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A RATIONALE FOR THE DESIGN PROCESS

IN TEACHING TRANSITION YEAR

ART CRAFT AND DESIGN.

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A RATIONALE FOR THE DESIGN PROCESS IN TEACHING TRANSITION YEAR

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A design approach to teaching is examined whereby students must work through a brief to design a camera and use that camera to photograph a Victorian based costume made from found objects. The project took place over 24.5 teaching hours, and was conducted within Transition Year.

The aims of the project included fulfilment of the brief through a systematic design process, exploration of all the Art Elements, encountering a range of materials, techniques and terminologies.

The results of the project are presented in the form of comment primarily. Samples of students work is presented. Evaluation and assessment was ongoing.

TABLE OF CONTENTS

LIST OF FIGURES iv

LIST OF ILLUSTRATIONS v

ACKNOWLEDGEMENTS vi

INTRODUCTION vii

CHAPTER

I DESIGN AND DESIGN EDUCATION. A REVIEW OF THE LITERATURE 1

II WHAT IS TRANSITION YEAR 15

III DESIGN METHODOLOGY IN THE CLASSROOM 27

IV CONCLUSIONS AND RECOMMENDATIONS 56

APPENDICES 60

SELECTED BIBLIOGRAPHY 61

LIST OF FIGURES

1 REPORT 35

2 REPORT 36

3 SCHEME OF WORK 51

4 SCHEME OF WORK 52

5 QUESTIONNAIRE EXAMPLE 53

6 QUESTIONNAIRE EXAMPLE 54

LIST OF ILLUSTRATIONS

1. STUDENTS BEING SHOWN CARDBOARD PINHOLE CAMERA 32

2. STUDENT LOOKING THROUGH PLATE CAMERA (VISUAL AID) 33

3. VARIETY OF STUDENT DESIGN CAMERAS 37

4. STUDENT WITH PERSONAL CAMERA DESIGN 38

5. STUDENTS COSTUME DESIGN ON PAPER 40

6. STUDENT WORKING ON COSTUME DESIGN 41

7. STUDENTS COSTUME DESIGN 42

8. STUDENTS DESIGNING COSTUME 43

9. STUDENTS PHOTOGRAPHS WITH SLR 45

10. STUDENTS PHOTOGRAPH WITH THEIR OWN CAMERA DESIGN 46

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INTRODUCTION

Design awareness and design ability are intrinsic abilities in all human beings and can be developed through education (1) The benefits of a design led education go far beyond the Art Craft and Design department. Learning through a pupil centred design process will help them to deal with life choices in their everyday existence.

A design process led project is dealt with in this study in relation to Transition Year students. Throughout students are developing a range of skills, dealing with new information which calls upon the students psycomotor and cognitive skills. I will try to show that design education is essentially good education and can be used effectively in Transition Year. (2)

The project time in this study is 24.5 hours or 2.72% of the total hours the students in Transition Year (Transition Year is based on 900 teaching hours). This fact combined with not starting this project at the beginning of their Academic Year meant that a comprehensive study of the cross curricular nature of design in transition year was not possible, although it is referred to at certain points. This is an area I would hope to study in more detail at a later stage as it holds great potential.

FOOTNOTES INTRODUCTION

1 Ken Baynes, "Defining a Design Dimension of the Curriculum", in David Thistlewood ed; Issues in Design Education, (London: Longman, 1990) p. 55 - 60

2 Pat Sweeney, "Art Craft, Design in the Post Primary School" in Design Education for Schools Symposium, p. 27.

CHAPTER I

WHAT IS DESIGN

To design is a human activity. All design decisions relate to the problem solving process, this is the basic process of identifying a problem or a need then testing a proposed solution.(1) Daily we make design solutions to problems; the way we arrange utensils in the kitchen, clothes in drawers so that they can be retrieved easily. All manmade things have been designed.

The course of action taken in making a design is called the design process. It is this process which must be analyzed to determine how design takes place.

The design process can be divided up into a series of separate stages. They involve the identification of a need; the analysis of its qualities, researching factors that relate to them, the evaluation of various solutions and taking decisions about planning, then making testing and evaluating the outcomes.(2) The design process according to Eggleston.(3) is one which can be used to "describe analyse and hopefully to improve every aspect of human activities that lead to end products and services".

To state the characteristics of a particular problem, to analyze the problem, and to come to a solution which is beneficial to an individual or to society requires

a number of high order cognitive skills. These skills include visual, mathematical and logical analyses, decision making application evaluation and so on.

Barnes has divided the design process up into five stages, idea generation, information gathering, evaluating, modifying and making. These stages are interchangeable, and each stage is not meant to be given the same length and amount of time to complete. Jones (4) has commented on his view to what a designer is

> "very much that of a human computer a person who operates only on the information that is fed to him and who follows through a planned sequence of analytical synthetic and evaluative steps and cycles until he recognizes the best of all solution".

This is, of course, valid but it seems to forget one vital component in the design process namely that of creativity. A great deal of time of course is given over to research by trial and error but design can at times seem to be spontaneous, a spark of genius".(5) Creativity has been defined as "the ability to generate fluent and novel ways of tackling problems and of organizing material".(6)

The design process and the creative process have many similarities after all they both are forms of thinking and both involve the problem solving process.

The thinking process itself has been divided up into two streams divergent and

convergent thinking. Convergent thinking has been described as when individuals are said to converge upon a single acceptable answer to a problem as opposed to divergent thinking when individuals throw up as many solutions as they can. (7) Since the 1960's J.P. Guildford's work has done much to associate divergent thinking with the creative act. It is apparent that the designer will often have to explore a range of possible ways of coming to a solution, before coming to one that works best within his framework.

The creative process has been divided up into various stages, a four stage model by Perkins included, preparation, incubation, inspiration and verification. An alternative four step model involved preparation generation evaluation and implementation is discussed by Ornstein and Carstensen. This model omits incubation which as I shall discuss is an important stage. If we put the two models together, we can contrast these with Barnes five step model of design process. (8)

(Barnes)

Design Process	**Creative Process**
1. Idea Generation	**1.** Preparation
2. Information Gathering	**2.** Incubation
3. Evaluation	**3.** Inspiration / Generation
4. Modification	**4.** Evaluation / Verification
5. Making	**5.** Implementation

During the preparation stage the creative person identifies the problem or theme and explores various ideas associated with it. This process is mirrored by the idea generation stage by the designer. In this stage the designer considers various plans of action generated by the problem.

At the second level the divergent thinker puts the problem aside, and a period of incubation follows, this can last for a period of minutes or hours or even years. We can only guess at what happens during this stage. If the concept of the unconscious, put forward by psychodynamic psychologists is correct, then the processes of thought continue at this unconscious level, though without employing the kind of logic which characterizes conscious thought. This illogicality perhaps assists lateral thinking (9) and divergent thinking, trying new permutations until one comes up in the conscious mind in the form of inspiration / generation.

The design process at the second stage is gathering information of various and different forms our mind making connections between the different facts we gather, until in turn the third stage is reached where we evaluate the possible solutions which information gathering has led us to. The creative model on its fourth stage assesses or appraises the suitability of its solution, and if successful after whatever changes are necessary implements them. The Designer makes whatever modifications are necessary at stage four and once again actually makes the agreed design or solution in level five.

So we can see direct connections can be made between both processes, and therefore between divergent thinking and the design process.

The term cognitive thinking or cognition includes all processes of perception, analysis, understanding and creativity and is vital in design process.(10)

Guildford (11) has made the point that divergent thinking tends to be neglected in schools. In one of his early psychological experiments two groups of children were examined one group had high IQ scores and low divergent or creative scores, the other group had the opposite, low IQ scores and high divergent thinking scores. Their overall achievement scores were compared and convergent thinkers tended to score better in the Maths and Science subjects while the divergent thinkers tended to score better in the Art and Craft related areas. Design education is not solely existent in the Art Room, Woodwork Room or Metalwork Room it can exist within the Curriculum as a whole. The design process is a type of thinking process and is therefore not subject exclusive.

Bernard Aylward (12) has stated that "the ultimate aim of all education should be to help one achieve a full and satisfying life".

He believes that Design Education can help one to move closer to this goal. This is a complex society, and in order not to be at the mercies of blind pressure a knowledge of the way decisions are made is vital. The making of these decisions is the process called designing. This is the justification for the

inclusion of design in the general education of all pupils.

The role of the practical areas in schools with regard to design education is that personal involvement in designing and the need to produce something that actually satisfies a stated need brings home to the pupil the reality of problems involved.

Design Education is not about telling students what is "tasteful" or buying wisely. It is concerned with developing a critical understanding of human needs, evaluation of when these needs have not been met, and opinions of what needs to be reassessed. There is of course no such thing as good or bad design but rather appropriate or inappropriate. Design is also the process of decision making (13).

Design Education will confront the student with a decision making experience, education cannot simply be the acquisition of facts. School was based upon the notion that children were filled up with "knowledge" values and skills that would stand them in good stead for their future, the purpose of this was to make them as much as possible like the adult generation that preceded them. A benchmark of success in school is to be able to retain information (14). Information Technology and computerized storage of data in for example CD ROM has made the accumulation of facts much less relevant. The human memory is, as John Eggleston suggests, of much less importance. Education should be dynamic responding to the changing needs of young people. Green believes there is a parallel between the teacher and the designer. The teacher,

like the designer, needs to establish the needs of the consumer. Design is not just the visual part of the production process. (15) The design education unit of the Royal College of Art believes the design process is best seen as a dimension of the curriculum. The question then is what is to be taught?

Philip Roberts (16) sees a problem implicit in this question. The acquisition of knowledge leads to the consideration of "process" and "product" especially in terms of epistemology. Two different types of response may be considered. Knowledge may be seen as a "thing" metaphor - as products, the teacher has a particular view as to end product or route taken to that end product. Now contrast this with the idea of art and design as process: exploring, discovering, each pupil creating a personal route to (presently unknown) personal or (presently unknown to the pupil) public knowledge. The "product" response rests on ready established knowledge. (The teacher might say "document the planning and making...." if this has to be done in a particular way it rests on already established knowledge. The route to such knowledge is a route to be followed and there is a necessary joining or interaction with physical man made objects.

The process response looks forward into the unknown (illustrated with questions from the pupil such as "If I do this... might I find that". The route to knowledge is to be created or found by the "knower to be" : the creator of the to-be-created knowledge.

From a language point of view the first sees knowledge as a thing metaphor

with process secondary. The other puts the processes of learning and knowing superior to their product: that is knowledge as seen in a product as secondary. The two views of process and product begin to merge when process begins to shape product. Our knowledge is then seen as a consequence of our activities of finding or of creating. This is the start of relating educational experience through Art and Design actively on the curriculum to a theory of knowledge.

The process of design is concerned with the efficient examining of a given problem in a given situation, with researching (how and when) compiling necessary information and recording the process, in analysing that information and selecting appropriate solutions. Students must analyse and evaluate their results and be able to communicate their results to others both visually and in notes (17).

David Thistlewood (18) holds a strong view against what he describes as "a default model, a fundamentally flawed model of design education which is practised on the British Isles and in most of the western world, that of a utilitarian model of design education. This method is more concerned with the making and producing, than it is with designing things. It's methods of assessment and evaluation favours production and especially emphasized finished presentation. Children are expected to incorporate the responses of a taste conscious public, and wrongly try to identify needs and allow marketing to condition their response in the form of a finished design. In consequence, it is a method of design which is exploitative of needs and materials, taking possession of technology. The principal purpose, therefore, is a belief system

that favours usefulness ie utilitarianism. This is a system that Thistlewood fears will become the system of use in Ireland. A system of design which favours generalized goods : not tailor-made or adapted for specific needs, but necessitated by industry and which produces products and goods which have a given life span and then becomes obsolete - a throw away culture. Green reiterates the point when he says that problem solving is central to any creative critical education of vision. It is the process that must be emphasized. Students need to build personal judgements rather than join a litany of people under the pressures of fashion, mass media and advertising (19)

The Design Education for Schools Symposium held in NCAD by the Faculty of Education (20) believes that design education has not yet been given due recognition in the Irish Educational System. The point was made that Design Education is good education in essence (21). Design has in the past been regarded as a form of decoration. "Design" is more concerned with making things than with designing things (22).

Thistlewood during the Symposium further developed the faults he believes inherent in the utilitarian model of design education. He reiterated his concern with the notion that design is more concerned with making things than designing things. One of the consequences of this is that assessment and evaluation favour achievement through a series of given stages, from selection of raw materials to presentation of finished object. Students must demonstrate that they can address clay (for example) and enhance it with "added value" by changing from a crude form to a special artifact. Added value is quasi

industrial, that is their design must have commercial / industrial value even from a visual point of view. A prime purpose of design within the curriculum is to use technology / knowledge which is theoretical and turns it to practical ends. He goes on to say that the great deception with this approach is the presumption that future students may wish to do this for a living and therefore at this form of design education is "aimed at educating their consuming much more than their designing".

The alternative model to the utilitarian has been the liberal model. This model sees a society whereby everyone indulges in craft activity at basic level and largely for creative satisfaction. This is of course unrealistic. The notion that everyone lives by producing studio craftwork is no more tenable than the notion of everyone designing consumer products.

Thistlewood proposes an alternative model that would have a superior socio-economic basis to the utilitarian model that is the Cultural Model.

Two vital fundamental points are missing from the utilitarian model. The first is adding value to design by letting it have some cultural significance, not the caricatured tourist type of culture, but the culture of the student, materials and needs that refer to his / her society. An education in a variety of local cultures, would result in a heightened consciousness of the culture at large. It would engender a socio economic cohesion rather than mutual exploitation. So the student is not working / designing for a perceived market but for a culturally based society, it would promote a strong sense of regional legacy.

Surely this should be the nature of design in the general education of the student. In the utilitarian model, the pupil gains knowledge of the world through many different subjects and then uses that knowledge when designing. Design teachers in whatever faculty should propose the opposite, that is to gain knowledge of the world through design principles which would inform their learning in other disciplines.

Problem solving is crucial to art and design activities and to learning in general, but fundamentally it is part of every day life. Before locating the learning process within problem solving we must assume there is a basic difference between education and training. We can only learn through experience. The ancient maxim "I was told and I forgot, I saw and I remembered, I did and I understood. Education comes through experience, this is contained within the idea of problem solving.(23)

At the onset I have stated that design is the process of problem solving, this is a wide definition and purposely so, is there a way to link this concept of design when it covers so many avenues, as Papanack has said

> "Design is composing an epic poem executing a mural, painting a masterpiece writing a concert; design is also cleaning and reorganizing a desk drawer, pulling an impacted tooth, baking an apple pie, and educating a child".(24)

The link is order - design is the conscious effort to impose meaningful order, within our world.(25)

FOOTNOTE CHAPTER 1

1. John Mattick "Is it Designing? in The Best of Craft Design and Technology, ed. John Eggleston (Trenthan, 1988) p.62.
2. Mattick "Is it Designing? p.64.
3. John Eggleston. Developments in Design Education. (London Open Books '76), p.17.
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Education, ed. David Thistlewood. (London Longman NSEDP, 1990), p.39.

14. Eggleston - Development in Design Education. p.5.

15. Design Council. Design Education at Secondary Level. (London Design Council, 1987), p.10.

16. Philip Roberts. "What is Design?" in Issues in Design Education, ed. David Thistlewood. (London Longman NSEDP 1990), p.30.

17. Ibid, p.32.

18. Design Council. Design Education at Secondary Level, p.6.

19. Peter Green. Design Education Problem Solving and Visual Experience. (London Anchor Press, 1974) p.7.

20. Professor Iseult McCarthy. Design Education for Schools Symposium.. (Ireland NCAD Faculty of Education 1995), p.5.

21. Pat Sweeney. "Art Craft, Design in the Post Primary School" in Design Education for Schools Symposium, p.27.

22. David Thistlewood. "Design Education a Cultural Model" in Design Education for Schools Symposium, p.8.

23. Green - Design Education, p.12.

24. Victor Papanek. Design for the Real World (London, Thames & Hudson 2nd revised edition 1985) p. 9.

25. Paul Hogan. "Defining Design" in Design Education for Schools Symposium, p.36.

CHAPTER II

WHAT IS A TRANSITION YEAR?

A Transition Year occurs as the first of a three-year senior cycle, immediately after the Junior Certificate has been completed. It is not part of the Leaving Certificate programme, and should not be seen as an opportunity for spending three years, rather than two, studying Leaving Certificate material.(l)

The Transition Year is a response to the need to supply some of the educational elements missing in traditional classroom-type schooling, which can be described as a highly structured, examled, academic environment which does not provide life skills unless by accident. The need for the development of the person is answered by a Transition Year, which aims to promote confidence, social awareness, maturity, emotional stability and stimulates a growth of personality and the ability to act from one's own initiative.(2)

It manages to do this firstly by being learning-led rather than examination-led, which has meant introducing different kinds of assessment, in order to monitor progress and identify pupils' weaknesses and problems. Methods of assessment will be discussed and evaluated later.

Secondly by emphasizing personal responsibility through self directed learning with particular emphasis on team teaching and interdisciplinary connections. Pupils are offered challenges and stimulated to develop. (3)

Thirdly, through innovative course content, such as the promotion of general and technical as well as academic skills, and by taking part in work experience or simulation, pupils are given the means to develop These are just some of the characteristics which I consider central to the concept of the Transition Year Programme. It is a generally held view that Irish society is currently in a state of profound transition between older and newer social moulds and value systems. A question has been raised as to whether we are satisfied that the cultural content and learning processes of the traditional curriculum are the most appropriate for the development and preparation of our young people for life in the 21st century. In the following pages I will attempt to evaluate whether the characteristics of the Transition Year listed above can provide a framework of sufficient flexibility and sensitivity to respond to contemporary cultural and social changes.

The value of assessment:

In order to ensure the success of a student's transition year, it is necessary to monitor progress and identify, early on, any weaknesses and problems in either the student or the curriculum. Without some form of assessment, both achievements and problems would go largely unnoticed.

As for diagnosis, there are also other well-recognised purposes and obligations attached to assessment. It commonly provides motivation for the students, giving energy to the work they must carry out, and providing the incentive to achieve.

As long as goals and targets are not pitched so high that they discourage rather than encourage the student, assessment can give a visual reward. This helps to build up a students own motivation, as they find success rewarding they build up expectations which means they have to work ever more purposefully to fulfil. (4) The long-term advantage of education will only become apparent to students as the years go by.

Assessment which describes a student's strengths and ap~itudes can be used to determine the most suitable courses and subjects a student should follow and may even help the student in choosing a career. Likewise, it can help teachers in selecting candidates for a class or course.

In order for assessment to have these results, it must be honest and fair, be flexible and appropriate to the task and, above all, be student-centred. Unless it is gentle, though judgmental, and unless it provides fast feedback, then, no matter how easy and practical to use, it will not build confidence in the student and will be ultimately counter-productive.

Methods of assessment:

Assessment is broken down into three main types. Criterion referenced

assessment depends on an absolute standard of quality with the purpose of providing feed-back on the degree of competence attained; for example, a rigid marking system which relates to agreed criteria. The correct answer is predetermined, irrespective of who the student is; therefore, the student is either right or wrong. The marking scheme is worked out at the time of setting the test.

In evaluating this type of assessment, the question must be asked: does it identify what the student does or does not know? The answer is: only partly. The disadvantages of written tests of this sort are well documented as being a test of one's skill at remembering, or one's level of nervousness, as well as what one knows - of what was asked. It is impossible to test everything in this way. Test whether oral or written, are notoriously selective, and so, in their own way, are an incomplete and, therefore, an inaccurate type of assessment. If used, it should be in conjunction with other methods, such as an exhibition of work done or a diary/log-book of achievements. In this way, a holistic view of the students level of competence can be gained, and students who cannot perform well at these types of tests will benefit from a more overall assessment. This is particularly true since:

> "Formal exams are an instrument of social control. Success in exams is linked to social class and educational background; thus, exams both allow and legitimate the success of children from middle-class backgrounds."

Public examinations are particularly inflexible since, occurring at the end of a

course of two or three years, they conceal diverse strengths and weaknesses, and detract from important aspects of the syllabus. They discourage cooperation since there is no feed-back - scripts and marking schemes are not afterwards available, only the result. Aside from the mark or grade, the whole process is veiled in secrecy. This type of assessment is referred to as Norm-referenced assessment, where the standard of the student is compared to a standard set at national level, or indeed at class level - a normal standard.

This type of assessment provides its own dangers. It will only be effective for those students who fall into the range of what is regarded as the normal standard. Outside this, are those above, who may be encouraged to slacken, and might not in the end do as well as they might otherwise; and those below, who may despair of ever achieving, may also slacken, but will certainly be reinforced in their low self-opinion.

While there are some advantages, in that questions can be structured to test students in different ways, there are also disadvantages. Questions that provide a supporting text avoid heavy reliance on recall, and can test abilities like synthesis, evaluation, creativity and problem-solving, as well as being more consistently marked than open-ended questions. On the other hand, short-answer questions provide a greater opportunity for guessing and can only test specific skills or knowledge. While essay-type questions are a suitable vehicle for students with higher ability to demonstrate communication skills, powers of analysis and expression, and discrimination in choice of evidence, they are time-consuming and cover only a relatively small area of the course. Also,

marking is subjective - accuracy of scoring is difficult to achieve, and students with a facility for language are at an advantage.

The third kind of assessment is self-referenced assessment (sometimes called Ipsative assessment). This is where a pupil compares (or is helped to compare) his/her performance with his/her previous performance, for example, Christmas and Easter results. This kind of assessment best fulfils the overall aims of the transition year which were mentioned earlier.

Pupil participation in the assessment procedure should be facilitated. A form of assessment which involves dialogue with tutors and self-rating on various performance indicators should lead to greater self-awareness and increased ability to manage and take responsibility for personal learning and performance. Appraisal should be compiled in the main by teachers/tutors but would include a significant contribution from the pupils.

How best could this personal learning take place, a system which is student based, and learning led rather than examination led. It is through the process of design that a module incorporating by its very nature Ipsative assessment could be used effectively. Aylward has asserted that it is important for students when working within the design process to evaluate their results and communicate their results both visually and in notes. (5)

Personal responsibility in learning

Research has shown that the more that students in schools have a responsibility

for some aspect of their learning environment, the more likely they are to achieve their potential. Students can be encouraged to specify their own tasks, perhaps by allowing them to brainstorm all aspects of the school that they could help to improve and develop themselves. Helping students in Transition Year to come to a greater realisation that school and home work is for them, not for the teacher, is an important part of their maturing.(7)

For personal responsibility in learning to work, each student must be clear about the task he/she has taken on, about the aims of the task. At the start of the year, realistic target-dates should be set for assignments both by individual students and by groups, and there should be regular opportunities to report on progress, in order that problems should be identified when they occur.

This too is an intrinsic part of the design process, as Peter Green states:

> "Teacher and Pupil together must devise ways of analysing and finding out why solutions are appropriate or inappropriate. No problem solving exists unless the criterion for testing is contained in the initial brief".

Group work

There are different ways of learning which can be employed to promote personal responsibility. Paired learning and group learning can be helpful in developing social skills. The student learns that others depend on his/her contribution to the team effort, and groups very quickly bring back into line

any one of their peers who show signs of slacking. Group can be found to be fun and may help to balance the solo-approach of state examinations. The knowledge of shared experience can often encourage students to carry out otherwise daunting tasks.

A project is a set exercise tackled either as an individual task or by a group, and usually involves significant element of work initiated by the student by him or himself. Because it requires the imagination and inventiveness of the student in its development and execution and also an intensity of application to the task in hand a project needs to be carefully chosen in order to sufficiently stimulate the student and encourage enthusiastic participation. It is hoped that the transition year should create opportunity to dispel the notion that learning takes place in compartmentalized units within individual subjects. A project based module could promote interdisciplinary study. [9] A design based project would facilitate a unified perspective. The core curriculum in order to be learning led rather than exam led, a theme could be incorporated which could provide a form for study during the year. Teachers of different subjects could collaborate in the development of a Transition Year Programme.

Gary Granville (10) has stated:

> "It is within Transition Year that designs can perhaps make its clearest curricular mark".

He foresees a central role for design education in the Transition Year

Curriculum, he believes that such a development offers great opportunity from other informed areas, such as N.CAD., Society of Designers in Ireland, the Royal Institute of Architects to name a few at random. In England this cross fertilization of ideas has proved very fruitful. (In St. Edmunds School, Portsmouth, fourth years in consultation with builders and architects designed and built an extension to their school! (10))

The real value of a design brief occurs when we encounter another discipline as a natural part of our problem solving process. When we are problem solving we do not realize we are doing maths, science or art, we are concerned with solving a problem and are not restricted by subject labels. This unselfconscious involvement as Green (11) puts it, is a natural by-product of problem - solving activities.

The nature of design education in fact goes further than involving many subject areas it poses the questions about the role of a single subject enclosed classroom, and of the specialist teacher working in isolation. (12)

Preparation for adult and working life

The transition year should create opportunities to vary the environment and to dispel the notion that learning is something that happens only, or even most effectively, within the classroom. One of the ways of doing this, and of providing an orientation towards the world of work, is to include a component of actual work experience.

A period of work placement, however short, would be a central aspect of preparation for adult and working life and would help develop an understanding of work in terms of its structures and processes. It would promote development and appreciation of the social and other skills required, and provide some of the skills related to finding work, for example, preparation of a curriculum vitae or interview techniques.

Curriculum content is a matter for selection and adaptation by the individual school, having regard to the requirements of pupils, the views of parents and the possibilities offered by employers and other work-providing agencies, as well as the wider interests in the community.

Thistlewoods Cultural Model of Design (See Chapter 1) recognizes the importance of considering the wider community of the student. In fact one of the foremost objectives of a cultural design education is that students recognize the importance of their culture and hopefully would learn to care for it in a mature manner, and empathize with it practically.

The Transition Year - an answer to social change?

Whether good or bad, social change happens. If this reality is not faced, educational needs cannot be met fully. On the face of it, the transition year would appear to answer at least some of those needs. Time will tell whether the transition year, as a mode of education, is the ultimate answer to the changing needs of modern society, or even a successful addition to school life. As long as care is taken to ensure that pupils put as much into their transition year as

into any other school year, it stands a good chance of fulfilling its brief of offering pupils space to learn, mature and develop in the absence of examination pressure.

FOOTNOTES CHAPTER 2

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CHAPTER III

DESIGN METHODOLOGY IN THE CLASSROOM

The school based research took place in a south-Dublin all-girls school. This was the first year a Transition Year programme had taken place in the school. I was teaching the Art Craft and Design section of the courses. The research project in the classroom took place over 24.5 teaching hours. There were twenty eight students in the class.

It is a goal of the transition year programme that learning should be seen to take place across the boundaries of different subject areas, and should involve a significant element of work initiated by the student him or herself. It is for this reason that I chose a project based module to conduct this research. The primary aim of the project is to show that the design process is a valid and important method of teaching Transition Year Art Craft and design.

The aims and objectives of this specific project were as follows:

- To design and make a camera and to use it to photograph themselves in a Victorian-based dress constructed from found objects and traditional art materials.

- To raise self esteem and develop self-confidence.

- To see visual art as a living and relevant element in their lives.

- To impart technical knowledge empowering them to use it independently.

- To develop the students practical skills of construction, methodology research and documentation skills and a practical knowledge of sequential problem-solving.

- To explore the nature of light.

- To explore the elements structure, line, tone, shape, form, colour, paper, texture, composition and positive – negative spaces.

- To relate technology to art and design.

- To understand the principles of a working camera.

- To construct a camera based on these principles.

- To evaluate camera construction design and redesign in order to solve any problems experienced.

- To understand the method of printing and processing.

- To take a photograph using a SLR single lens reflex camera through the theme of portraiture.

- To understand the elements of texture and pattern and their inter-relationship.

- To apply these elements to a Victorian based costume.

Prior to the beginning of the brief I requested information with regard to themselves.

Q1. Had they ever done Art before and why?

Q2. Why did they do Transition Year?

Q3. Do they consider themselves mature?

They answered these questions in a written format. The reason for asking question one was to find out the proportion of those that had not done art before, and to be able to construct a ?scheme which did not as much as possible leave those without prior formal post primary Art education at a disadvantage. When constructing groups the later part of the project make sure those in each group had an even number of those that had and had not done Art. I was also interested to see what conception the students had of Art.

Question two was to give me an overview of the attitude they had to transition year and if they were doing it of their own valition.

Question three was a pointed question to make them consider the attitude I required in class, as I have given them an indication of the participation and attitude I required from them in Class.

13 out of 28 students had not done Art before i.e. 46.42%.

The Project

The project lasted eleven weeks and as such it was possible to divide it up into a number of stages.

Stage 1

Introduction: What is a camera? What does the term image mean? How does an image land in a camera? What do all cameras have in common?

Visual Aids: (i) Diagram (image inversion)

(ii) Plate Camera

(ii) SLR single reflex lens

(iv) Twin lens camera

(v) Cardboard camera

(vi) Safe light

(vii) Enlarger

(viii) Chemicals

(ix) Template and Handouts and Grey scale

(x) Positives and negatives from Cardboard Camera

Examining: Various kinds of cameras

Exploring: Nature of light through plants, heat, suntanning.

Explaining: Analogy of suntan with exposure of photographic paper.

Key Words: Light, latent image, exposure, straight line, aperture, speed.

The students at this point made a camera based/following my design. It was through this method that they could understand the essential elements and principles involved in building their own camera. It also taught them valuable construction techniques.

Construction materials: Cardboard paint scissors, insulating tape, tin foil, pins.

Support Studies: Niepce - First Photograph, Daguere Photograph, Niepce Camera

The students then made an exposure with their pin hole/box cameras and proceeded to try and develop the latent image into a negative (a little under half the class were successful on their first attempt).

Recap on Camera

Evaluate the negatives obtained.

Explore what would happen if there were two holes in camera.

Examine why some cameras did not work.

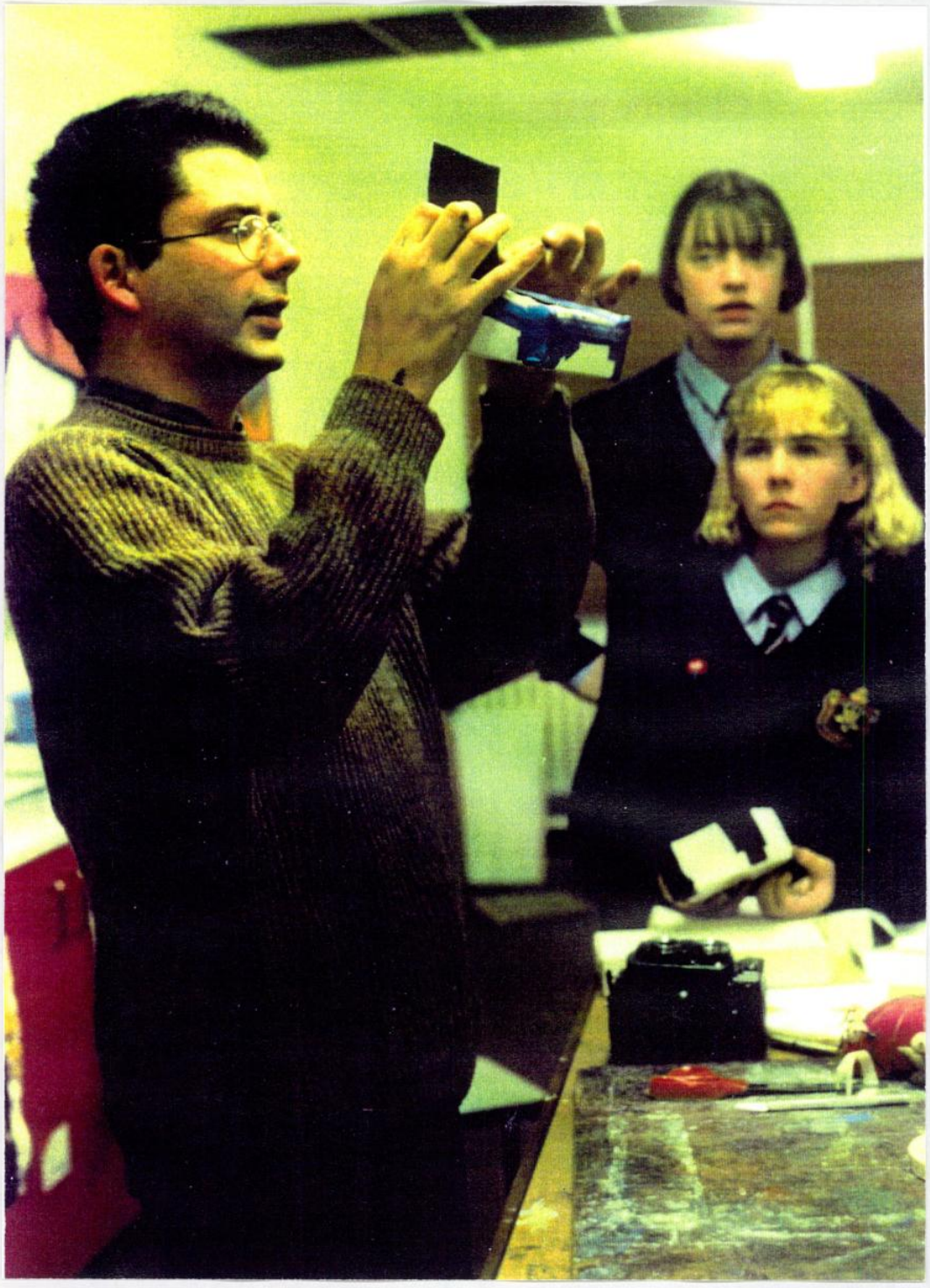

ILLUSTRATION 1: STUDENTS BEING SHOWN CARDBOARD PINHOLE CAMERA.

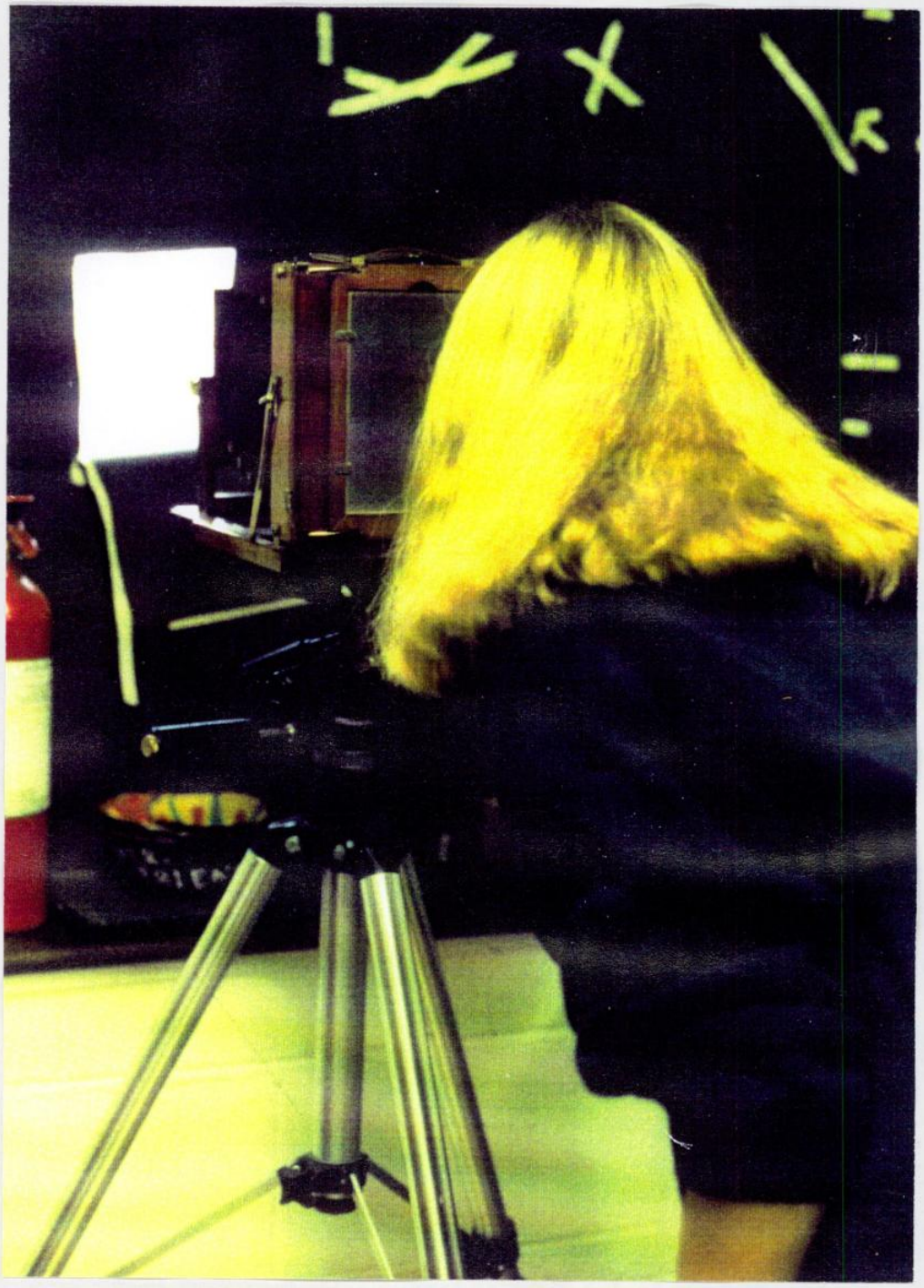

ILLUSTRATION 2: STUDENT LOOKING THROUGH PLATE CAMERA (VISUAL AID).

Stage 2

It was at this point that the notion was put forward that it is necessary to solve the problems encountered before going any further. The fact that the problem-solving process was called design was explained. It was required of the students that they answer a number of questions relating to the changes they would make to my camera design or indeed to their own camera design. Many of the students had come to the conclusion that a new camera structure was necessary. If on the other hand their camera had worked no design modifications were necessary.

Q1. What changes would you make to your camera design?

Q2. Did light get into camera design?

Q3. How could you stop light getting into your camera?

Q4. What does taking a picture depend on?

Q5. What colours does a piece of photographic paper not see?

Students now new what was involved in making a camera and how a camera operated at a fundamental level. They were then introduced to how a modern SLR works (Single Lens Reflex Camera).

Stage 3

The aim of this stage was to design a Victorian based costume from a variety of materials and found objects, part of their design problem was to produce this costume so that they could be photographed in it with their camera.

Introduction: What is a texture? What is the difference between the texture of

Donna Betts. T.Y. 12th March 19

1.) I would make a camera from a biscuit tin. Painted black on the inside and putting a very small hole into the box. Would have a lair of black insulating tape sealing the box to stop light getting in. If I used a shoe box I would make the hole was very small and that it was sealed properly. I used Mr. Furlong design in school. I made my own camera out of a shoe box and I used the tin box yesterday. I got results from the first t cameras but from the tin box the picture turned out very clear.

2) Light did not come into my camera. It was not wet like some other peoples and it wasn't too fragile like some of the other girls. My design worked

3) You could seal all the possible parts were light passes through. All the folds in the cardboard and where the lid closes on the tin. You could put black insulating over this parts.

4) Photographs depend on dry photographic paper. Area where you can expose light into the camera, and cover it up again. Photographs can not be good if they are underexposed or overexposed so the depend on the right amount of light.

5) Black and white photographic paper does not see the colour red.

FIGURE 1: CAMERA DESIGN REPORT

Section A

Art Questions Mr. Fuelong Caroline Quinn 12-3-9

1. What changes would you make to your camera design?
If the camera fell apart easily I would make it stronger and seal it better with stronger tape. If the top was difficult to open due to the tape been messy I would try to tape it neater.

2. Consider, did the light get into the design and why?
Was it too fragile, too wet?
If light got into one of the cameras it would be due to unsatisfactory stability. The light may have gotten in if the box wasn't sealed properly, or if the hole in the tinfoil was too big the film may have been exposed to too much light. If the camera got wet the paper would go black, the tape may not sticky - basically it would be messy

3. How would you stop light getting into your camera?
You can stop light getting into your camera by sealing it with tape better. Make sure you keep your camera dry.

4. What does taking a photograph depend on?
It depends on light, how much light comes in and when does it be necessesary for it to come in.

FIGURE 2: CAMERA DESIGN REPORT

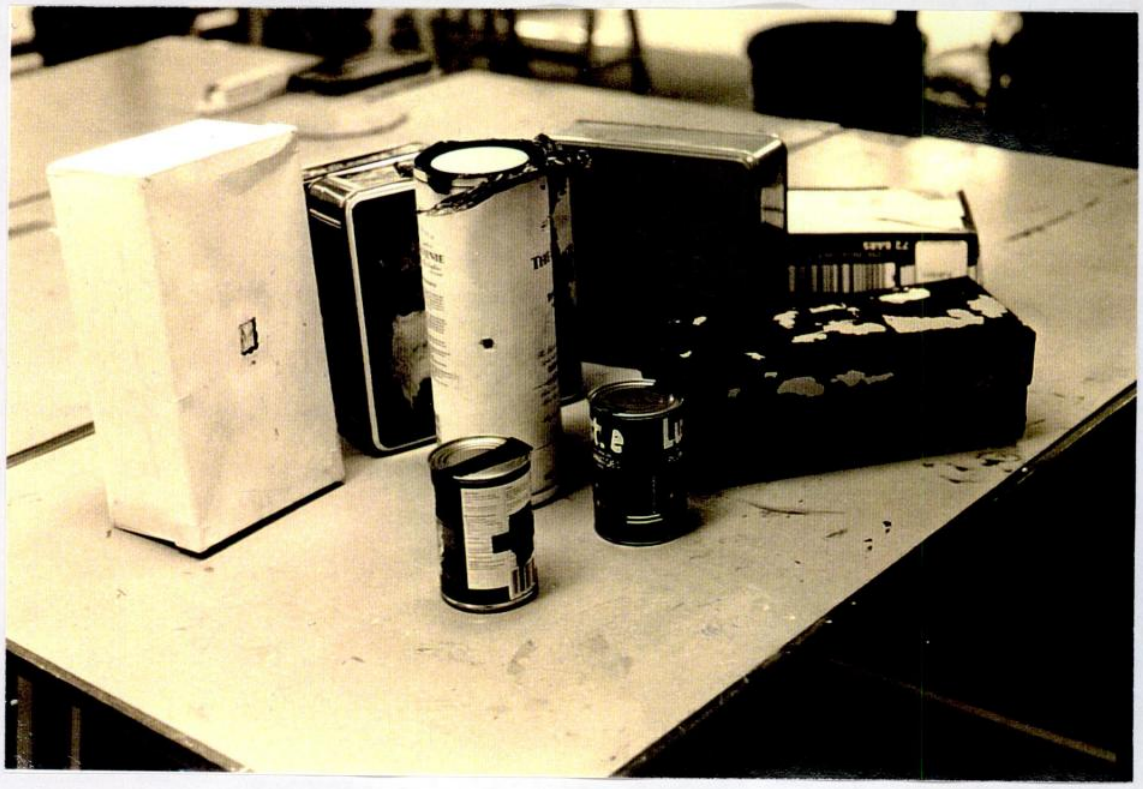

ILLUSTRATION 3: VARIETY OF STUDENT DESIGN CAMERAS

ILLUSTRATION 4: STUDENT WITH PERSONAL CAMERA DESIGN

wool and silk, sandpaper and cotton wool etc.? What is the difference between 2d and 3d.

Examining: How various textures can be created? When is texture also pattern?

Explaining: the different potential of materials.

After an exploration of the above, the students participated in a brainstorming session to bring to light the various found objects that could be employed in the costume design. It was at this point that the students realised that the aim of the project was to use the camera to photograph themselves in the dress they constructed. The design process was important but the route they took was up to themselves. (For Example the found objects did not have to last longer than it took to take the photograph). The dresses were then designed on paper.

Stage 4

The making of the costume - a wide variety of found objects were used together with the appreciation that a photograph was two dimensional and that the design just had to look three dimensional so the costumes were built up from the flat into relief (both high and low) incorporating pattern.

At this stage they were in their groups working away. I was a facilitator offering technical advice on using pliers, glue gun, pva and scalpel. When I was not timetabled they continued at their own pace, and saw homework as

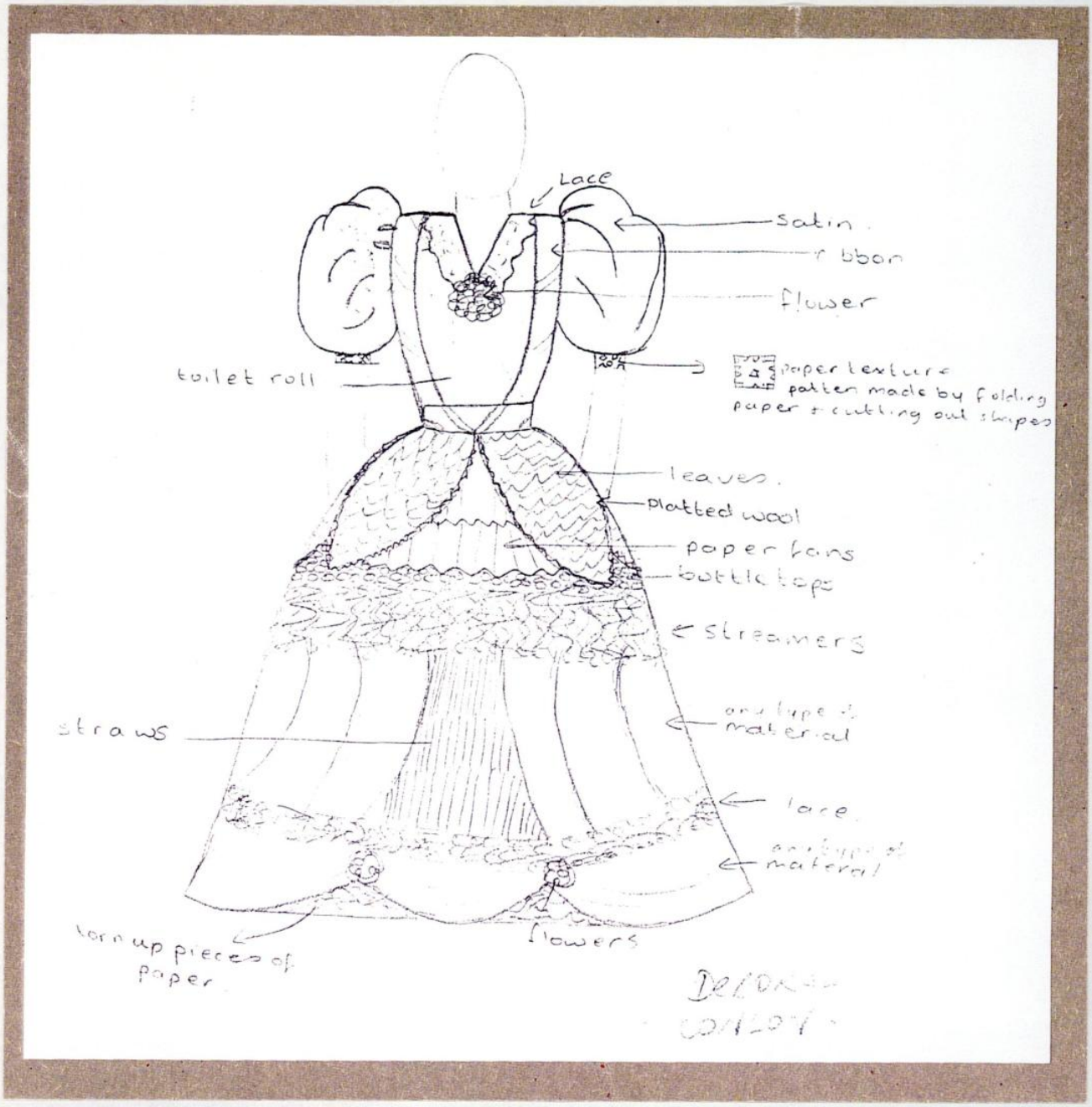

ILLUSTRATION 5: STUDENTS COSTUME DESIGN ON PAPER

ILLUSTRATION 6: STUDENTS WORKING ON COSTUME DESIGN

ILLUSTRATION 7: STUDENTS COSTUME DESIGN

ILLUSTRATION 8: STUDENTS DESIGNING COSTUME

something to keep them on schedule for the final date of completion.

Stage 5

Photographing their design

Introduction: How should you organise loading the camera? Should you have and SLR back up? How should you photograph the costume?

Examine: Ways of getting correct exposure.

Explore: Victorian composition in terms of portraiture.

The main emphasis at this point in time was one of organisation.

Evaluation; does your design fulfil the brief?

Did you succeed in what you set out to do?

The students were then required to answer the following questions:

Q1. What decision did you make to your dress design?

Q2. What found objects did you use in your design?

Q3. Did the objects you choose change your design.

Q4. Did you consider the colours you chose for your design?

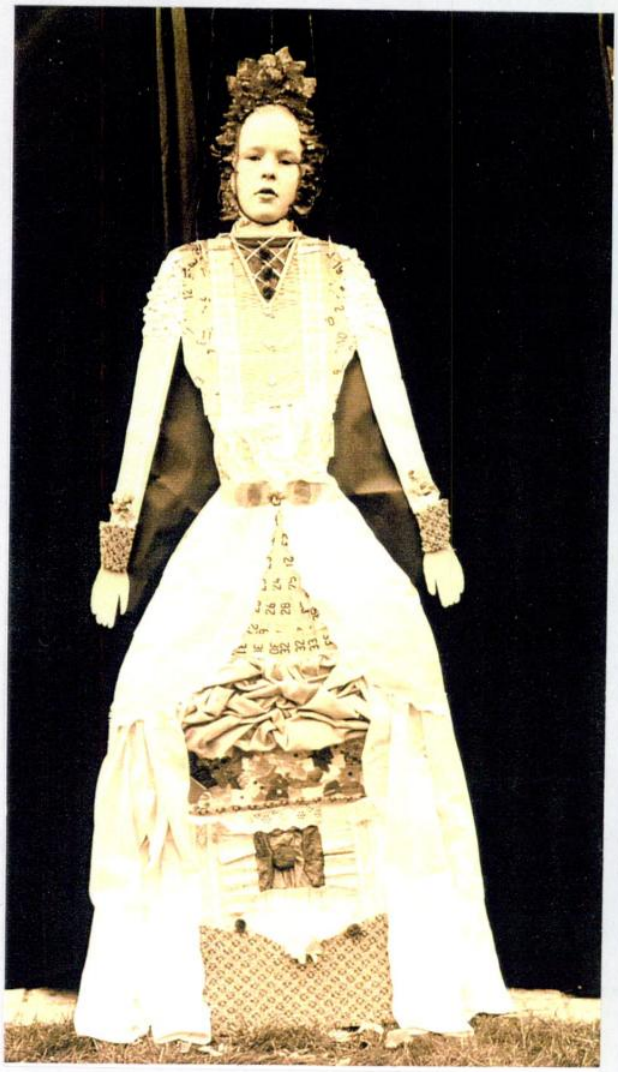

ILLUSTRATION 9: STUDENTS PHOTOGRAPHS WITH SLR CAMERA

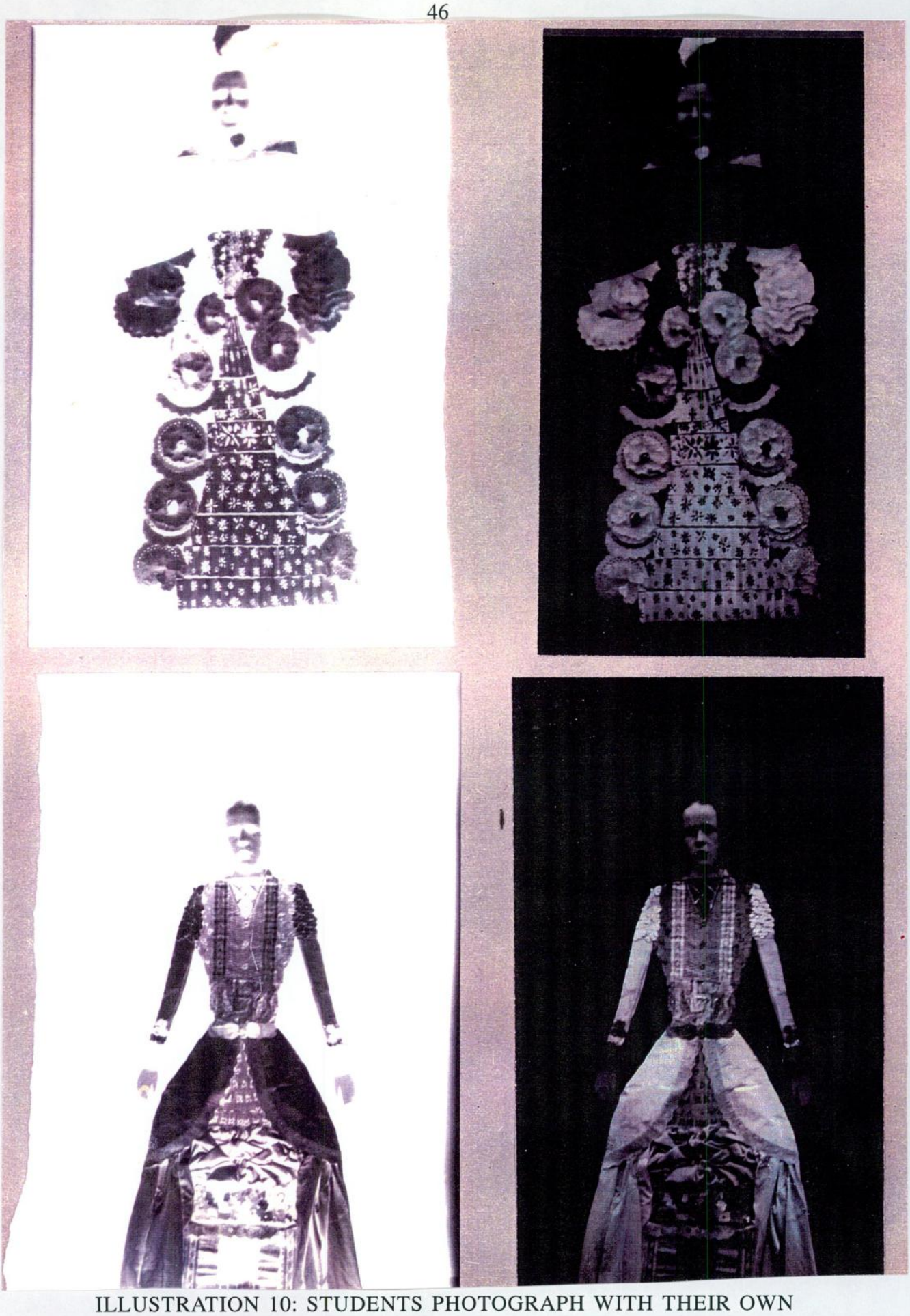

ILLUSTRATION 10: STUDENTS PHOTOGRAPH WITH THEIR OWN CAMERA DESIGN

The results of the Project

The nature of this project was that it was process rather than product led. Each stage was constructed to give as much learning and educational potential to the student as possible. Deweys philosophy of education proposes that the process and goal of education are one and the same thing (1) Bruner considers that education should encourage intuitive thinking through problem solving activities; (2) the development of skills associated with critical evaluation is encouraged by the Green paper on education. It states that the acquiring of facts as opposed to development of critical thinking was a hindrance to young people for work and life.

The students had a number of 'stage' problems and also had to consider the overall problem. Evaluating particular design possibilities and disregarding those solutions which were not applicable. A rational and ordered approach to this was condoned. The Green paper has recognised that a rational method of expressing ones opinion through the education process is vital (3). The students were continually asked to justify their design (in a non-threatening manner) through a process of evaluation both self and group initiated.

The expression of their design in both 3d and 2d (photography and drawing) made it possible to come to a solution without the constriction of one particular media. A final questionnaire was completed by the students to assess their response to the project.

Statistics of 20 students out of a possible 28)

Q1. Did you understand this project

Yes 20 students

No 0 students

Q2. Do you understand what the term 'design process' means? Explain what this means in your own words?

Yes 16 students

4 students

16 students described to my satisfaction what the term meant

"it means how you did every part"

"its how you get the answer all along the way"

The students understood a series of stages were involved coming to a conclusion but some (four in this case) confused the process with the result or solution.

"The design process is the way you make your Victorian picture of yourself"

The majority understood that the design process was not just limited to art.

"Its the way you do things bit by bit till your finished"

Q3. Name the aims of this project

One aim written - 6 students

two aims written - 2 students

three aims written - 10 students

four or more aims written - 1 student

(one student did not answer the question)

All those who answered the question listed the aim of taking a photograph with their camera of themselves in their costume. The proportion of students who listed three aims all listed:

(1) Designing camera

(2) Making/Designing costume

(3) Self portrait in costume with camera.

Q4. (a) Answer this question if you did Art in secondary school before. Did you find doing art before useful to this project?

7 Yes

2 No

(b) Answer this question if you did not do art in secondary school before Did you find not doing art a disadvantage to doing this project

11 Yes

(a) The majority found a knowledge of art, craft and design helpful, but in general, only when drawing and designing on paper. None of them mentioned its usefulness in terms of photography or actually making the dress.

The two who answered in the negative wished we had done more drawing in the project.

(b) They all agreed that not doing art was a disadvantage and mentioned drawing as the main area they felt they needed more experience in.

Q5. Was it useful to see other Artists, designers and photographers work?

Yes 17 students No 3 students

When asked to comment verbally on their answer their was no one artisan that stood out but a number did mention Niepces original camera as being very like their own.

Q6. Do you think you could use the design process for any other subject

15 Yes

5 No

The majority who answered in the positive when questioned mentioned other practical subjects mainly Home Economics, and Science and a number mentioned English.

Q7. Can you see any relationship between Art and any other subject please list.

13 Art and Home Economics

15 Art and Science

11 Art and Mime Companies

2 Art and Religion/Social Studies

3 could not see any relationship or didn't answer the questions.

The class did a project on light in science lasting a number of weeks. Likewise they studied Victorian Irish women in English, and did a project related to it. They used the Art facilities to do up poster etc., for the mini company projects.

Q8. Did you like working in a group

18 Yes

2 No

They said it was good fun working in a group and some said it meant you got the work done quicker.

COLAISTE NAISIUNTA EALAINE IS DEARTHA - NATIONALCOLLEGE OF ART AND DESIGN - FACULTY OF EDUCATION
LAYOUT FOR SCHEME OF WORK * Revised Scheme

STUDENT NAME: Maurice Turlough

THEME: Portraiture

AIM OF SEQUENCE: See enclosed sheet

Week & Date	Class Group & Time	Introduction Motivation	Demo./ Visual Aids	Source	Art Element	Task	Skill	Materials	Support Studies	Home/ Activity	Cross - Disp. Connection
20 Nov	TRANSITION YR 1.15 - 3.30 135 min TRIPLE CLASS	WHAT IS A CAMERA?	Cameras Enlargers Diagrams Projector Group Demo	Photography Cameras Light	Light Tone	To Construct a Camera	Construction + Taking Photo	Card Tape Tinfoil Black Paper Paint Scissors	Niépce Daguerre	Complete at Home	Science Light
27 Nov	"	RECAP Photo Exposure DESIGN	Enlarger → Shoebox Camera → Various Other Pinhole	OWN Camera	LIGHT TONE FORM	To Develop Photo + Redo problems with Camera	Taking Photo + Construction + Problem Solving	Card Tape Tinfoil Photopaper Paint Scissor	NADAR	Bring in Weird Things you could use for Camera	"
4 Dec	"	RECAP WHAT WENT WRONG? Design	[illegible] Neb Radar [illegible]	OWN CAMERA	LIGHT TONE FORM	To Make Positive + Do out Questionaire	Weighting Problem Solving	PHOTOCHEMICALS PHOTO PAPER Camera Enlarger QUESTIONAIRE	Daguerreotype Camera Disdera	Take Photo at Home	"
11 DEC	"	Recap What is a Portrait	Aperture, Speed SLR CAMERA	Portraiture SLR Camera	LIGHT FORM TONE Composition	To Process Negatives TO TAKE PHOTO USING SLR	Photo Technique → Composition	Cameras SLR NEG OR DIGI PHOTOCHEMICALS	Degas Arbus My Work	/	"
8 Jan	"	Recap Photo Costume? Texture Patterns	DRAW ON TEXTURE CREATING PATTERN PAPER TEXTURES	Victorian Fashion	TEXTURE PATTERN LINE FORM TONE	To Make Paper Texture	Construction of manmade Textures	Paper Scissors PVA	Silvy John Peacock	Bring in Cardboard for Dress/ Costume	"

POTENTIAL LESSON DEVELOPMENT:

FIGURE 3: SCHEME OF WORK

COLAISTE NAISIUNTA EALAINE IS DEARTHA - NATIONALCOLLEGE OF ART AND DESIGN - FACULTY OF EDUCATION
LAYOUT FOR SCHEME OF WORK

STUDENT NAME: Maurice Furlong
THEME: Photography / Costume
AIM OF SEQUENCE:

Week & Date	Class Group & Time	Introduction Motivation	Demo./ Visual Aids	Source	Art Element	Task	Skill	Materials	Support Studies	Home/ Activity	Cross - Disp. Connection
15th Jan	TRANSITION YEAR	RECAP Textures in Dress? Where to find	Demo on Figure Drawing Proportions Face	Figure	Line TEXTURE PATTERN	TO DRAW HUMAN FIGURE AS TEMPLATE TO DRESS	Drawing Life	Pencil Paper	Victorian Pictures Raphael L. Dellasi	Research Victorian Fashion	English
22ND Jan	"	RECAP TEXTURE FIGURE VICTORIAN DRESS	Example of TEXTURE DIAGRAM on DRESS Board	Victorian Fashion Design	Line texture Pattern Construction	DRAW TO DRAW DIAGRAM	Drawing	Pencil Paper	Victorian Fashion Silvy	Bring in Card Board	/
29 Jan	"	Re Cap Diagrams How to Enlarge	Demo Figure on Card Board	Personal Diagrams Design	Construction Line TEXTURE PATTERN	TO DRAW OUTLINE ON C. BOARD + Begin Enlargement	DRAWING CONSTRUCTION	Cardboard paper found objects Glue	Alexandra of Denmark	Bring in more found Objects	/
MID TERM 05 Feb	"	Recap partly pant. f. found objects useage	DEMO ON TEXTURE MANIPULATION	Personal Diagram of Dress DESIGN + found objects	TEXTURE CONSTRUCTION Line Pattern Colour	To start putting down Texture Elements	Construction Drawing Glueing	Found Objects paper C/Board	Misses Spiller	Bring in more found objects	/
19th Feb	"	Re Cap on Texture Texture can be pattern	Demo on Texture. Create Patterns Using Blue and	Dress Design Diagrams	TEXTURE PATTERN SHAPE Line Pattern Colour	To zone in on putting down smaller found object units	Construction Drawing Glueing	Found Objects Paper C/Board Glue Gun	Mark Mahall	Bring in more found objects	

2)

COLAISTE NAISIUNTA EALAINE IS DEARTHA - NATIONALCOLLEGE OF ART AND DESIGN - FACULTY OF EDUCATION
LAYOUT FOR SCHEME OF WORK *Revised Scheme

STUDENT NAME: Maurice Furlong
THEME: Portraiture
AIM OF SEQUENCE: SEE ENCLOSED SHEET

Week & Date	Class Group & Time	Introduction Motivation	Demo / Visual Aids	Source	Art Element	Task	Skill	Materials	Support Studies	Home/ Activity	Cross - Disp. Connection
11th March	TRANSITION YEAR 1.15-330 135 MINS TRIPLE CLASS	RECAP ON PHOTOGRAPHY BLACK BOX/BOX DARKROOM	DEMO/Vis Aid BLACK BOX DARKROOM	Victorian PHOTOGRAPHS + Costumes + Cameras	TEXTURE PATTERN SHAPE LINE TONE Composition	TO PHOTO-GRAPH VICTORIAN DESIGN + MAKE NEG	PHOTOGRAPHY ORGANIZATIONAL Communication	PHOTO-GRAPHIC MATERIALS Cameras	Photographs Victorian		
25th March	"	RECAP PHOTOGRAPHY WHAT PROBLEMS	DEMO ENLARGER/ BLACK BOX SEPIA TONING	Victorian Photography + Costumes + Camera	TEXTURE PATTERN SHAPE LINE TONE Composition positive/negative	TO MAKE POS + RETAKE VICTORIAN SHOTS + SEPIA TONING	PHOTOGRAPHY PROBLEM SOLVING	PHOTO-GRAPHIC MATERIALS Cameras	Sepia Tone Variants		
15th April	"	RECAP PHOTOGRAPH + Picture Frames	DEMO MOUNTING PHOTOS / FRAMES	Photograph + T.V	TEXTURE PATTERN SHAPE LINE TONE Composition Positive/Negative	TO MOUNT PHOTOS + DO OUT QUESTIONNAIRE START FRAME	Construction QUESTIONNAIRE		Rococo, Tiles		

FIGURE 4: SCHEME OF WORK

Sara Cullen — Mr Furlong

Q1 Yes

Q2 Yes it means doing things bit by bit and fixing any problems

Q3 1 Fixing problems with my camera

2 Making the dress the way we want to and taking a photo

Q4b I didnt know how to draw

Q5 Yes

Q6 If you made a dress in Home Economics

Q7 Home Economics Science English

Q8 Yes, it made a change

FIGURE 5: QUESTIONNAIRE EXAMPLES

FIGURE 6: QUESTIONNAIRE EXAMPLES

FOOTNOTES CHAPTER 3

1. John Dewey. "My Pedagogic Creed" in Reginald Archambanlt ed. Selected Writings. (Chicago University Press 1964) p.434.
2. Jerome S. Bruner. The Process of Education. (Cambridge, Massachusetts, London, Harvard University Press 1977), p.65-68.
3. Dept. of Education. Education for a changing world : Green Paper on Education. (Government Publication), p.84.

CHAPTER IV

CONCLUSION AND RECOMENDATIONS

It must be stated at the outset that results of the questionnaire represent twenty out of a possible twenty eight students. This could be considered representative of this class, and could not be considered conclusive in any other light. Many of my conclusions are based, not just on the questionnaire but also on my observations throughout the length of this project.

46% of these students had not done Art before, yet all experienced the project as worthwhile, motivation was high throughout its duration. This was due, in no small part to peer-teaching. The students did not see themselves in competition with each other, and helped each other where possible. The creation of groups of people working on a joint project, meant that I could have students of varying abilities and aptitudes working together. They received information much quicker from each other than just waiting to ask a question of me. From my perspective, it meant I had eight groups rather than 28 students looking for individual attention. A lot of the learning was self-directed.

The Transition Year hopes to promote social development of pupils and make them participate and be responsible members of society(1): Group work creates the opportunity for this to happen.

The nature of photography can be confusing but learning experientially makes the grasping of quite difficult concepts manageable. This is the real use of design: the students are not just fed the facts, they discover these facts by problem solving techniques, experiential learning facilitates this exploration.

Each group got a valid result from the project. The method whereby they came to this result was up to themselves as long as they were being explorative. So therefore the solution to the problem was important, but there was no predetermined route for them to follow. They developed these routes themselves. The practical result of this was the variety of camera designs all which worked and the variety of costume designs all of which were effective to different degrees.

The students were able to see relationships with other subjects through cross-curricular investigations. Though there was no actual participation with the science teacher in my class they could see the relationship between the study of light and the use of light in photography. This is an area that I would like to study in greater depth in the future.

It has been stated that one point of Transition Year is the personal progress of each individual student. Each student should have a distinct learning experience (2). Designing is not simply concerned with making particular objects. The design process facilitates individual learning, it is by its very nature, student led. Therefore there is an argument to have design across the whole curriculum.

Thistlewood says that we in our educational system have not seen the value and function that a design can have. To be educated in design is to learn a formula; one which is non rigid and of an adaptive stucture (3).

CONCLUSIONS – FOOTNOTES

1. Department of Education. Guidelines for Transition Year 1994-95. (Government Publication), p.3.

2. Ibid.

3. David Thistlewood. "What is Design Education" in Issues in Design Education, ed. David Thistlewood. London Longman 1990), p.22.

APPENDIX 1

TRANSITION YEAR QUESTIONAIRE

Q1. Did you understand this project?

Q2. Do you understand what the term 'design process' means? Explain what this means in your own words?

Q3. Name the aims of this project?

Q4. (a) Answer this question if you did Art in secondary school before. Did you find doing art before useful to this project?

Q5. Was it useful to see other Artists, designers and photographers work?

Q6. Do you think you could use the design process for any other subject?

Q7. Can you see any relationship between Art and any other subject please list?

Q8. Did you like working in a group?

Make sure your name is written on the top of your report. Make sure your question numbers are clear.

Mr. Furlong. Transition Year.

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