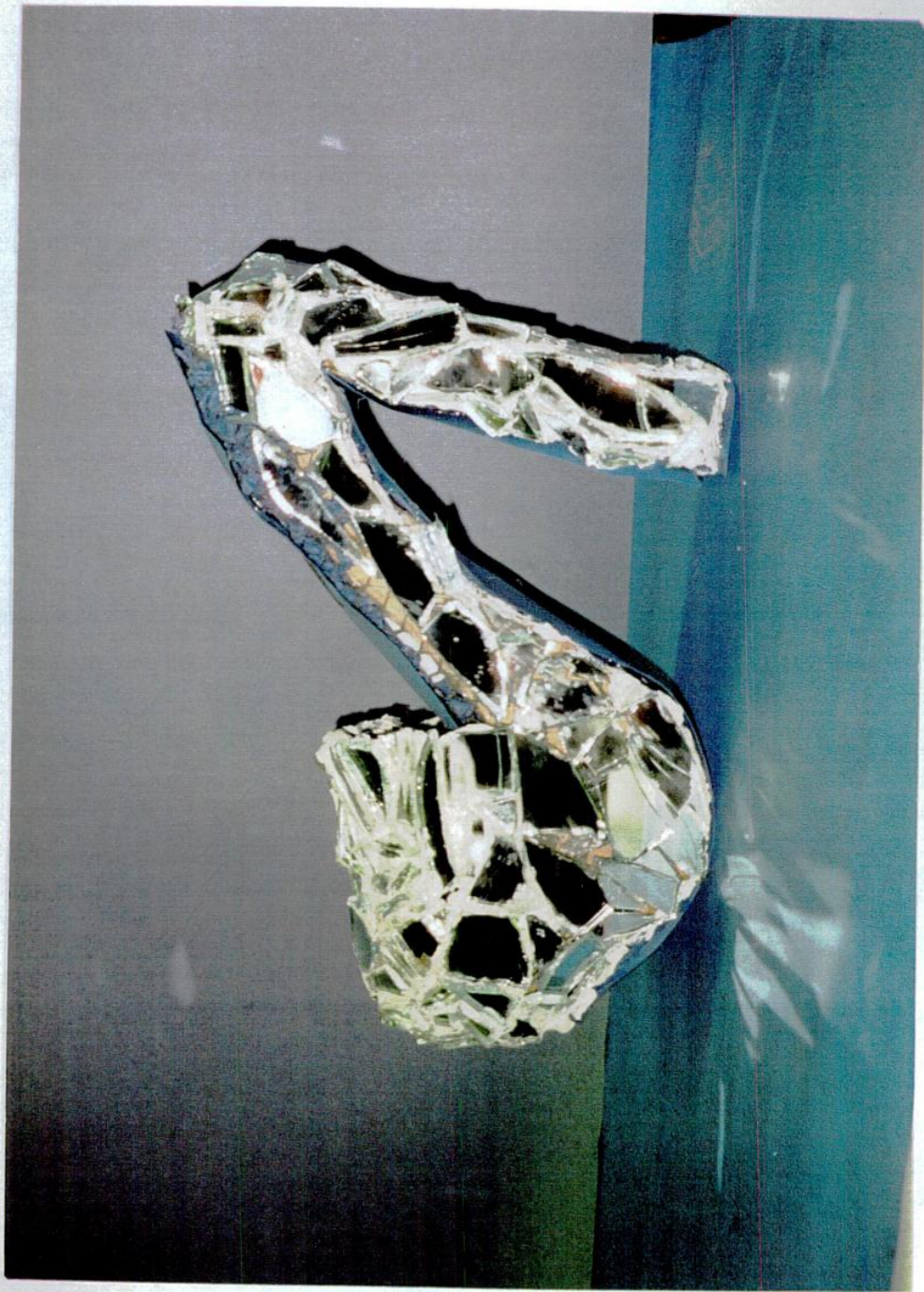


FIGURE NO.1

Finished Work: Scheme No.1; 3D Shoes, progresses into next scheme



FIGURE NO.2

Finished Work: Scheme No.1; 3D Shoes, progresses into next scheme



FIGURE NO. 2

Finished Work: Scheme No. 1. 3D Shoes, progresses into next scheme



FIGURE NO.3

Example of Support Studies for SCHEME NO.1: 3D Shoes



FIGURE NO.3
Example of Support Studies for SCHEME NO.1: 3D Stress

During this project the pupils were subjected to much creative thought, even in terms of their choice of materials and changes in these choices. Examples of the finished shoes are shown in diagrams 1,2 and 3. It is evident that the pupils sense of achievement filled them with desire to face the challenge of the next scheme. This scheme provided the groundwork for the next project, which consisted of a graphic design brief.

Scheme No.2.

An exhibition would be held to show off their marvellous creations to the rest of the school. Posters needed to be executed to catch the attention of pupils and teachers walking around the corridors. Bright, colourful and eye-catching was the aim of the game. The shoes made by the pupils could be incorporated into the posters, through photography or illustration. A designer had once stressed the importance of being familiar with an object before designing a graphic piece that represented it. He gave an example of a task given to a class of design students, to draw a simple maple leaf. The sketches were nowhere near the replica of a maple leaf. The point was, even though you might think you know what something looks like, it is not until it is actually observed and studied, will anyone find out the exact details. This concept was used with this fifth year group, to encourage them to continue working with the same theme: the shoe. Their familiarity with the shape, texture and nature of a shoe helped them to be confident with the graphic design project.

Multiple ideas were generated in order to come up with original designs. These were in the form of thumbnail sketches. This stage of the design process was vital for motivating the pupils forward. It is at this brainstorming stage, the pupils realised their own ideas and got excited about what they wanted to do and how they would bring it into existence. Support studies are very significant at this stage, to stimulate creative thinking. Contemporary designers were shown

so the pupils could relate to the pieces shown. In order to create the right environment to develop creative thinking, the following list was designed and put into practise throughout the scheme. This list was created from research on the subject of creativity in design:

CRITERIA FOR DEVELOPING CREATIVITY:	%
Make expectations clear: Setting clear goals	
Offer freedom of choice in the design process	
Be suggestive, but students decide	
Ask provocative questions to help students to be critical	
Classroom management-organise materials, equipment	
Give personal attention to each pupil for short periods of time	
Emphasize success and how to get there	
Recognize real efforts	
Protect pupils from ridicule or negative criticism	
Provide opportunities to make discoveries, and explore new ways of doing	
Finding themes/ areas which interest the students	
Involvement from teacher	
Informality, but not permissiveness	
Foster a sense of value for art materials: the cost factor	
Others....	

All of these points were significant in the application of this scheme. Each one was given equal importance throughout, to develop creative thinking in design.

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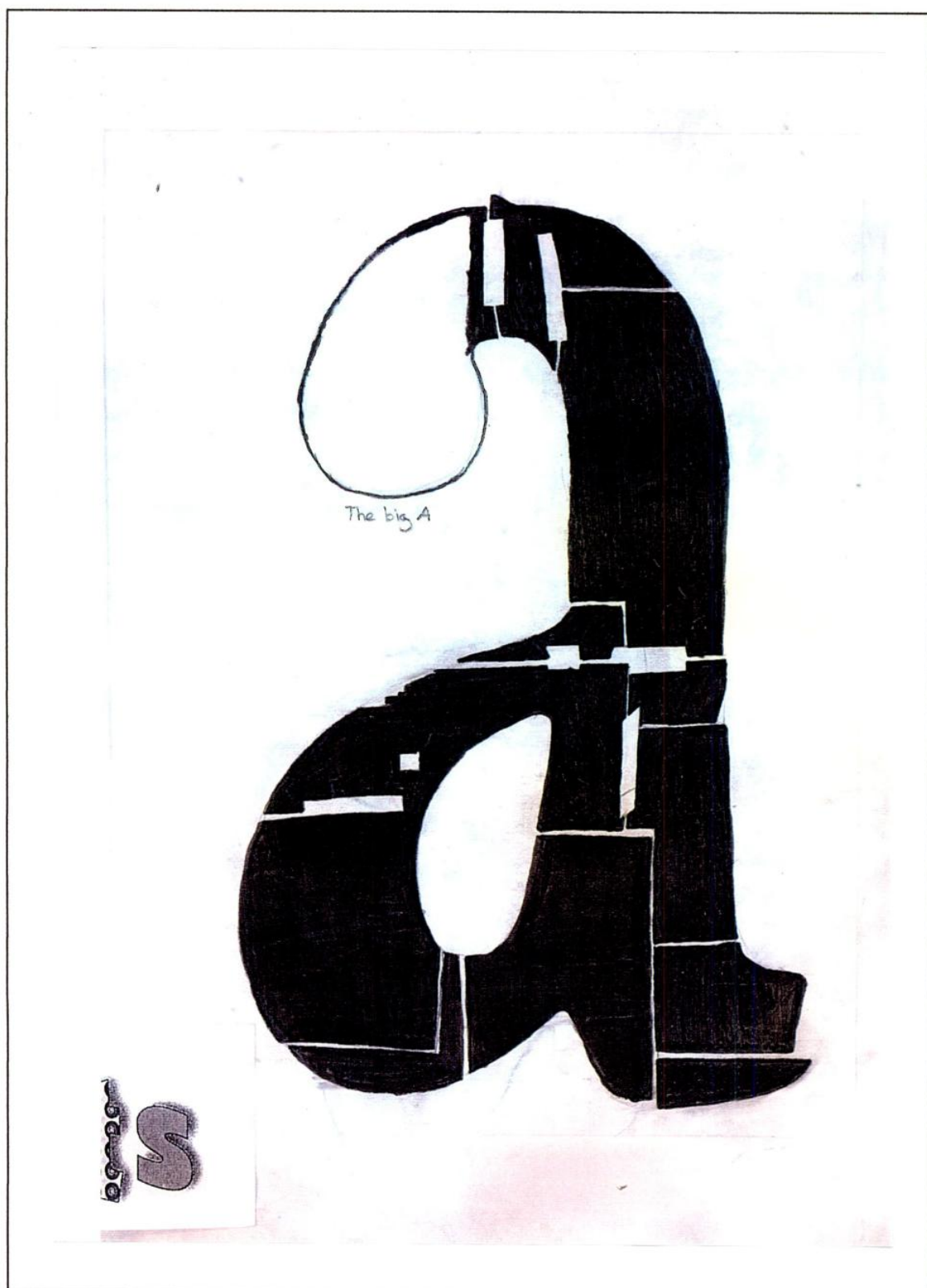


Figure No.4

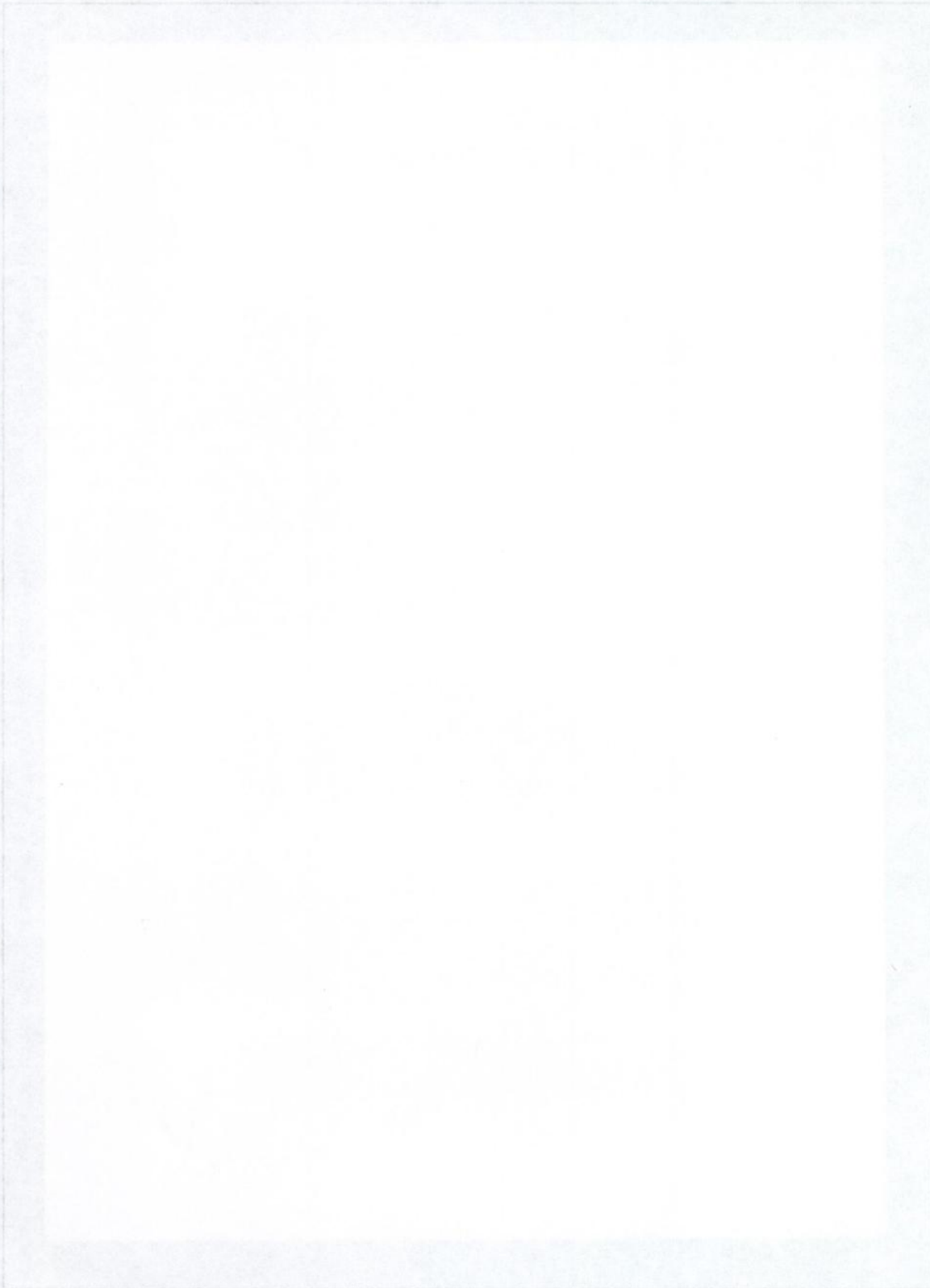


Figure No. 4

Lesson No. 1: Research Notebook: Creativity in Graphic Design

SCHEME NO.2DEVELOPING CREATIVITY IN GRAPHIC DESIGN

Aim: To design and make a poster, using a variety of graphic design technique and 'Shoe Exhibition' as a theme.

Main Objectives: To develop an awareness of the techniques used by Professional graphic designers, such as photography, illustration or printing.

: To develop an understanding of the use of creative typography by contemporary graphic designers.

: To develop creative thinking in graphic design problems.

: To foster creativity and innovation in the pupils work.

Lesson One: This lesson introduced the pupils to a brief history of graphic design, including how Modern Art paved the way for graphic design today. The idea of Research Notebooks was introduced, to analyse and record the work of professional designers. The notebooks aided the development of creativity. The pupils were able to investigate a variety of techniques and materials, including creative typography. For example, different size typeface, cropping letters, and printing block letters were explored. This lesson was very significant insofar as the pupils did not have to think of their own designs. Time was given for investigation and exploration of layout and materials used by professionals, today in our local environment. The pupils were encouraged through discussion to study and dissect the professional graphic design works. The pupils were educated in the processes involved in achieving these end-products. Before beginning this lesson, a written documentation defining graphic design was compiled. (pages 32-33) Thus ensuring each individuals clarity on the subject. These

were given as handouts, and were referred to over the duration of the scheme. Questionnaires (page 30) were given to the pupils before the class to find out their knowledge on the techniques and processes used by designers. The pupils considered t-squares, pencils and ink pens to be suitable for a graphic design project. This project introduced them to new and surprising techniques.

Lesson Two: The research stage of the design process already began in the previous class. This continued throughout the project as the pupils documented findings which interested them. The next stage consisted of giving the pupils a graphic design brief (page 27), which was discussed. Ideas were generated and recorded and the pupils were guided as to how to draw thumbnail sketches.

Lesson Three: The pupils were introduced to illustrative techniques. Each pupil completed an illustration in pencil or pen, which could then be photocopied onto acetate, if desired. Examples of student work are shown.

Lesson Four: The pupils were introduced to paint effects and photography techniques. Some pupils photographed their 3D Shoes in different positions in order to use these for the poster design the following week.

Lesson Five, Six, Seven: These classes consisted of combining image with text, and also putting the finishing touches on all that has been created so far. Some pupils chose to design and paint their own text, while others used cut or torn lettering, as was shown in the demonstration.

GRAPHIC DESIGN BRIEF: given to each student

Using your exploration of your shoe as a starting point, design a poster (A4 or A3 size) inviting pupils and teachers to view an exhibition of your 3-Dimensional work completed on your last project.

AIM: To attract attention to your poster through the use of colour, shape and texture. To explore the techniques used by contemporary graphic designers

RESEARCH: This is the first stage of the DESIGN PROCESS. You will record information in your RESEARCH notebooks on the following:

1. Layout used by professional graphic designers – Where is the image placed in relation to the typeface? – How many colours are used? and Why?
2. Balance and Harmony: How is this achieved? colour, shapes, overlapping.
3. Write down the name of the designer, and work out how the piece was started and finished. What was the first area worked on, do you think?

IDEA GENERATION: Now think of solutions to your own poster in the form of thumbnails, following a layout used by a professional graphic designer, to begin with. This will change as you explore your own ideas. Complete six thumbnails, choosing different colours, typeface and choice of possible suitable media. CONSIDER THE FOLLOWING:

- Q. Will you use one typeface or more? Do the styles complement or contrast each other?
- Q. Try different experiments in your notebook with mixed materials. Paper Collage Inks, torn letters, making digital type, printing lettering and so on.
- Q. Will you use dark lettering and a bright coloured image or vice versa?

EXECUTION OF DESIGN: After completing a small worked out design, you will now complete design on to A4 or A3 size paper or card. Your final design will be mounted on hard board.

KEY TERMS: TYPEFACE
THUMBNAILS
IMAGE
CROPPING

BALANCE
FONT
OVERLAPPING
TEXTURE

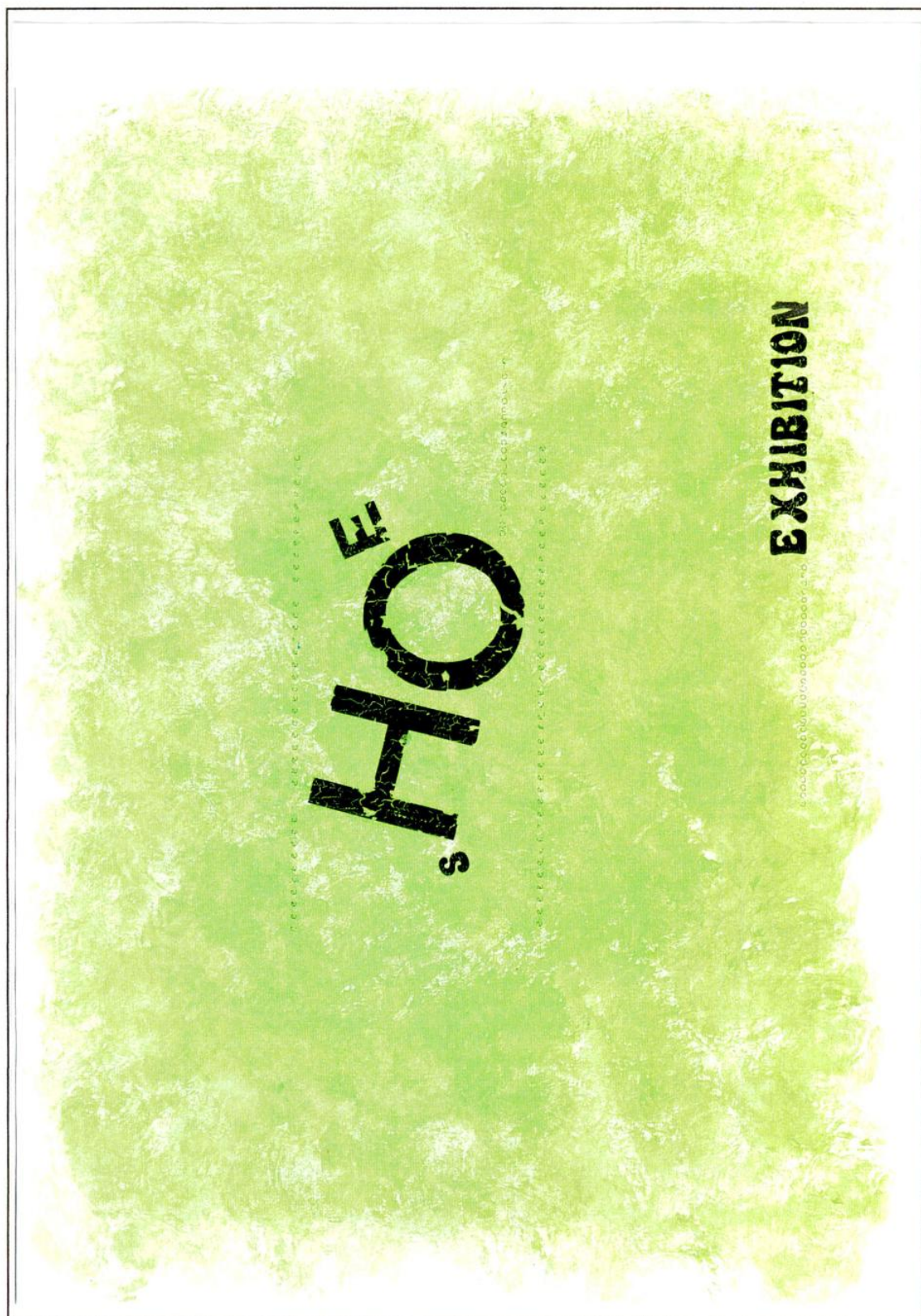


Figure No. 4 (a)

Student Work : Research Notebooks continued



Student Work: Research Notebooks continued
Figure No. 4 (a)

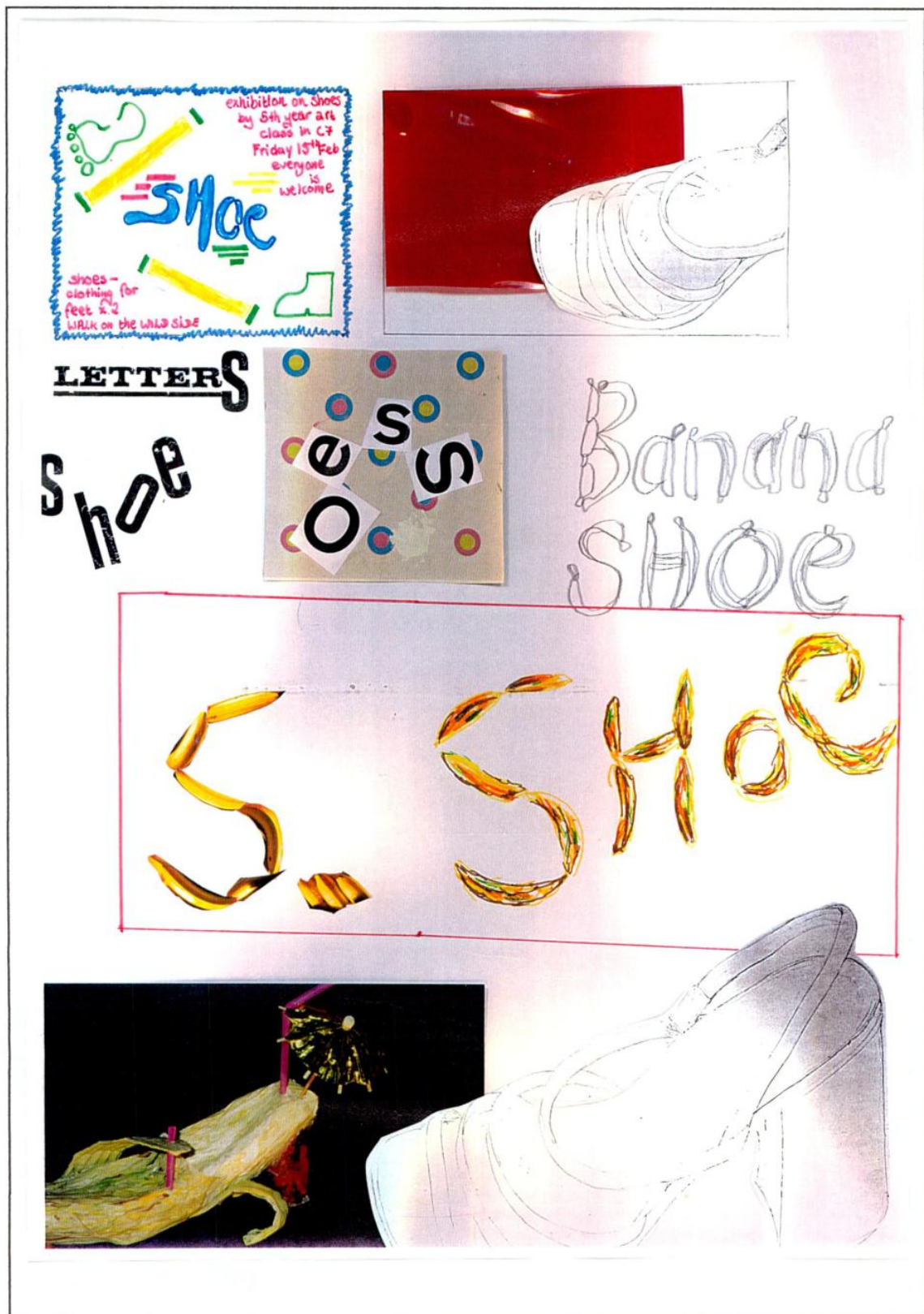


Figure No. 4 (b)

Student Work : Research Notebooks continued

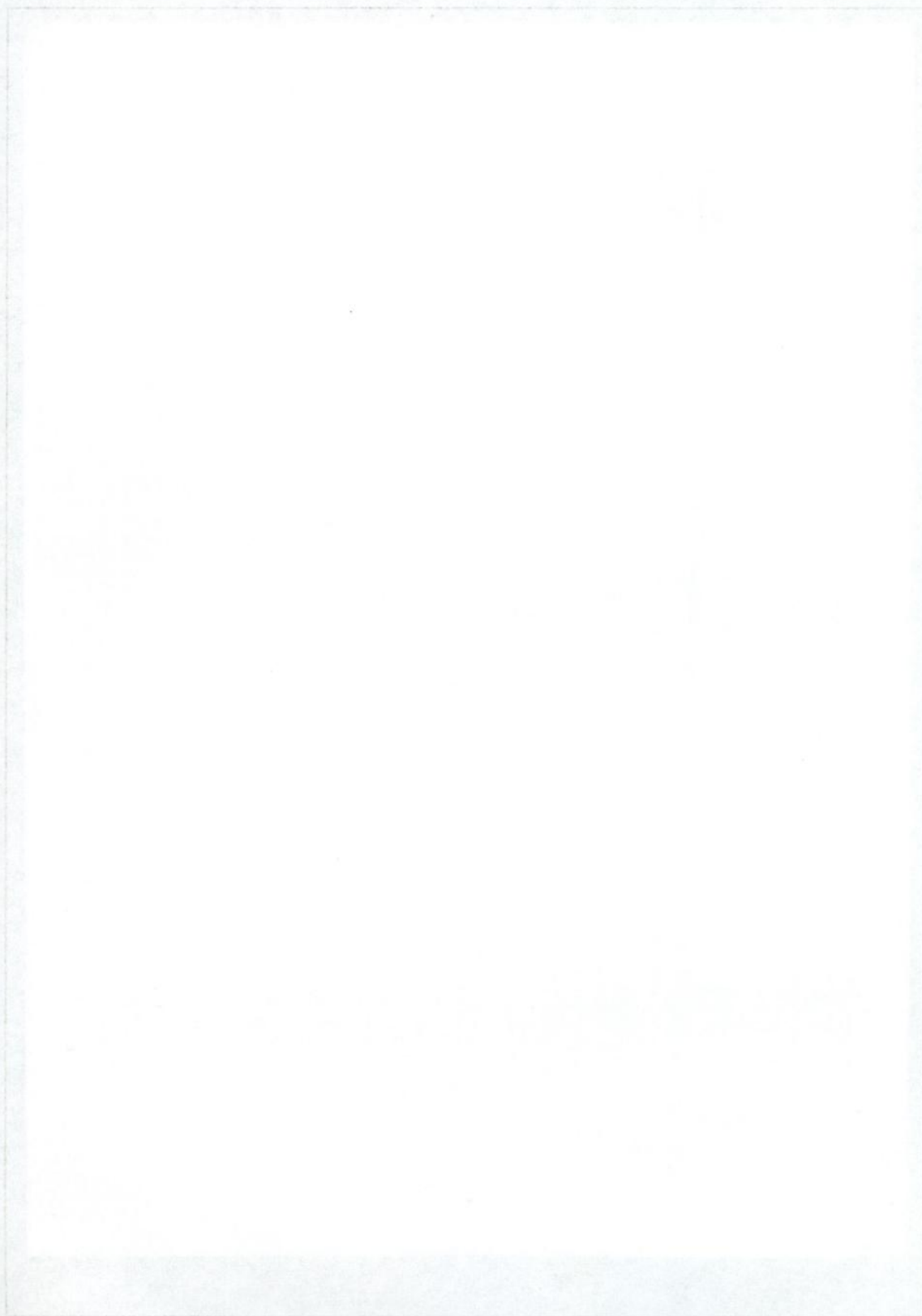


Figure No. 4 (b)



Figure No.9

Photography in Graphic Design: Student Work

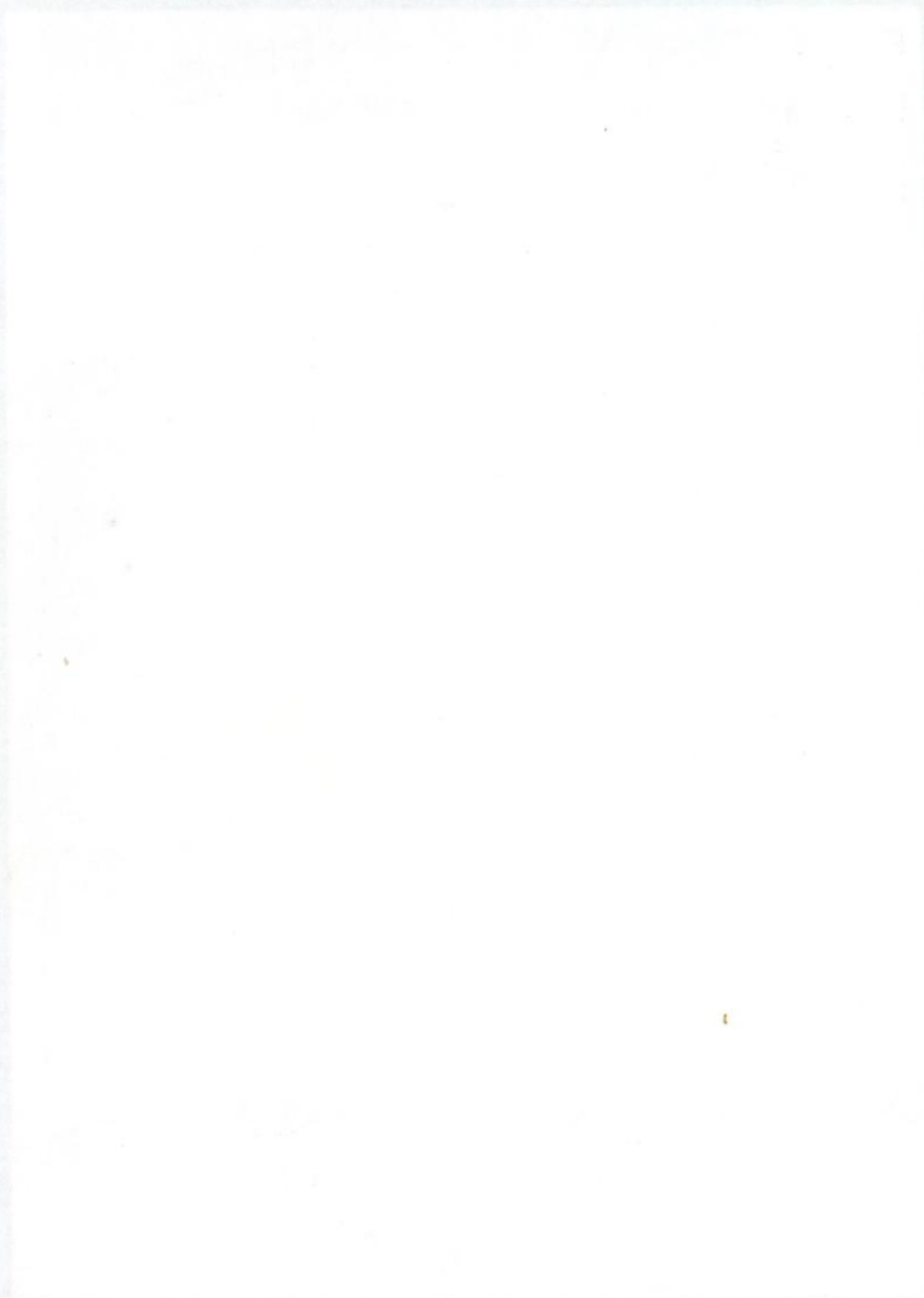


Photography in Graphic Design Student Work
Twelve Days



Figure No.5

Support Study: Contemporary Graphic Design



Support Study: Contemporary Graphic Design
Figure No. 2

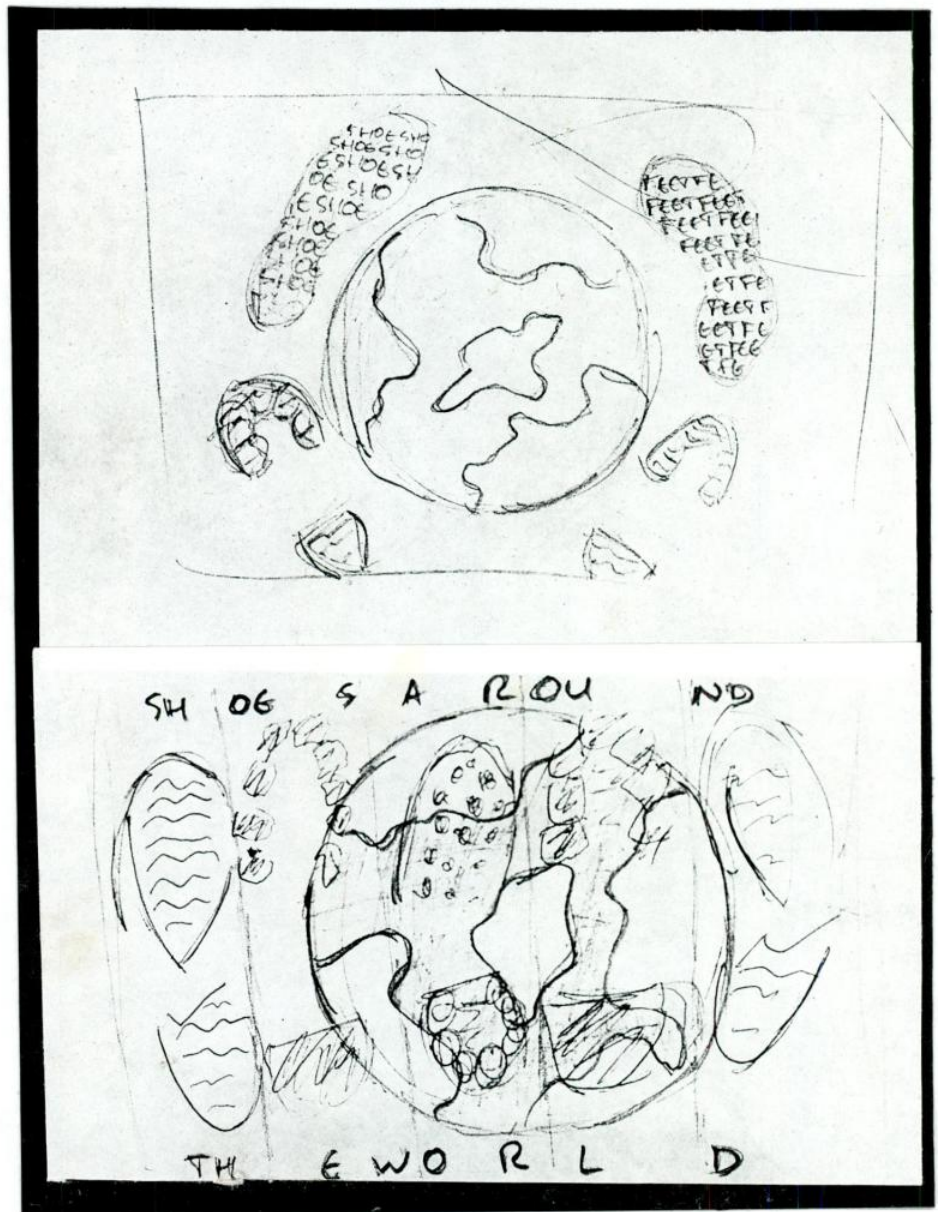


Figure No.5 (a)

Visual Aid: Thumbnail Sketches



Figure 10.2 (a)
Ground and Trenchment Station

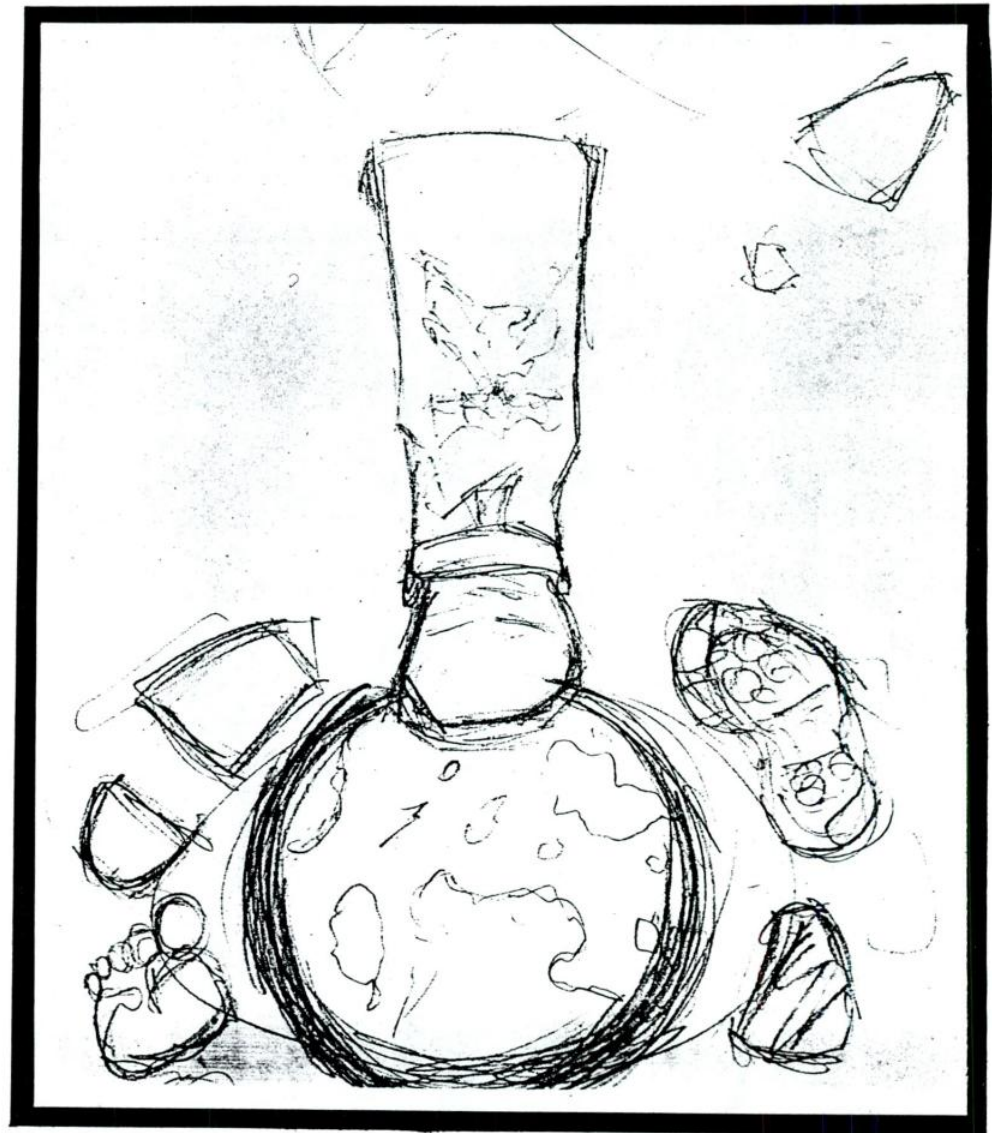


Figure No.6

Lesson No.2 Thumbnails: The Design Process. Student Work

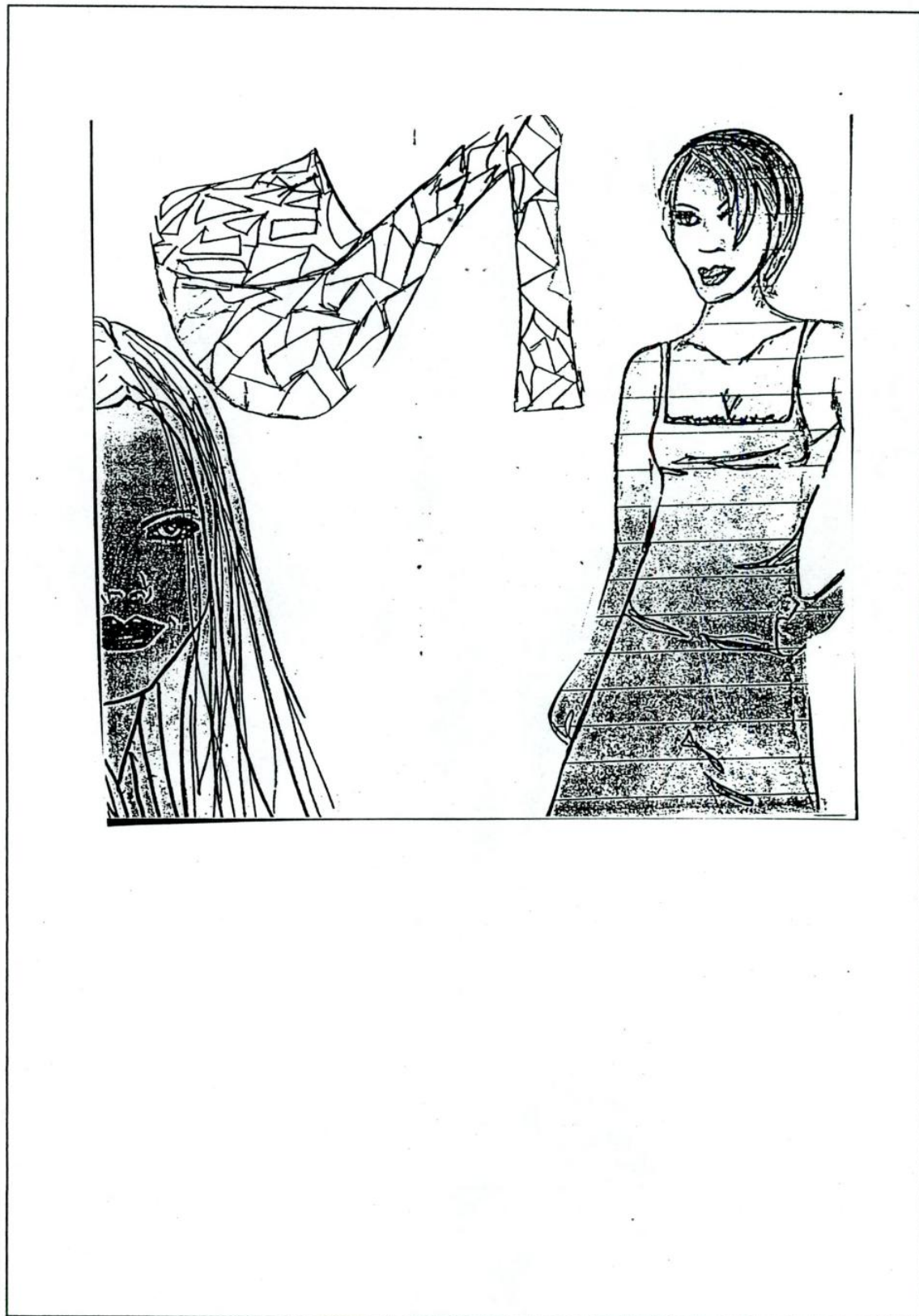


Figure No.6

Student Work : Thumbnail Sketches: The Design Process

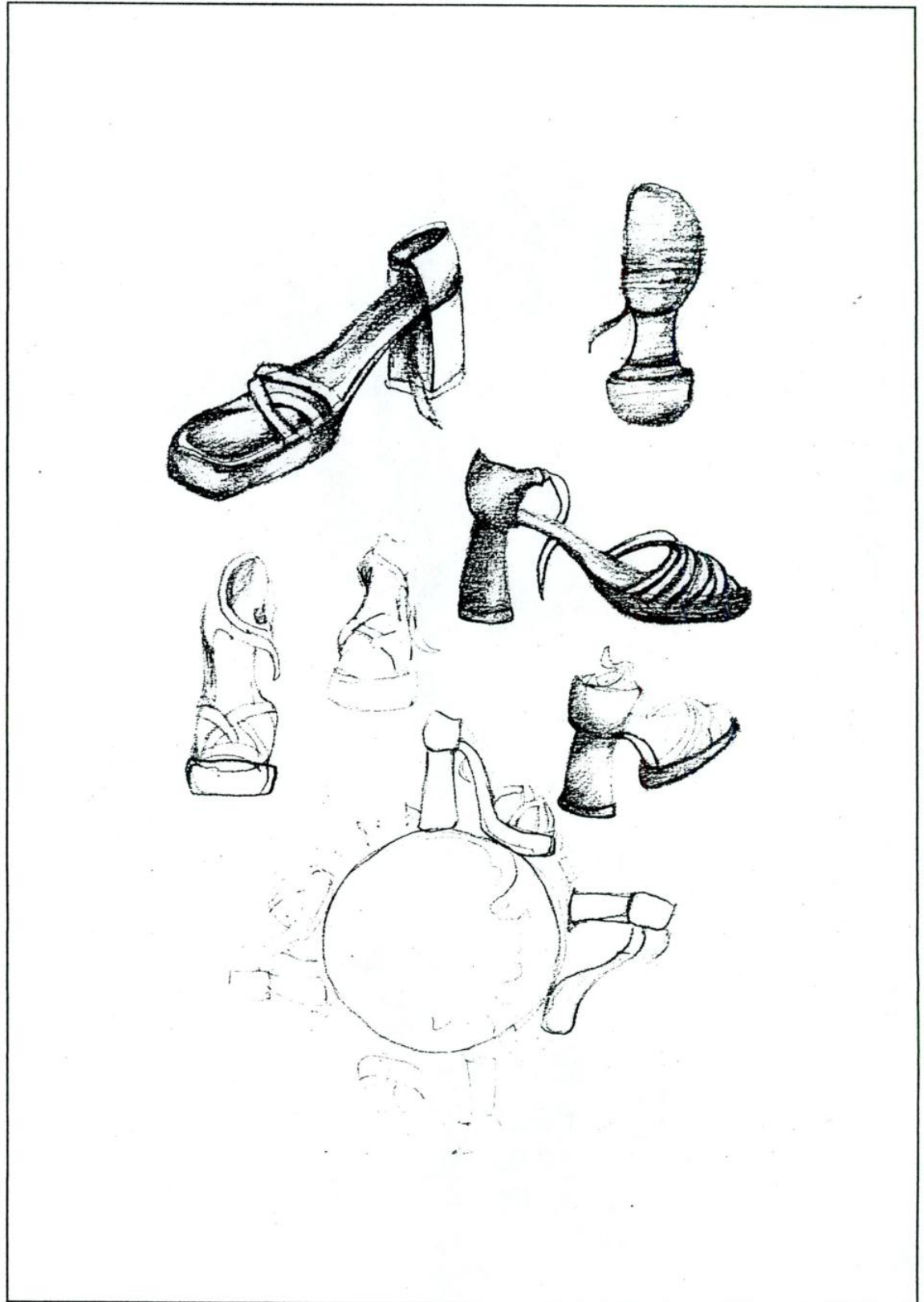


Figure No.6 (b)

Thumbnail Sketches: The Design Process



Figure No.7

Illustration Techniques: Lesson 4: Graphic Design



Page 10

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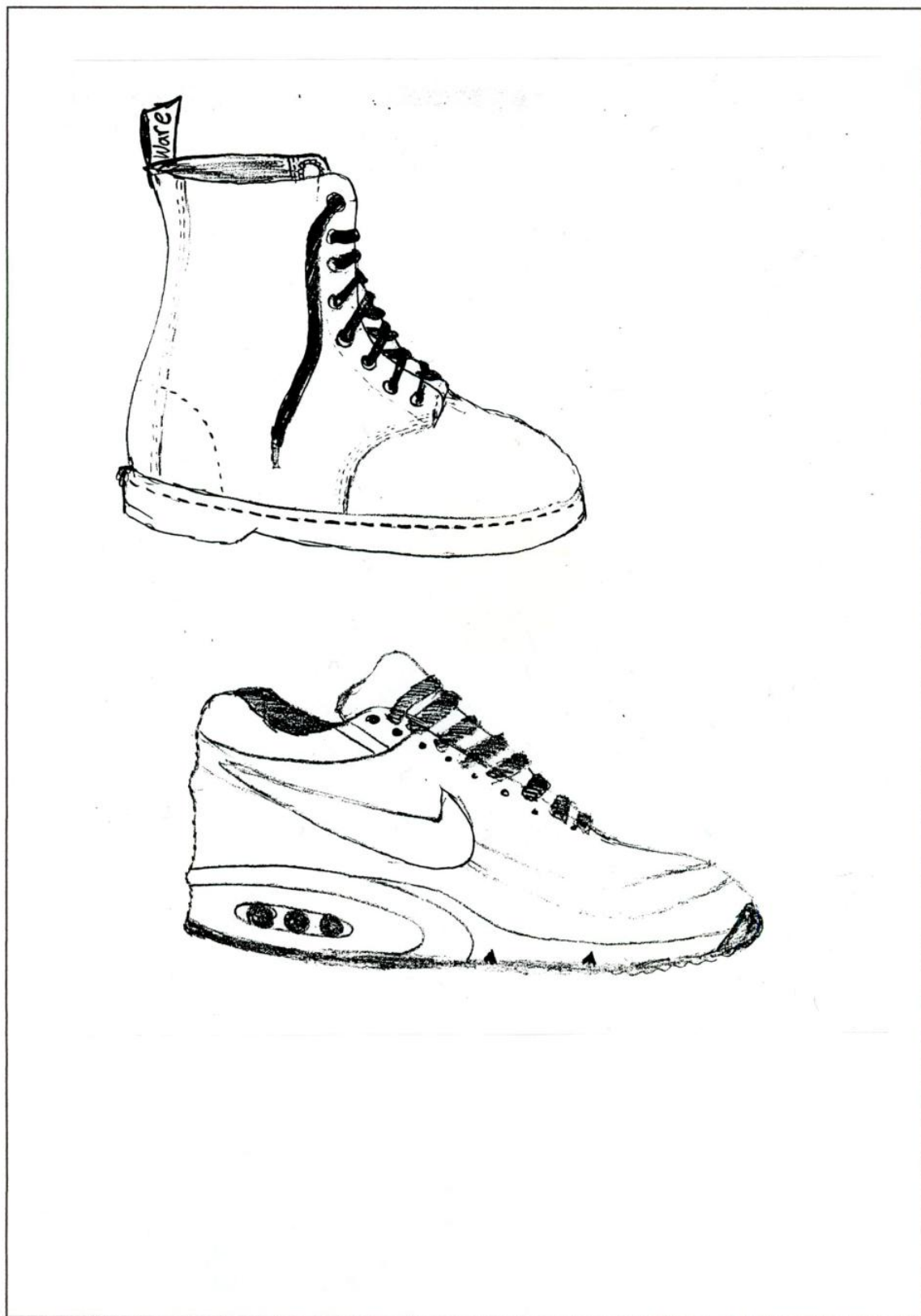
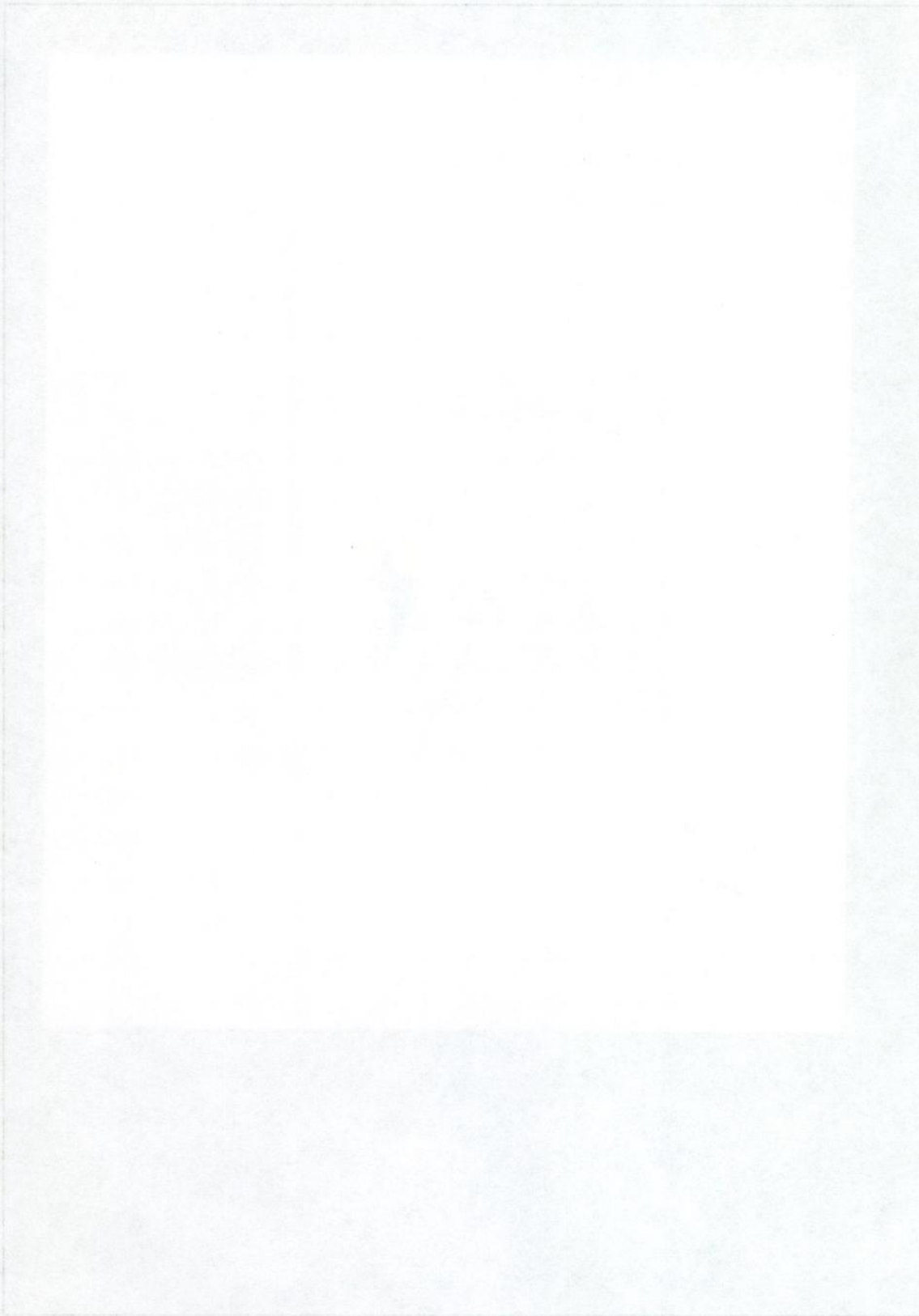


Figure No. 7 (b)

Student Work : Illustration: Graphic Design



Student Work: Illustration: Graphic Design
Figure No. 7 (b)

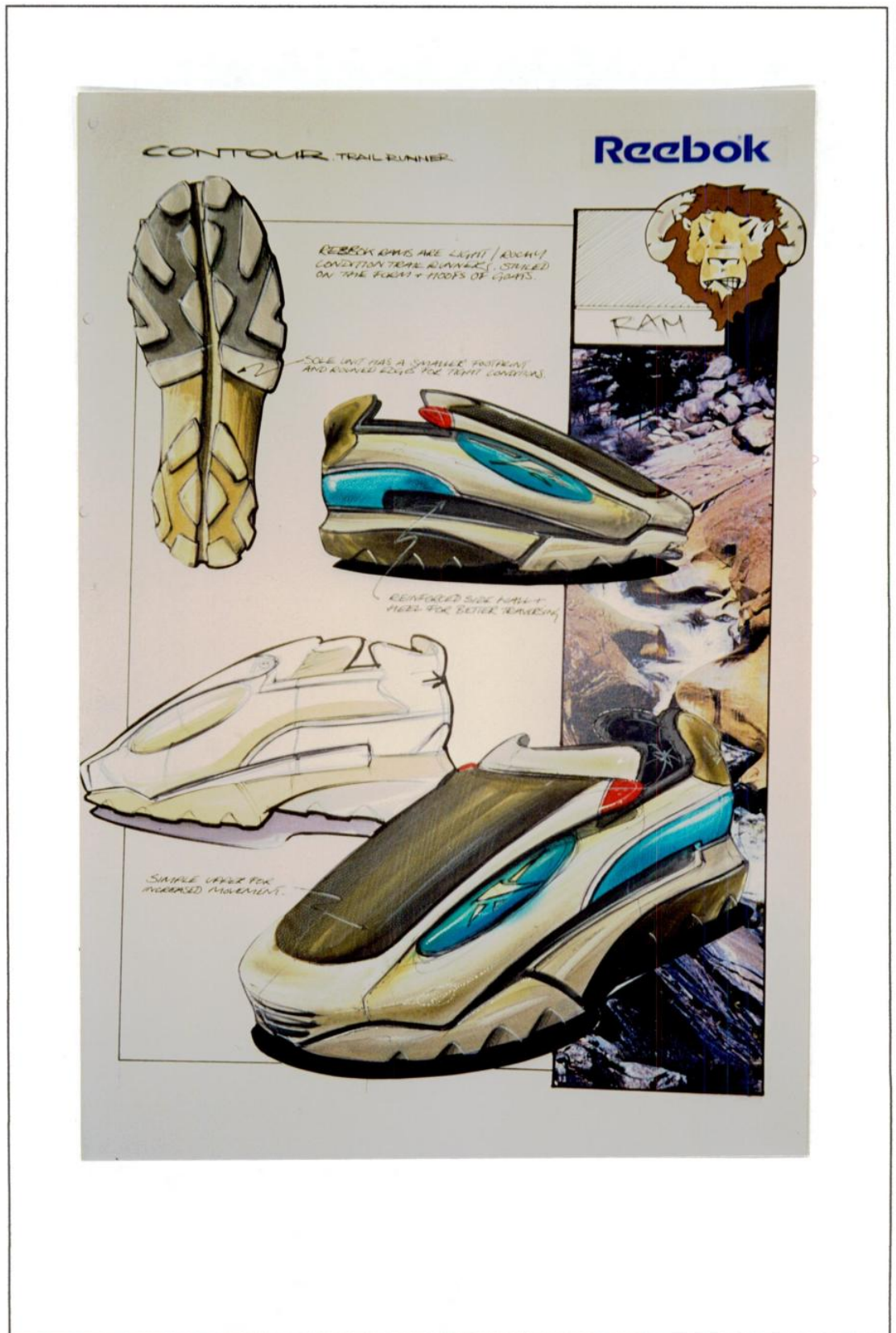


Figure No.8

Support Study: Demonstrate Illustrative Techniques



Support Study: Demonstrate Illustrative Techniques
Figure No. 8

DEFINING GRAPHIC DESIGN

Written Document used for classroom application and research

The dictionary definition of “graphic” is “giving a clear and effective picture”. Graphics is defined as “the artwork accompanying written matter”. This in itself explains one of the principle functions of graphic design. The word ‘clear’ determines the visual clarity in combining text and image. The word ‘effective’ involves the use of colour, shape, balance and the evolution of the picture. Other meanings of the word ‘graphic’ are as follows: descriptive, expressive, vivid, telling, illustrative, comprehensible, striking, lively, distinct, precise, explicit, forcible and energetic. All of these words can critically evaluate good graphic design in relation to its functions. The three main aims of graphic design are to identify, inform and persuade – Identify the product, inform the viewer about the product and persuade the viewer by provoking an interest through shape, colour, image and text. Graphic design is an important form of communication, giving information that is necessary such as signage etc. ✓

Today's Culture

In today's culture, graphic design is increasingly moving towards shock tactics and ways to provoke an interest rather than convey straightforward information. It fights for our attention in this fast moving, high tech era. Our society is having to adjust to these changes. It draws us to speculate and think about what we see. Its visual signals shoot straight to our emotions, as we respond and react to this constantly changing art discipline of graphic design. This view is supported by Malcolm Grear who states that

... as with music graphic design can set a mood, generate tension, surprise or calm; it can startle or seduce. But within all of these artistic and emotional states is the fact that graphic design is about conveying information.²⁹ ✓

The method of graphics is changing all the time but the functions remain the same.

The following definition of graphic design is used in this article: "Graphic design is the process of creating visual communication through the use of text and images. It involves the selection and arrangement of type, color, and other visual elements to convey a message or idea. Graphic design is a creative process that requires a deep understanding of the principles of design and the ability to communicate effectively through visual means." (Gardner, 1991, p. 10)

Graphic Design

Graphic design is a creative process that involves the selection and arrangement of visual elements to convey a message or idea. It is a discipline that combines art and design to create visual communication. Graphic design is used in a wide variety of contexts, including advertising, branding, and user interface design. The process of graphic design typically involves several steps, including research, conceptualization, and execution. The final result is a visual composition that effectively communicates the intended message.

Graphic design is a creative process that involves the selection and arrangement of visual elements to convey a message or idea.

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Graphic Design Versus Art

Graphic design is not a private and independent art discipline like music, painting and sculpture where freedom of expression is nurtured and admired. The limitations of a brief and the needs of a client or the image of a company requires a different kind of discipline. Design and designing are important human skills because design is everywhere. It influences us on the streets, on the train, in newspapers and magazines, on the television and on billboards and much more. We cannot escape it as it is a vessel for communication. The public have a high tolerance rate for visual imagery which proves we are visual people, motivated by visual stimuli. Graphic design has the advantage of being everywhere. Art is private and does not have such a varied audience. Design is a problem solving activity. It is hard work. It meets a need and solves a problem. In order for us to understand design, we need to know how to look at it and examine and gain an understanding for our own personal reactions to design works. This is acquired through studying contemporary graphic design and breaking down the work into its separate elements.

In this way we are learning about our culture and how graphic design is constantly evolving with time and new technology. The processes and techniques involved in the evolution of a piece and the choice and manipulation of typeface speak to us about the function of that piece. Design brings together information, knowledge, skills and sensitivities within a working context. Although there are limitations, there is still scope for creative imagination, only within a set of constraints.

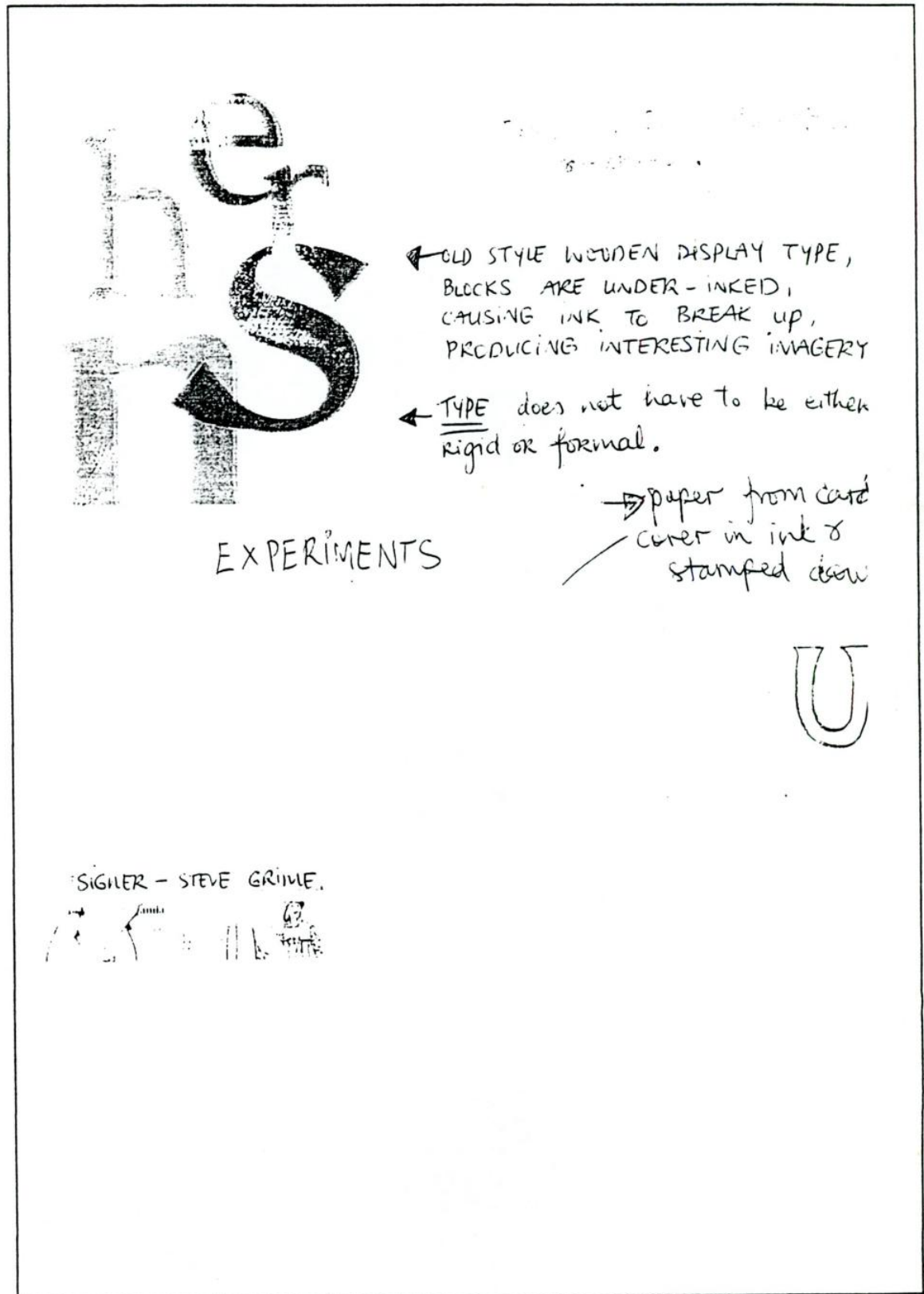


Figure No.10

Visual Aid: Block Printed Typeface

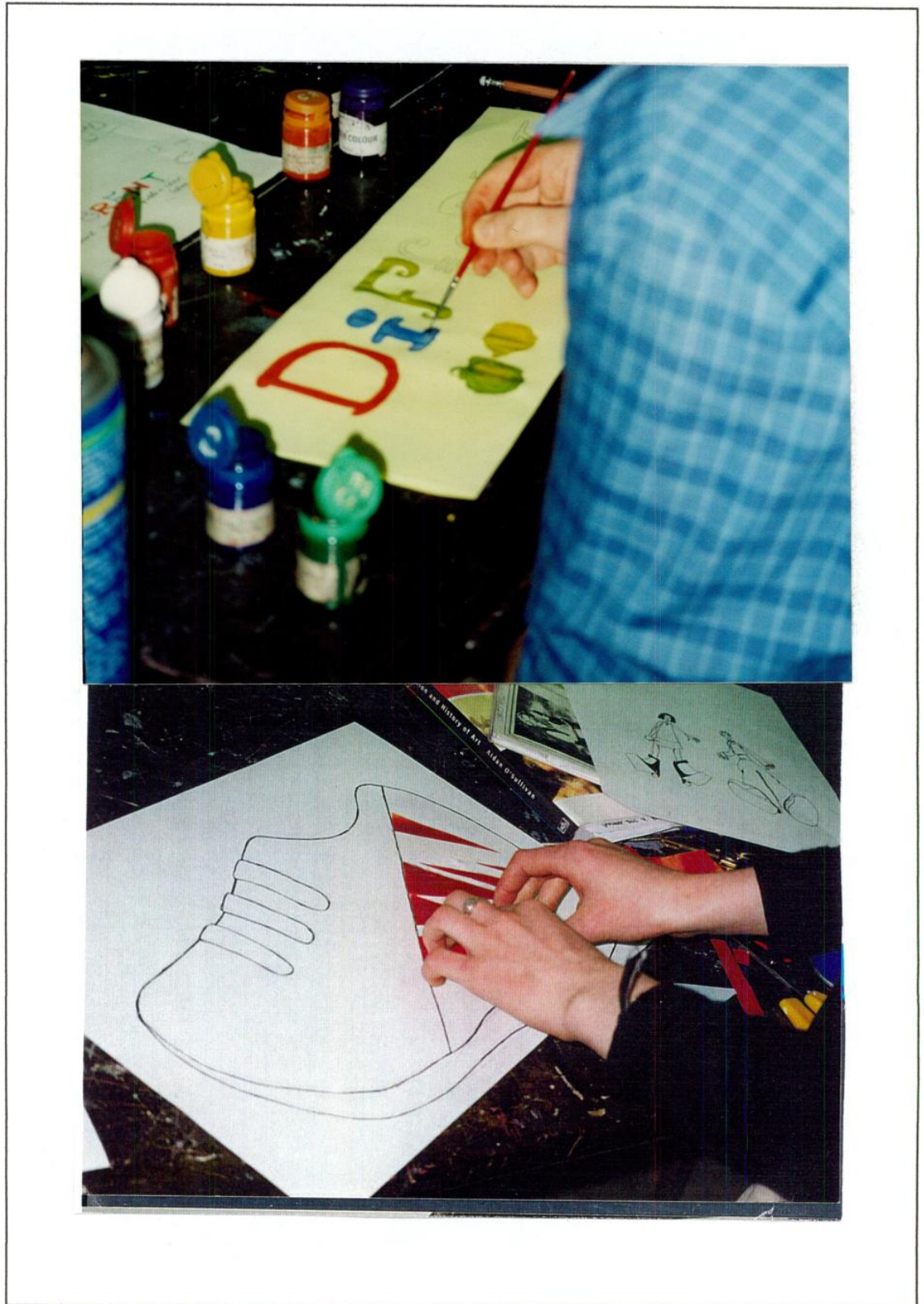


Figure No.11

Collage/ Paint Effects: Student Work

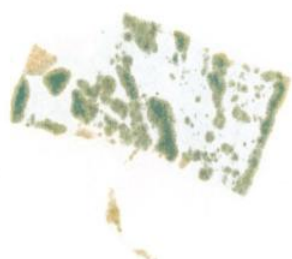


Figure No 11
Collage/Paint Effects: Student Work



Figure No.12

Finished Student Work: Creative use of Typeface

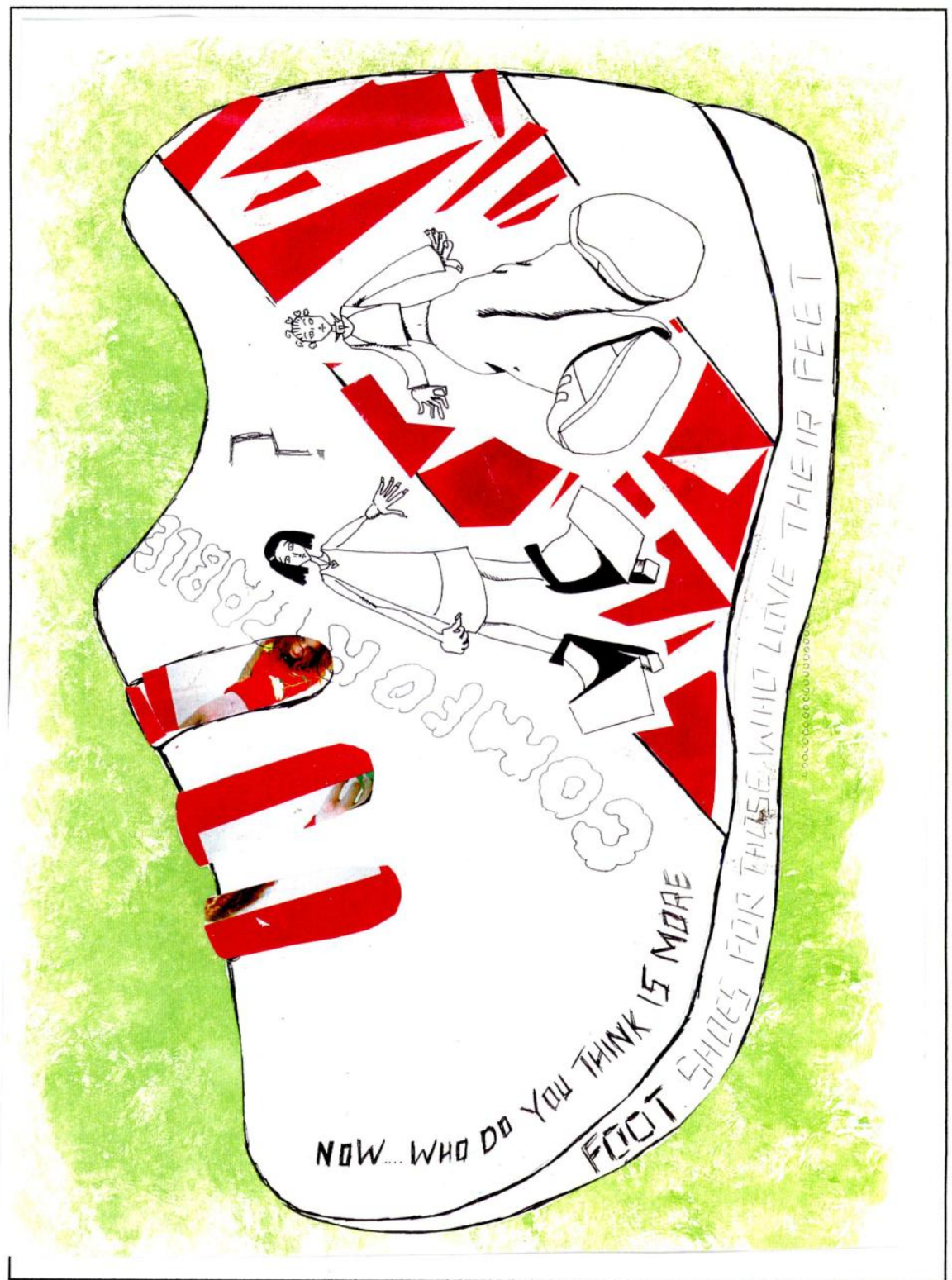


Figure No.13

Finished Student Work: Creative combination of image and type on shoe

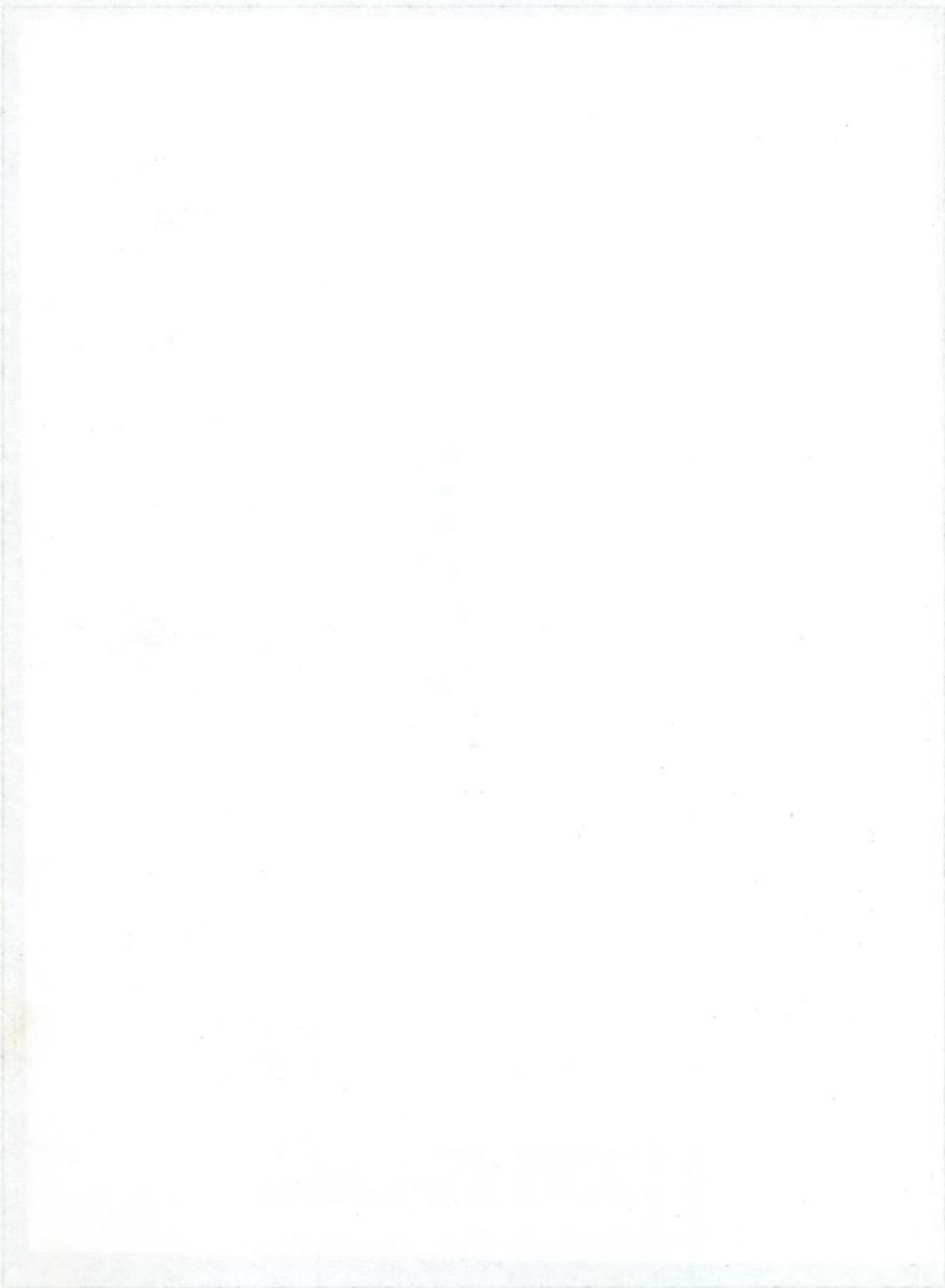


Figure No. 13

Finished Student Work: Creative combination of image and type on shoe

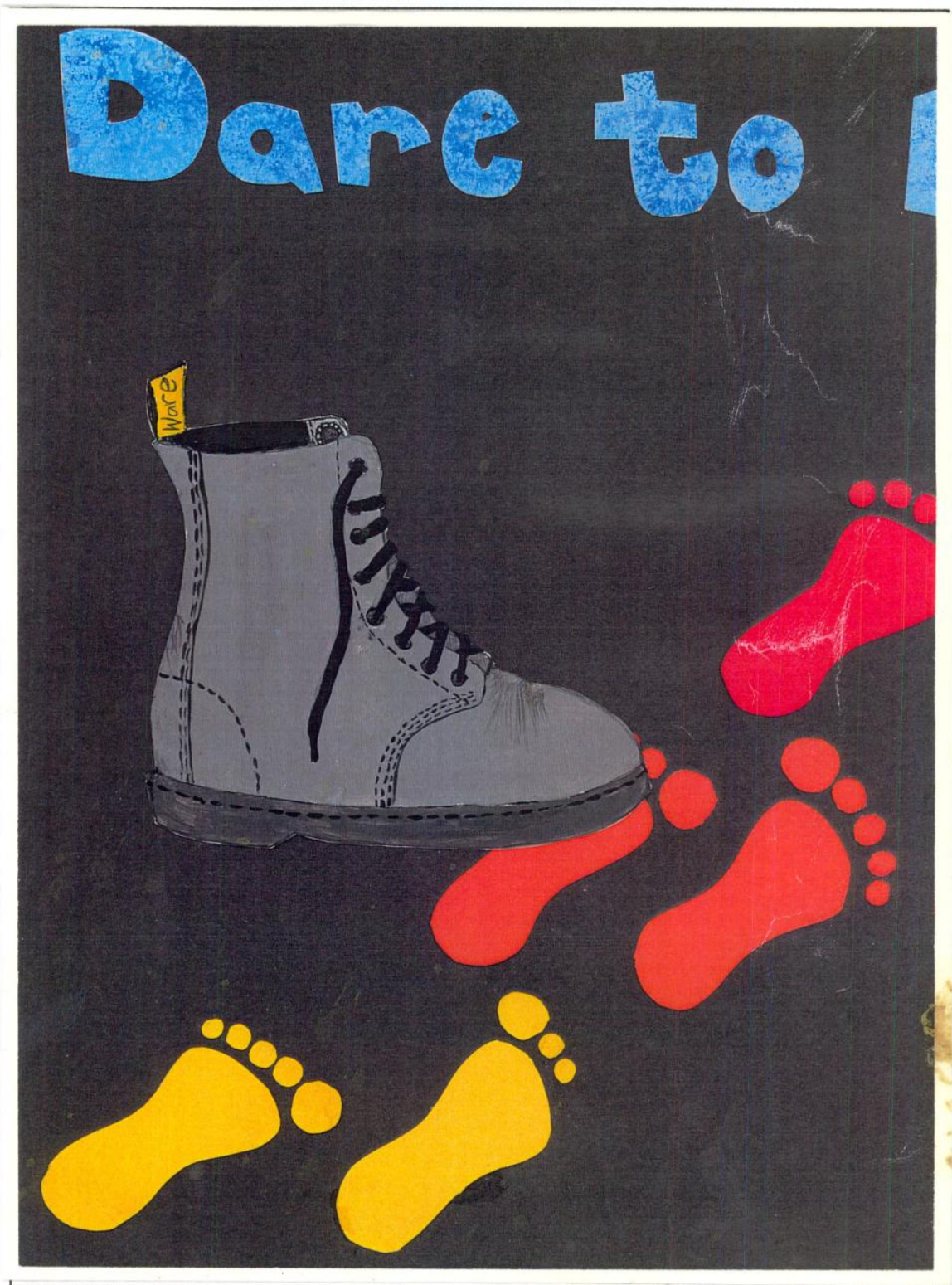


Figure No.14

Work in Progress: "Dare To Be"... a boot and her creative shoe...



Figure No. 14

Work in Progress: "Dance To The Beat" a poet and her creative shoe.

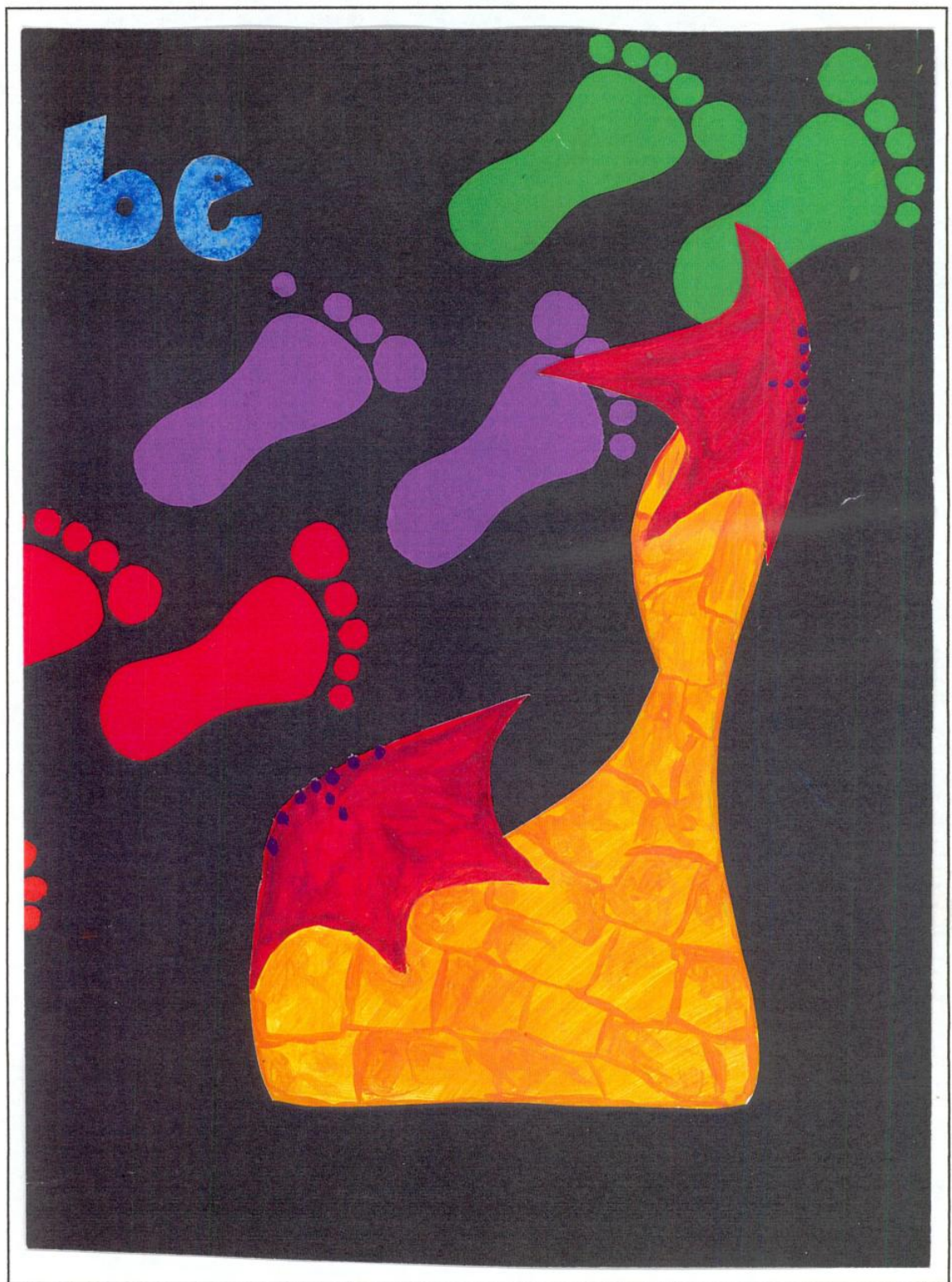


Figure No.14 (a)

Work in Progress: "Dare To Be"... a boot and her creative shoe...

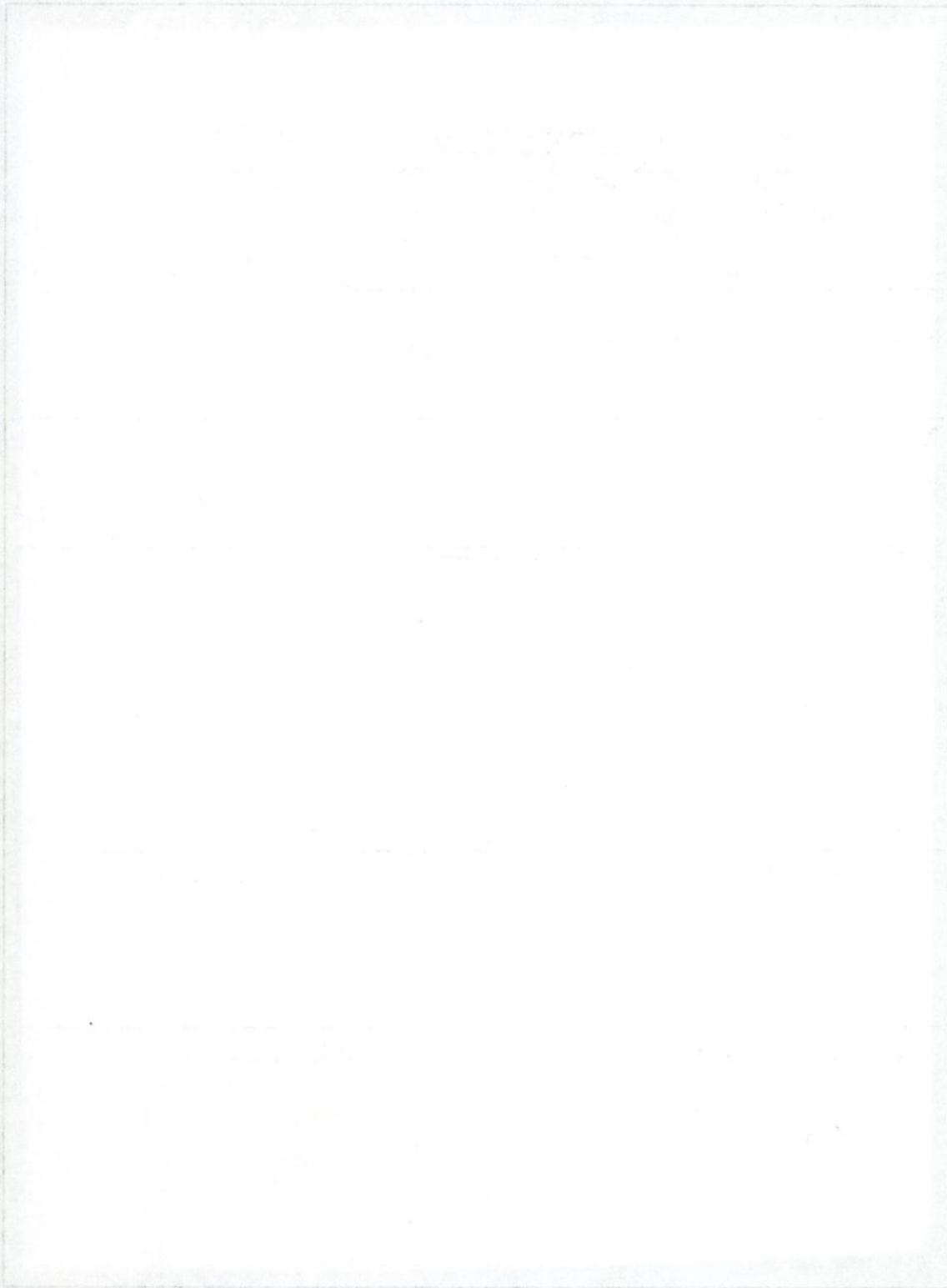


Figure No. 14 (a)

Work in Progress: "Dare To Be... a poet and her creative shoe..."

**QUESTIONNAIRE GIVEN TO STUDENTS
BEFORE GRAPHIC DESIGN PROJECT**
-to find out existing knowledge on graphic designers
and techniques used by professionals.....

Q. Where can you study to become a Graphic Designer?

Q. What do Graphic Designers do?

Q. Is Graphic Design ART? Give reasons for your opinion:

Q. What materials would you pick up, when starting a graphic design project?

Q. Why would the above materials be suitable for a graphic design project?

Alex

**QUESTIONNAIRE GIVEN TO PUPILS
AFTER GRAPHIC DESIGN PROJECT**
-to find out if the learning objectives were
reached during this scheme of work

Were you aware of the creative possibilities in Graphic Design before?

Who is your favourite Graphic Designer?

Why do you like his/ her work? Explain in relation to colour, image etc.

What techniques did this designer use? In what way did you learn from those processes?

In what ways have you learned how to be creative, when approaching a graphic design project? How could you use the processes you have learned, for future designs?

What have you learned about graphic design that you did not know before?

Are you pleased with your achievements on this art project?
What have you learned about your creative ability, that you were not aware of previously?

OF THE NATIONAL ACADEMY OF SCIENCES
OF THE UNITED STATES OF AMERICA
AND OF THE NATIONAL ACADEMY OF ARTS
AND LETTERS

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CONCLUSION:

The problem was to design and execute a poster to invite teachers and pupils to an exhibition of their 3D Shoes. The poster was to attract attention to itself, and communicate the information as well. The result was creativity and a deep learning of design, particularly with the two projects combined. The pupil's reports at the end of the graphic design scheme prove how much they had learned. Each pupil can speak about a graphic designer's work and name the designer. They were educated about the nature of design, and the field of professional design. They were encouraged to take risks, within a limited space, and they were persuaded that anything was possible. The literature review and research has proven to be very beneficial to the teaching of this scheme. Although it may have seemed like a risk to embark on this area of creativity, it has been a significant motivator behind the work of the pupils. ✓

An underlying factor is that the pupils will approach any graphic design project in the future, differently than before this scheme. This in itself is a bonus to their knowledge and sense of adventure. Design problems generate creative thinking and with the provision of the right environment can lead to more adventurous work in the classroom. The flexibility that has been required for this scheme will be expressed in future projects.

There is no doubt that creative problem solving in design education needs to be emphasised with clarity. Pupils who have low self-esteem can be encouraged about their own solutions and ideas.

The satisfaction of designing and executing a final piece cannot be undervalued. It takes commitment to the task. If there is no sense of engagement, the task would never be complete. ✓

FOOTNOTES

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