THE BAUHAUS AND IDEAS IN EDUCATION

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INTRODUCTION

Founded in April 1919 at Weimar, Germany, the Bauhaus resulted from an amalgamation of two Weimar establishments, the Academy of Art and the School of Arts and Crafts. The new institution was directed by one man, Walter Gropius, whose purpose was to establish and demonstrate the idea of 'the fundamental unity underlying all branches of design' (Gropius, 1935) by means of the school's curriculum and organisation.

Although the school was in existence for only fourteen years, it experienced during that time several changes of leadership and intellectual direction. Yet despite its short and turbulent life (or because of it) the Bauhaus's contribution to design and the education of designers had, and has continued to have, a profound and unparallelled impact within this field. Hans Wingler (1969) outlines various areas where the influence is recognised:

(a) in devising (or utilizing) teaching methods which have transformed the teaching of art and design throughout the world,
(b) in the influence upon architecture by the teaching and practices of Walter Gropius and Mies Van Der Rohe,
(c) in the contributions of Bauhaus painters to the development of art,
(d) in bringing about revolutions in the field of home environment and industrial design.

In asking what was inherent within the Bauhaus which accounted for such extraordinary vitality and wide ranging influences, Wingler states that its real achievement was 'more than the sum total of the achievements of its masters'. It was in the formation of an 'intangible' and 'fundamental human quality' which encompassed the whole community, teachers and students alike. He recognises the importance of shared ideals as common goals towards which to work - ideals based upon an historical development of ideas which the Bauhaus community consciously attempted to interpret and translate into practice. Hin Brendendieck (1962), a student of the Bauhaus in the 1920s, writes 'we felt that with the establishment of this school, Design Education had caught up with the general development which had already occurred in other areas of human endeavour.'
Similarly, John Willett (1978), looking at the Bauhaus within the wider cultural environment of Germany as a whole, sees the establishment of the school as a reflection of a more general innovatory movement inherent within the intellectual climate of the time.

Gropius (1920) in a speech given in Weimar, entered into an explanation of the historical development of ideas which had led to the founding of the Bauhaus, and the extent to which those ideas proliferated throughout Germany. In this speech he stated that the Bauhaus was not an experiment, nor, as had further been claimed, was it an original idea of a single individual but rather that it was something that had become indispensable and that had serious and solid foundations. Furthermore he claimed that what was happening at the Bauhaus was also happening in many other institutions all over Europe and he cited many distinguished educators and academics involved in similar reform ventures. Looked at in this way, the Bauhaus was from its inception a reflection of more general trends of thought within society many of which were concerned with educational reform. The manner, therefore, in which the then current educational ideas manifested themselves in Bauhaus practices may be seen to be informed by earlier educational experience and experiment.

Perhaps the most important educational innovation at the Bauhaus was the development of the preliminary or 'basic course' in design. This short course (six months) was the introduction for each student to the Bauhaus and was intended to encourage students both to develop and to demonstrate their inherent abilities. The projects and exercises in the course were generally aimed at freeing the students from preconceived notions of 'art' and 'design' that they may have brought with them, by exploring 'basic properties' in materials, colours, textures, structures and compositions.

At the Bauhaus the basic course was taught by a succession of tutors (or 'Masters') as the school changed, moved and evolved. However, the initiator of the course was Johannes Itten, who laid the foundations for an educational programme which was developed later by Albers and Moholy-Nagy, amongst others. Itten was the first of Gropius's highly talented recruits to the Bauhaus and had previously been running his own private art school in Vienna. Later his views and those of Gropius were
to diverge significantly and Itten left the Bauhaus in 1923.

It would be wrong, as noted earlier, to treat any of the Bauhaus developments as isolated and unprecedented phenomena. Rather they should be seen as representing a culmination, or synthesis, of a progression of ideas and activities which cannot be wholly credited to single individuals. Although Itten was the initiator of the basic course, in order to understand this innovation it is necessary to understand the developing context of ideas and directions from which its initial aims and purposes were derived.

The next section of this paper therefore sets out to explore the educational background that was developing around the end of the nineteenth century and the early years of the twentieth century. It will review some of the principle experiments in education that were taking place at that time which appear to have influenced Itten's approach. A more detailed consideration of how Itten began the application and introduction of these experiments into the Bauhaus will be given in the final section of the paper. My main purpose is to concentrate on the general educational premises of the Bauhaus rather than the 'art' or 'design' premises which so often predominate in the Bauhaus literature.
THE EDUCATIONAL BACKGROUND

1. JOHN DEWEY

John Dewey's contribution to educational thought and practice is important for two reasons. Firstly, he was one of the few modern systematic philosophers concerned with the application of theory to the work of the school, and secondly his philosophy drew together many of the movements of thought which formed the intellectual climate in industrialising countries in the last decades of the nineteenth century and the first decades of the twentieth century. For example, the ideas of Hegel and Marx led him to consider the impact of organisations and institutions upon the historical developments of man. From Darwin he gained the evolutionary - progressive interpretation of life and development. From educators such as Pestalozzi, Froebel and Herbart came his conviction that systematically pursued public education was of great social significance. And from Science in general came his belief that the experimental method could be applied not only in relation to 'matter', but also to the solution of social problems. (Leys, 1970; Brickman, 1970).

In Democracy and Education Dewey (1916) stated his view that 'the educational process has no end beyond itself; it is its own end'. What he was saying in this treatise was that what he considered to be significant about an educated person, is not the amount of information that the person has acquired nor even the 'kind' of knowledge, but the ability to act intelligently, constantly cultivating the ability to proceed for himself in a changing world. That 'world' being one in which old solutions and methods fail to provide guidance in new contexts. Dewey envisaged an educational system which provided people with the ability for continuing growth and education - an education whose end, in fact, is further education. Within this educational system, the place of Scientific Method is fundamental, and it is the adoption and application of the 'scientific principle' which distinguishes Dewey's work and philosophy from the other then-current views of education.
Later, Dewey (1931) stated that Science 'is the method of all effective mental approach and attack in all subjects', and 'it should be axiomatic that the development of scientific attitudes of thought, observation and enquiry is the chief business of study and learning'. The contradictory arguments which Dewey raised - on the one hand that education has no end beyond itself and on the other that the cultivation of scientific attitudes of thought and enquiry is the chief business of learning and study - were resolved by Dewey's insistence that this particular kind of education 'will provide people with the habit of mind which is needed for their continuing education and growth'.

Dewey (1897) also outlined his views on the definition of the school, on the school curriculum, the nature of method, and the position of the school as it relates to social progress. Central to his arguments is the idea that the individual to be educated is a social being, that education is a social process and that society itself is a natural, organic and co-operative synthesis of individuals. The educational process itself has two interdependent aspects, one psychological and the other sociological. Of these two aspects the psychological, i.e. the individual's instincts and inherent abilities, provides the starting point for all educational activity. However, without a social context which gives some idea of the use to which the individual's abilities can be put, the purely psychological aspect of the educational process is barren and formal. On the other hand, a purely social development of the educational process would make it into a forced and external process which can too easily result in subordination of the individual's freedom to a pre-conceived social and political status. Dewey concluded therefore that education must begin with a psychological insight into each individual's capabilities, interests and habits, must be controlled by reference to these considerations, and must be constantly interpreted into terms of what each individual is capable of in the way of social activity.

The school must, accordingly, provide the environment for this process to occur. It must represent and contain real-life experiences, and it must also simplify existing social life so that learning is gradual and an understanding of the complex nature of living is built up. Management
of the school curriculum should be based upon the idea that the development of new attitudes toward, and new interest in experience are both the process and the goal of education. The social life of the individual provides a unifying factor and background for all his/her effort and achievement. Ideally it provides a focal point to which the specialised subjects relate. Also, constructive activities such as manual work, sewing, cooking, etc. no longer remain 'outside' the respectable academic curriculum, but assume their rightful importance within the educational experience of the individual. The teachers place and work within such a school is not to impose certain ideas and habits in the child, but to select the influences which shall affect the child and assist him/her in responding to these influences.

Dewey thus attempted to reconcile individualistic and socialistic ideals in an educational system which he believed to be the fundamental method of social progress and reform.

The Chicago Experiment (The Dewey School)

All of these ideas - and their implications for the organisation of the curriculum and methodology of the school - were explored and developed by Dewey. Between 1896 and 1903 he directed an experiment in education at the University of Chicago. Later to be known as 'The Dewey School', the Chicago experiment was regarded by all those involved as a laboratory for the University departments of Psychology and Pedagogy. It provided a practical testing place for the educational theories, and their social implications, which Dewey and his colleagues were developing. Essentially the work of the school and the University together was concerned with co-ordinating a balance between individual and social factors as objectives in education and aimed at producing a guide for educational organisation and procedure.

In many ways this was a radically new departure in educational thinking. The traditional progressive formula upon which it was building (and credited largely to Pestalozzi and Froebel) had placed an explicit emphasis upon the development of the individual's abilities within an unquestioned
and stable social framework. Also it was based upon a moralistic and Christian view of the world. None of these earlier theories of education had ever maintained overtly that intellectual development could take place in isolation from social conditions and aims, but the emphasis had been upon individual growth. The importance of environmental and social influences had been considered therefore only as they related to individual development. These influences could be modified, excluded, or manipulated in some more desirable way but nevertheless they were quite fixed and based upon a traditional social hierarchy and Christian morality.

Countering and running parallel to these humanistic theories of education were social theories originating in eighteenth century Germany in the work of Ficht and Fellenburg (Stewart and McCann, 1967; Boyd and King, 1975). These philosophers proposed the use of education as a means of controlled social reform. National progress, the creation of a national ideal, and the formation of a national 'character' - again based upon the maintenance of the existing social hierarchy - could be achieved by state intervention in the preparation of each individual for his/her future role in society.

Dewey's emphasis therefore upon the co-ordination of individual development with social aims and purposes drew together two entirely different strands of educational thought. He reconciled these apparently opposing ideas in the notion that individual development was essentially a social one, of participation and responsibility in social relationships. The social 'aim' of education therefore was not to adjust individuals to present social arrangements and conditions. Nor was it to 'fit' them to social institutions which were insufficiently stable to justify such a procedure. It was primarily to enlarge the range and depth of social contact and provide an environment for the development of co-operative living.

The implications of such a theory duly affected the overall organisation of school life, of curriculum and also of procedure. The traditional idea of the school as a place of formal learning gave way in the Dewey School to the idea of a school as a form of community life in which traditional courses and methods of study had no place. For example,
children were organised in social groups on the basis of mutual sharing and ease of communication. Study material was graded rather than the children themselves.

Of equal importance to the social aspects of the educational process and inextricably linked with them were fundamental ideas being developed in the University department of Psychology. These provided developmental theories and hypotheses according to which subject matter and its presentation could be organised and evaluated.

Dewey's particular view of the functioning of 'mind' and the nature of knowledge maintained that 'thinking' occurs when doubtful situations make current interaction with the environment unable to continue. 'Thinking' therefore allows interaction to continue along the lines which the ideas it produces suggest. 'Knowledge' is suggestions for solving problems or plans of action and is seen to be an instrument to be used to mould the environment. (Dewey, R.E., 1977).

However, this is not to suggest that knowledge is acquired by a process of trial and error, or accident. Dewey's 'method' claimed to pursue the acquisition of knowledge in a process which was identical to the process of thinking, i.e. empirical.

Known as the 'experimental' or 'problem' method the main features of Dewey's approach involved accurate and deliberate enquiry, active participation in experiment, careful analysis and evaluation of the consequences, and finally the formulation of a solution. However, in the school context the use of this method did not imply a single fixed procedure or formula for study. Rather it aimed to provide a logical framework for a range of activities extending beyond the school itself, and at the same time it suggested the manner in which those activities should be approached. For example, an immediate problem would be posed, and all subject matter relevant to and centred around that problem would be explored regardless of subject boundaries. Consequently the use of this method effectively dissolved the traditional subject boundaries which had previously existed in school learning, and brought about the necessity to develop new, more appropriate techniques of teaching.
Dewey's Influence

The experiments and teaching methods developed in Dewey's Laboratory School produced a focal point for educational interest at the beginning of the twentieth century. Enthusiastic educators have since borrowed, emulated or adapted his techniques but not always have they developed them in the manner which Dewey's broader vision of education suggested. This was to bring about a balance between the necessary social steering and individual development which his interpretation of intellectual growth implied. For example, Dewey had argued that it was not the aim of education to 'fit' individuals to social institutions since these were not sufficiently stable to justify such a procedure. However, as early as 1911 Dewey's 'Problem Method' was being used in High School agricultural classes in the form of the 'Project Method'. It has ever since remained the most significant method in vocational training, which to a large extent negates, by putting it into a narrow context, the original altruistic motives from which it sprung.

As originally conceived by Dewey the Problem Method made it possible to deal with concrete problems and activities in a natural environment. It allowed a wide range of subject matter to be brought to bear upon a specific problem and suggested a logical and sequential manner for selecting and utilizing information. In vocational training however, it becomes associated with instructional procedures in a limited environment and confines the selection and utilization of information within extremely specialised areas of knowledge. Kilpatrick (1918) in the first systematic analysis of the method drew attention to the importance of 'concomitant' learning in the use of the method. That is, in the influence that is brought to bear upon students' attitudes. Like Dewey, he recognised the positive value of attitudinal shaping by use of the method in the context of a wide and general curriculum, with theoretically, the educational system being a reflection of the values held by society at large. Needless to say serious questions arise as to the nature and extent of attitudinal shaping which must occur when the method is used in a much narrower and purely vocational programme.
Bode (1927), criticising the Project Method from the progressive educationist viewpoint, argued that
'it takes no account of either logical organisation or social insight, its spirit is the spirit of exclusive vocationalism......Learning that is limited to this method is too discontinuous, too random and haphazard, too immediate in its function......it does not fully meet the demand for a kind of education that is not tied up closely with immediate demands. '

Nevertheless the development of the Project Method and the growth of project work in education at all levels has continued up to present times. It has influenced significantly the nature and organisation of the curriculum at school's level, and brought about modifications in higher education to both the structure and the assessment procedures of many courses.
2. THE DALTON LABORATORY PLAN

The Dalton Laboratory Plan was conceived and developed during the period 1908-13 by Helen Parkhurst in America. Principally it aimed (as Dewey's methods were doing) at the entire re-organisation of school life, making the timetable redundant and giving to each student the responsibility to conduct his/her learning programme at his/her own pace. Within the requirements of the curriculum, the student was periodically given a syllabus of work around which she/he must measure and apportion time and effort according to his/her own particular strengths and weaknesses. Classrooms became 'laboratories' in which specialist teachers would advise and supervise students who would work singly or in groups, together or in independence of one another and for variable lengths of time.

Broadly speaking, the Dalton Plan offered a simple and economic way in which a school could function as a community. Its success depended upon the establishment of a new kind of relationship between teacher and student. This was one in which both roles required acceptance of responsibilities toward the other, and offered opportunities to develop intellectual and creative faculties in both the teachers and students.

Education on the Dalton Plan, by Parkhurst (1922), presents a detailed explanation of the Plan and its practical application together with a discussion of the educational theories to which it relates. It is clear that its main value lay in its flexibility, and its adaptability to various curriculum and units of organisation within a school.
3. THE MONTESSORI METHOD

The Montessori Method was a rational approach to education which aimed to direct the development of the intelligence, character and creative abilities of young children. In so doing, it also allowed the production of biographical record charts of the history of each child's development based upon observations made in classroom situations. The techniques of the method are divided into three broad areas,
(a) Motor education
(b) Sensory education
(c) Language development

Motor education
Care and management of the environment afforded the principle means for motor education. Order and direction of physical movements provided an alternative discipline to the state of immobility which traditional teaching methods depended upon.

The primary movements of everyday life (walking, rising, sitting, handling objects), personal care, management of the environment, gardening, manual work, the gymnasium and rhythmic movements were all considered to be aspects of living to which motor education had reference. For this reason, furniture, tools and equipment was scaled down to correspond more approximately to the size of small children than was usually the case.

Teaching in this area often involved the use of few or no words, but very precise actions. Movements were analysed and performed separately, slowly and carefully. 'Didactic' material (apparatus), e.g. frames for buttoning, lacing and tying, allowed each child to master particular skills and to learn from each other unhurriedly.

Sensory education
This relied upon the greater use of 'didactic material' (see Table I), the aim being to bring about a process of 'auto-education'. The intention
was that the child should train himself to observe, that he should be led to make comparisons between objects, to form judgements, to reason and to decide.

Visual training involved the use of solid rods, cubes, prisms and cylinders. These objects were graded according to the degree of ease with which they could be handled and also to the degree of intellectual complexity involved in their specific use. They offered exercises based upon a recognition of gradation, in sizes and lengths and thicknesses. Later exercises involved the use of colour and shades of colour, and the recognition of geometrical shapes in outline.

Manipulation of these objects also encouraged the development of skillful and dextrous hand movement. Other materials were designed to promote the tactile sense of perception and were similarly graded. Rough and smooth surfaces which involved light touch, preceded exercises which involved 'feel' and more careful distinctions being drawn between fine and course materials, light and heavyweight, loose and close weave.

Exercises in sound, silence and music trained the ear. Periods of silence, learning to listen for noises normally imperceptible to the ear, complemented activities which involved the pairing and grading of bells in the order of the scale.

Language development
Many of these preliminary exercises designed to develop the senses were also a direct means by which vocabulary was extended, language skills developed and the child prepared for more complex intellectual tasks. Having first recognised qualities and differences, the child's idea, or understanding, would be fixed by a word given by the teacher in its context. Consequently the name or phrase introduced to the child would have reference not only to a particular object or quality but also to the order of ideas and sensations which produced it. Ideas of quantity, identity, difference and gradation, and the language in which these ideas are expressed form the basis upon which an understanding of reading and number rests.
In its later stages the Montessori method approaches the teaching and learning of number, reading and writing in this fashion. The child is encouraged to bring all his faculties simultaneously into play and to reach for a concrete understanding before such understanding is transposed into an easily manipulated abstraction.

Didactic Materials for Sensory Education

Montessori (1914)

(a) Three sets of solid insets.

(b) Three sets of solids in graduated sizes comprising:
   1. Pink cubes
   2. Brown prisms
   3. Rods: green, red and blue.

(c) Various geometric solids (prism, pyramid, sphere, cylinder, cone).

(d) Rectangular tablets with rough and smooth surfaces.

(e) A collection of various textured materials.

(f) Small wooden tablets of different weights.

(g) Two boxes, each containing sixty-four coloured tablets.

(h) A chest of drawers containing plane insets.

(i) Three series of cards on which are pasted geometrical forms in paper.

(j) A collection of cylindrical closed boxes (sounds).

(k) A double series of musical bells; wooden boards on which are painted the lines used in music; small wooden discs for the notes.

Table I
4. EDUCATIONAL SLOYD

Major developments in the teaching of Handwork and its transition to the curriculum at educational levels beyond kindergarten stem directly from Finland. Uno Cygnaeus, a Finnish educator who was much influenced by the work of Froebel, devised a system of Handwork 'training' which aimed to carry further the 'activity' principle in Froebel's system (see Cross, 1979). By teaching peasants some form of domestic industry in their school years, he hoped to provide them with the means of supplementing their incomes from farming. His system was quickly adopted by the Government of Finland and made part of the rural school curriculum in 1866.

The widespread application and consequent advertisement led to the imitation and adoption of the system. One such adaptation was made by a Swede, Otto Salomon (also a Froebelian), who designed a system of graded woodwork exercises known as 'Sloyd'. He was also instrumental in establishing a Training College at NHHs for the preparation of teachers. (Boyd and King, 1975).

The main characteristics of the Sloyd system demonstrated close affinities with both the Montessori method of 'sense training' and the Froebel system from which it derived. In the original form, woodwork and handcraft activities (as in Froebel's Gifts and Occupations) were often formal, sequential and concerned with techniques of manipulation. As the system underwent modification it became associated more with the presentation of opportunities for self-directed learning and creativity in manipulative skills.
Similarly influenced was Joseph Hoffman, who established in Vienna in 1903 the 'Wiener Werkstätten', workshops producing quality household goods in the English tradition. (Veronesi, 1971).

In the early 1900s in Germany a variety of associations were therefore formed, often with a personnel overlap at the committee level, shared intellectual ideals, and a common belief that the reform of artistic education at all levels was necessary for the recovery/reconstruction of the national culture. Active in the organisation of this movement, particularly in the 'Werkbund', were Herman Muthesius, Friedrich Neumann, and Henry Van Der Velt. These were men whose reputations, range of abilities and professional skills, enabled them to draw together University professors, craftsmen, artists, educators, industrialists, designers and politicians. The Werkbund, thus comprised, provided an arena for the discussion and debate of issues central to the role of art and design in society. Through its members and their work, it aimed to establish a consistent theoretical foundation for modern design. Through museums, exhibitions, propaganda and the high quality practical work of individual members it hoped to exert influence on standards of public taste and design. Also it was hoped that the Werkbund could influence reform of product design through action at political and executive levels of industry.

Werkbund Education Programme
Apart from its attempts to educate the German consumer and influence the quality of industrial product design, the Werkbund recognised that changes in the entire educational system were necessary. The public's lack of aesthetic sensibility in the consumption of industrial products was blamed upon the predominantly intellectual bias of German education. Therefore a Werkbund Education Committee was established in 1908, and whilst giving priority to the reform of industrial training, it was also concerned to promote the reform of artistic education in schools at all levels. In so doing the Werkbund drew upon the ideas and personnel of the Art Education Movement which had been founded in Germany in the 1890s by Alfred Lichtwark. (Franciscono, 1971; Pevsner, 1973.)
Much of the basic philosophy behind the reform measures which the Werkbund aimed to promote was already familiar in general education and derived from the Rousseau – Pestalozzi – Froebel – Montessori tradition of child education. Also, Dewey's social theories of education were at this time being formed in America in response to a similar concern for the reform of the contemporary industrialising society.

Many of these 'educational' ideas had been given encouragement in England by Ruskin, Morris and the English Arts and Crafts movement. Interest in sensory perception and activity methods of teaching/learning was developing rapidly in general education particularly at the lower levels of schooling. At professional levels of training however such ideas had had little influence. Within the Werkbund people such as Herman Obrist and Franz Cizek (later to become a direct influence upon Itten at the Bauhaus) who had direct experience of teaching at primary levels, attempted to inject the broader humanistic aims and progressive methods of teaching into education programmes for professional art students.

Essentially the message of the educational reformers was centered around the idea of 'total education' or of teaching the whole person. Educational treatment should be non-prescriptive since it must be suited to the abilities and temperament of the student. The development of inherent talent required active participation in 'doing' rather than in passive listening.

At the beginning, the reformers associated with the Werkbund were content to confine the more progressive aspects of child education theories to the earliest years of schooling. Permissiveness and freedom of expression which were characteristic features of many of the new approaches were associated with lack of discipline and therefore in conflict with traditional procedures of higher education where, it was argued, greater visual conceptual and manual discipline were required. The developed and detailed approaches and theories of Froebel and Montessori, when transposed to professional levels, did not lend themselves easily to the
modification necessary to handle the more complex learning material. What they did offer, however, was a deeper intellectual understanding of the nature of the learning processes. For example the Montessori method and approach drew attention to the value of ordered and repetitive sensory experiences at any level of training where exact skillful perception and manipulative skills were required.

Perhaps the main value of the Werkbund lay in the opportunities it afforded for general discussion of broad educational theory to be introduced to professional levels of teaching. The role of the Werkbund in creating the conditions and the intellectual climate from which the Bauhaus was to emerge was therefore important. Its members were active at all levels of the community from national politics, where they pressed for educational reforms, to primary schools and craft workshops, where new methods and ideas were explored and refined.
5. THE WERKBUND

The Werkbund was formed in 1907 in response to widespread feeling among educated Germans that the rapid industrialisation and modernisation of Germany posed a threat to German culture. It represented a novel approach to the problems of how to re-establish the relationship between designer and producer, and create a link between art and industry. It aimed primarily therefore to inject a much needed artistic and ethical spirit into German economic life, and it hoped to do this through organisation, education and creative work. (Cambell, 1978).

Although claiming to represent a new kind of association, the Werkbund from the start had realised that it was part of a larger movement for cultural reform that had already created a variety of superficially similar associations both abroad and in Germany. Amongst the British reformers, John Ruskin and William Morris were actively criticising contemporary society and campaigning in their work for a return to pre-industrial standards of individuality in craftsmanship and good design. (Pevsner, 1960).

The activities of these reformers in Britain (the first country to experience the effects of the Industrial Revolution) played a large part in initiating similar reaction in Europe. In the 1890s a number of individuals were instrumental in transmitting developments which were occurring on the English scene to Germany. For example, Herman Muthesius, later to become influential in Werkbund activities, was employed as architectural attache at the German Embassy in London from 1896-1903. He reported regularly on advances in English architecture, crafts and industrial design, and on contemporary developments in art education, and established close contact with the leaders of the English Arts and Crafts movements. These activities were all undertaken with the aim of adapting the best features of the English experience to German circumstances (Pevsner, 1962).
THE BAUHAUS

"In spite of all the advances which have been made throughout the country, there is still one unsolved problem in elementary and secondary education. That is the question of duly adapting to each other the practical and the utilitarian, the executive and the abstract, the tool and the book, the head and the hand. This is a problem of such vast scope that any systematic attempt to deal with it must have a great influence upon the whole course of education everywhere ......

Utility and culture, absorption and expression, theory and practice, are indispensible elements of any educational scheme. But as a rule they are pursued apart."

Dewey (1904) presents in this clear statement the nature of the educational problem which was attempted to be worked out in the Bauhaus during the Weimar period, 1919-1923. What would appear to be significant about the Bauhaus - particularly in this early period before the school's direction assumed a more pronounced industrial bias - is that many of these 'indispensible elements of any educational scheme which were usually pursued apart' came together in a deliberate attempt at co-ordination. Although this attempt was conducted at a higher level of education that had hitherto been seen, identifiable strands of this educational scheme suggest that rather than originating from an individual idea (as suggested by Mies Van Der Rhoe, 1954) it was preceded by solid educational theory and experiment in a variety of different areas. However there is little evidence in Bauhaus documents to suggest that this 'experiment' was initially planned and undertaken with the same thoroughness of understanding or commitment to educational ideals and principles as shown in earlier experiments. Itten (1963) has said of this early period, 'What we all lacked was a great teacher who could have guided us through the turbulence and chaos of this era'.

The evidence which does exist indicates that the educational scheme adopted was of an evolutionary nature rather than being wholly pre-planned or designed. In many instances it can be seen to have absorbed and to reflect the influence of educational ideas which were inherent in the
intensive climate of the time. At the same time evidence exists to show that the school offered resistance to the pursuit of many of these ideas in any depth. For example in the first official manifesto and programme of the Bauhaus, the founder Walter Gropius (1919) although adopting Froebel's 'unity' theme (Froebel, 1887), and Dewey's co-operative social principle (Dewey, 1916) talks exclusively about the aims of the school in terms of a much narrower, architectural ideal. The preliminary or basic course which later became the foundation for all evolving teaching methods and reorganisation of subject matter was not conceived of at this time.

What Gropius envisaged at this stage was a craft-orientated, unified scheme of instruction which incorporated some of the social principles of the Dewey scheme, the Froebelian respect for individual freedom and controlled creativity, and the craft emphasis of the English Arts reform movement proposed by Ruskin and Morris. Also evident in this early Manifesto is the Werkbund's influence, expressed in Gropius's commitment to the establishment of industrial links with the school. Presented as some of the 'principles' of the Bauhaus, the securing of commissions for students and masters and the intention to establish 'constant contact with leaders of craft and industry of the country' admitted demanding elements of economic purpose to an educational experiment hardly yet begun.

Whilst being spectacularly successful in terms of economics, advertisement and prestige, these links were instrumental to a large extent in inhibiting the experimental aspects of Bauhaus work, by providing the dominant direction and constraints for that work. This industrial influence - represented particularly by Gropius - required more practical results than a committed exploration of educational method would allow.

Feininger (1922) wrote of the situation, 'if we cannot show results to the outside world and win the industrialists to our side then the prospects for the future existence if the Bauhaus are very dim indeed. We have to steer toward profitable undertakings, toward mass production! That goes decidedly against our grain and is forestalling of the process of evolution'.
Gropius's intentions for the development of the school were in evidence from the very start of its history in an expressed purpose for 'education' which was bound up with industrial development, social reform and architectural ideals. But as Feininger indicates there were individuals within the school who were working for and representative of another direction open at that time for the development of the institution. These were people who were committed to an altogether more altruistic experiment in education, concerned with the evolution of a scheme for the broad education of design students in spite of the specialised roles such students would later adopt in society. These people were attempting to adapt, develop and apply a variety of well known procedures and ideas to an area of study and activity previously governed exclusively by vocational and economic interests and attitudes. The ideas and aspiration of the educationists (as opposed to the industrialists and professional designers in the Bauhaus) drew upon several different and specific areas of education as they had developed up to the time of the Bauhaus' inception. These developments have been traced by Curtis and Boulwood (1977) and by Boyd and King (1975):

(a) General Education as influenced by the work of Rousseau, Froebel, Herbart, Dewey, Montessori, Piaget and Isaacs.

(b) Training and Education for the physically handicapped wherein sensory and motor training predominated in order to minimise or compensate for the loss of specific faculties. Again this development stems from the work of Froebel and Montessori and also Seguin in France.

(c) Art Education - the German influences being Froebel, Lichtwark, Obrist, Cizeck.

(d) Vocational Training and Craftwork - as developed from the work of Pestalozzi, Froebel, Cygnaeus and Salomon; the influence of Dewey's 'problem' method; and the social doctrines of Ficht and Fellenburg in Germany.

Together, these areas in education provided a complex of adaptable knowledge related to developing psychological theories of education which some Bauhaus masters can be seen to have used.
ITTEN AND THE BASIC COURSE

The central character in this educational adventure was Johannes Itten. According to Franciocco (1971), Itten's personality, work, ideas and influence upon the early organisation of the school, the curriculum and the students themselves offered the strongest challenge to Gropius's ideas and therefore to what the school later became. Helmut Von Erffa (1957), a student at the Bauhaus, has said of this period 'We all hoped for a better life and these hopes centred, not around Gropius at first but around Johannes Itten ....... It was Itten who was our leading spirit, in those early days. His influence was strong among the students.'

Much has been written in the Bauhaus literature about Itten's mysterious, mystical persona and the emotional and ideological reactions which his anarchic behaviour provoked. However, in a subject area traditionally dominated by either vocational or aesthetic priorities, it is understandable that the concepts of learning behaviour which he was attempting to explore should be unfamiliar and received with hostility by some. That Itten was actually attempting to probe deeper into the problem of education (for example, as stated by Dewey, 1904) than Gropius's ideal would allow can be inferred from his retrospective statement: 'I became aware of the fact that our scientific technological civilization had reached a critical point. I did not believe that the slogans 'Back to the Crafts' or 'Unity of Art and Technology' (Gropius viewpoints) were capable of solving our problems....... our outward looking scientific research and technology must be balanced by inward looking thinking and spiritual forces.' (Itten, 1963).

This attempt to achieve balance in an educational scheme is, according to Isaacs (1974), an accepted principle of general education. In Itten's case it appears to have been insufficiently recognised as an aim in the context in which he was working. His extravagant efforts to emphasise the more intuitive, creative and generally subjective elements of the overall scheme of education can be seen (from sixty years' distance) as a proper balance to the more technical, theoretical, instructional and professional aspects of the Bauhaus courses. The extent of Itten's influence
through the innovations he transposed from other areas of education can be seen by looking at:
(a) the organisational proposals he made and those to which he was opposed,
(b) the theories to which he subscribed, together with
(c) his own practical applications.

Organisational Proposals
Both Froebel and Dewey subscribed to the basic idea that any systematic scheme of education must be built upon firm foundations and must initially be concerned with building those foundations. Froebel had for this reason restricted his personal efforts to the early years of child education. Dewey similarly concentrated on the education of younger children. Of higher education he said, 'I have never been able to feel much optimism regarding the possibilities of higher education when it is built upon warped and weak foundations'. (Dewey, 1930).

The Art Education reformer, Herman Obrist, applying this principle in schools, proposed that there should be a one year elementary course where children could 'swarm' without direction. He further suggested that children at this stage should complete one problem per day using a method which derived from the individual's inclination. Again this would appear to be a direct translation from Dewey's school of thought. The role of the teacher as being one of guide, inspiration and a source of help was also a familiar concept in progressive education. Therefore Itten's proposal for a 'Basic Course' was novel only in the region of higher education, where it was unprecedented. The aims of the Basic Course at the Bauhaus were:
(a) to prepare students for further work by relieving them of obstructive attitudes and preconceptions
(b) to provide an introduction to and the necessary theoretical grounding for future courses, and
(c) to provide the means and some ideological background for a broader range of educational experiences than had previously occurred in design education.

In injecting this 'kindergarten' principle into the total Bauhaus course, its aims conflicted with Gropius's more practical purposes for the school.
Central to these latter purposes were the preparation of people for designing for industrial processes and the desire to act upon theories prevalent in the art reform movement which had as a basic premise the belief that only knowledge, skills and techniques were teachable. Gropius (1921) polarised the argument thus, 'We are not in a position to awaken creative powers and develop the innermost thoughts and feelings of young people with educational means. This can only be done with what we call personality. Only matters of skill, theory and practice can be taught'.

Itten disagreed and his viewpoint brought him sharply into conflict with Gropius. This conflict affected the arrangement and content of the Basic Course, forcing Itten initially to compromise politically and ultimately to resign from his position. However the introduction of the Basic Course did provide Itten with some organisational benefits which allowed the development of some ideas to take place, but not without difficulty. For example, the relationship between the practical and the theoretical components of the courses was thrown into relief and required some management. In this situation Itten's preference was to keep the relationship between the theoretical and practical aspects of the course freely interacting whilst attempting to design pedagogical exercises for a systematic exploration of this interaction. (Franciscono, 1971).

Gropius made this difficult by insisting that the theoretical and practical aspects of the work should be conducted separately and taught by different people. The theoretical components of the courses were expanded, made compulsory and conducted by one master, whilst the complementary practical work was undertaken by another. In this way Gropius hoped to achieve a balance between the two. In effect he was successfully maintaining the separation of elements of the 'educational scheme' which Dewey (1904) had drawn attention to, and which the educationists at the Bauhaus were only intuitively attempting to work out.

Itten, however, single-mindedly pursued in his own classes the relationship between both theory and practice, and attempted to build up a pedagogy of suitable exercises based upon an exploration of this interaction.
Theory and Practice

Close examination of what has been recorded of Itten's practical activities at the Bauhaus shows the extent to which his background in child education provided him with the necessary attitudes and practical tools of procedure required to design the sensible and stimulating schemes of work which became so influential. An important component of the Froebelian system, 'The Theory of Contrast', provided the basis for all preliminary course work. Itten's technique also drew upon the Montessori methods of sense education, i.e. experiencing contrast and gradations of contrast directly through the senses. Intellectual assimilation or formal description was then symbolically produced - either by graphical or other modelling media. In other words various 'language' devices - verbal, graphical, and modelling - were treated as media for the manipulation of sensually perceived internal experiences, methodically and repetitively exercised. (Itten, 1963; Montessori, 1964).

The basic experimental approach of Montessori is also fundamental to Itten's method. That is, to define the method and technique of proceeding in the classroom, without preconceptions of any sort as to the outcome. The application itself of method and technique provides a result which must be awaited, studied and used to inform further procedure. This can only be illustrated by referring to Itten's own teaching activities.

A synthesis of Froebelian and Montessori methods is demonstrated by Itten's 'Theory of Colour' and accompanying exercises. (Itten, 1963, 1970)
An innovatory use of Froebel's basic 'contrast' material, using the intermediate or reconciling mean to define colour, is combined with didactic material, or visual aids in the form of a colour circle and colour star to demonstrate and systematise the relationships of colour. In practice the relationship between, for example, orange and green could be explored, showing pure yellow to be the intermediate mean. Movement on either side of the intermediate position will produce many different shades of green-yellow or yellow-orange. Methodical
exercises devised by Itten based upon the colour star and circle therefore involved the student in independent exploration of colour, shade, gradations and contrasts which refined and sharpened his/her perceptions at the same time as developing ability to handle this language medium.

Studies in materials and texture were also conducted in a fashion only hitherto witnessed in progressive kindergartens. Students were encouraged to explore the environment - rubbish dumps, workshops, kitchens, cellars, etc. - for objects offering a variety of tactile experiences or characteristics; wood, wool, wire, feathers, glass, leather, fur, were subsequently incorporated into compositions where textural qualities were juxtaposed in an unlimited variety of relationships.

The geometric shapes 'of Bauhaus fame', were not initially used by Itten to provide exercises in a formalistic style, as they later came to be understood. Explorations of concrete and abstract forms were linked in ways previously peculiar to kindergarten and child education activities. They offered methodical exercises which were intended to improve thinking and present new media for representation of that thought. For example, in the Froebel system (Kraus- Boeltand Kraus, 1888) the second gift (apparatus) consists of a ball, cube, cylinder and cone. The teacher and the child 'play' together with each of the objects in turn in such a way as to reveal or make evident the essential characteristics of each object; e.g. the ball is round, capable of rolling, etc. Comparisons of forms involving direct attention to details and specific properties of the different shapes then take place drawing out relationships of similarity and contrast. Knowledge of form is thereby experienced, built upon, consolidated and defined before being translated into symbolic or abstract representation.

Itten's exploration of form, both concrete and abstract, followed a similar pattern but also incorporated methods which are credited largely to Montessori and derived from the training of handicapped children. Tactile experience of abstract form was afforded in the Montessori system by covering shapes with sandpaper. Bodily movement was also involved in discerning/emphasising visual perception of form.
Itten's use of these techniques are demonstrated in the ways in which his students were encouraged to experience abstract form as bodily movement. For example, swinging arm movements to follow the evenly curved, continuously moving line of the circle would precede attempts to represent the circle graphically on paper.

In this instance Itten (like Montessori) did not allow confusion to exist between the concrete and the abstract, between the actual form of an object and the mathematics of that form. In analysis, form was reduced to its simplest and experienced directly, using media for representation which spans a variety of materials (as in Froebel's 'occupations', Cross, 1979). Geometric analysis was based upon a differing set or kind of observations which were secondary or subsequent developments of these primary experiences. Itten's preliminary course in part therefore was clearly concerned with the education of the senses. This is not to be confused with the concrete ideas which may be gathered from the environment by means of the senses, a consideration which constitutes a second stage or strand of development within the preliminary course.

Further analysis of abstract form and shape encouraged by Itten built upon the preliminary experiences of perception in a progressive sequence familiar in child education even today. Exploration of form, i.e. proportion, plane, ratio, angle, volume and measurement first occurred as direct experience, i.e. visual and tactile, to define the essential characteristics. Representation of those characteristics was then made in modelling materials such as clay. Transfer from the three-dimensional representation to graphic reproduction of the specific form was then possible. In this way the logical progression involved exploration on several levels involving a variety of media for communication, including,

(a) reality and experience involving sensory perception, verbal language and bodily movement,
(b) sensory perception involving abstract notions of measurement, comparison, proportion, ratio, to encourage logical thought,
(c) transfer of essential characteristics into three-dimensional models, involving manipulation of the material acting as medium.
(d) transfer from three-dimensional forms into a two-dimensional graphic, symbolic picture (Itten, 1963).
At each stage the student was involved in methodical exercise of his perceptions, requiring concentrated attention, observation and judgement in independent inquiry and manipulative skills. The role of the teacher required that he should observe and be sensitive to the student's responses in these activities, and to encourage and guide the process of exploration which was occurring. The evolution of general statements or basic laws of form and colour, and the subsequent grammar of visual expression was therefore a direct result of the experimental approach to teaching which Itten developed between 1919-1923 at the Bauhaus.
THE PRESSURE OF INDUSTRIAL PRODUCTION

When the Bauhaus was first established, Walter Gropius and Johannes Itten seemed to be in agreement as to the nature of the educational experience which the institution was to offer. However in the first four years fundamental differences of ideology were to emerge (or develop) between them, which resulted in irreconcilable aims for the future conduct of the courses being proposed by both. Compared to Itten's fundamental grasp of educational principles and his politically 'neutral' experimental approach, Gropius's ideas on education demonstrated an ideology which proved to be obstructive to the explorations which Itten had initiated.

The separation of theoretical and practical work, which was opposed by Itten, effectively maintained boundaries between the two (except in Itten's own classes). Workshops conducted somewhat in the fashion of the 'Dalton Plan' tended to maintain the 'craft' traditions of fragmented teaching rather than the unified education initially sought. Gropius' insistence on the value of craft training for students whom he was expressly preparing for working with industrial machines became strengthened. His argument that the industrial machine process differed from the handicraft process only in the division/unity of labour which was involved (Gropius 1922) was based (unrealistically it seems) upon a Utopian ideal of industrial processes which has yet to be realised. His aim for the school was product orientated, and experimental only so far as it would produce prototypes of objects designed for industrial production.

An exhibition in 1923, intended to show the results of four years of experimental work, brought about a situation which in effect brought the intense educational experiments of Itten to an end at the Bauhaus. A year later, Gropius's view was that:

"The last Leipzig Fair was a distinct success. All Bauhaus workshops were busy for five months filling orders. At this time more than fifty firms were buying Bauhaus products to such an extent that the scarcity of machinery and capital made it impossible to fill orders".

(Bayer, Gropius and Gropius, 1975).
Ferocious pressures to produce artifacts for industrial production techniques harnessed the Bauhaus to the mainstream of economic life in Germany. The conditions no longer existed for the kind of exploration of ideas without preconceived results which the initial experiment had needed. Itten resigned under such constraints.

Enough ideas and enthusiasm remained in the Bauhaus for it to continue to embrace a wide range of educational activity. But the predominant direction became established after 1923 as one in which genuine experimental education in its broadest sense could no longer be pursued with the necessary economic detachment.
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