

Research on Basic Design Education: An International Survey

C.G. BOUCHARENC

Department of Architecture, School of Design and Environment, National University of Singapore, 4 Architecture Drive, 117566, Singapore; E-mail: akicgb@nus.edu.sg

ABSTRACT: This paper reports on the results of a survey and qualitative analysis on the teaching of 'Basic Design' in schools of design and architecture located in 22 countries. In the context of this research work, Basic Design means the teaching and learning of design fundamentals that may also be commonly referred to as the Principles of Two- and Three-dimensional Design. The body of knowledge associated with Basic Design may be regarded as part of the general theory of teaching and learning design as practiced in many design schools and which has its origins in the classical design schools such as the Bauhaus. In the author's perception and practice, the pedagogy of Basic Design promotes a holistic, creative and experimental methodology that develops the learning style and cognitive abilities of students with respect to the fundamental principles of design. This includes an understanding of the elements of shape, colour, texture, light, and rhythm in a manner complementary but usually unrelated to the common design methods teaching approach. As is well known among design practitioners, including architects and industrial designers, a deep understanding of the purpose of these fundamental design elements and principles is still relevant to contemporary design practice. The main objective of the research described in this paper was to determine the status and development of Basic Design pedagogy in a significant number of contemporary design schools. On the basis of the results of two surveys conducted in 2001–2002, this paper will identify and illustrate interesting aspects concerning the programmes and organisation of courses delivered by teachers of 'Basic Design'. This work will also survey the viewpoints of Basic Design teachers in elementary years of design courses and of those teaching design through projects during the subsequent years of the same courses. Interestingly, the design project teachers surveyed in this research expressed a desire to be more involved in the teaching of Basic Design fundamentals which indicates strongly that Basic Design principles are still relevant in contemporary design education terms as they have ever been and that more research is needed in order to better understand and apply the related pedagogy.

Keywords: basic design, design courses and programs, design exercises, pedagogy of design, principles of two- and three-dimensional design, qualitative analysis

INTRODUCTION

As an educational program, 'Basic Design' can often be enhanced more by the curiosity and experiences of students than by the theoretical content of the subject matter taught. It is generally accepted that this form of teaching and learning develops the creative spirit of students by introducing them to shapes, colours, rhythm, and light outside of any

academic approach, and by allowing them to discover a personal bond with various materials. 'Basic Design', also known as 'Foundation Courses' or 'Enseignement Préliminaire', formed the basis of the pedagogy of the classical schools of design and architecture. That is, the Vhutemas, the Bauhaus, the 'Chicago Bauhaus', and the Ulm School (Hochschule Fur Gestaltung). This teaching approach, which has undergone multiple changes since the 1920s, lost much of its importance from the 1960s onwards, and at times even disappeared from educational programs in Germany. However, the past 20 years or so have witnessed a rebirth of Basic Design education through many debates and pedagogical propositions (Bonollo & Lewis 1996, pp. 4–19; Boucharenc 1992, 2002, pp. 20–27; Burkardt 1988a–c ; Green & Bonollo 2002, 2003; Lewis & Bonollo 2002, pp. 385–406; Wallschlager & Busic-Snyder 1996). The objectives and methodology of the research described in this paper will now be discussed.

RESEARCH OBJECTIVES AND METHODOLOGY

The main objective of the research described in this paper was to determine the status and development of Basic Design pedagogy in a significant number of contemporary design schools for the purpose of developing a possible new curriculum and methodology of teaching. This includes gaining an understanding of today's pedagogical methods and principles of Basic Design, then to determine and compare the views of teachers of Basic Design and those teachers employing project-based design methods. The experimental data obtained for this study consist mainly of responses to survey questionnaires conducted in contemporary Schools and a related qualitative analysis (a copy of the questionnaires is given in Appendices 1 and 2). These data came from the teachers who teach Basic Design and also for those who teach design through projects, thus providing the opportunity for identifying possible interesting differences in teaching styles or methods.

Design of the questionnaires

The noted survey had two component parts, namely, a questionnaire sent to basic design teachers and one sent to teachers who teach design through projects (henceforth referred to as BD (Basic Design) teachers and DP (Design Project teachers), respectively. These questionnaires were structured as follows:

Questionnaire 1 (for Basic Design teachers)

The four-page questionnaire (translated into six languages) was based in part on relevant information gathered from the literature on the classical schools of design, and in part on the results of a previous questionnaire on the teaching of Basic Design in Europe (Boucharenc 1992, pp. 38–75),

with account also taken of various published seminars on Basic Design (Biesele 1986; De Sausmarez 1964; Séminaire Franco Allemand Basic Design 1988; Séminaire Franco Britannique Basic Design 1988; Wong 1972). Note that each questionnaire contained a structured list questions, but respondents were also given the opportunity to provide open-ended answers if they wished. For brevity, only the main parts of the questionnaire structure for the BD teachers are outlined below (more details are given in Appendix 1), namely:

1. General organisation of the course of study.
2. Objectives of the 'Foundation Course' (Basic Design course).
3. Pedagogical Approach (basic principles of teaching).
4. Exercises and practical work assignments.
5. Examples of introductory coursework at the respective school.
6. Analytical exercises.
7. Chronology and link between different basic design exercises.
8. Teacher and instructor ideals or wishes.
9. Suggestions or comments: This questionnaire was prefaced by a letter of introduction in which, apart from the usual explanations, a request was also made for the teachers to provide some representative examples of students' work. Regrettably, most of the teacher surveyed did not provided any information on this aspect except that a few teachers sent the brochure of the respective design school, which contained photographs of student work but no specific explanations. Hence, these brochures were of limited value for research purposes. Complementary to this first questionnaire, a modified questionnaire was sent to DP teachers in order to obtain their views about the teaching of Basic Design and its significance in the context of preparing and/or assisting students for further learning through design projects.

Questionnaire 2 (DP teachers)

This second questionnaire was similar to that directed to the BD teachers, but with the inclusion of more precise questions related to design project work. This questionnaire was divided into eight parts and organised as follows (more details are given in Appendix 2).

1. General ideas on the concept of Basic Design.
2. Pedagogical approach (basic principles of teaching).
3. Essential themes to be developed.
4. Know-how about the use of computers, etc.
5. Types of exercises.
6. The organization of the teaching.
7. Teacher/instructor wishes and ideals.
8. Suggestions or comment. The distribution of these questionnaires will now be discussed.

*Distribution of the questionnaires**Questionnaire 1: Basic Design teachers*

The first questionnaire was sent to 616 universities and schools of architecture and design in 36 countries around the world. These establishments were chosen on the basis of information gathered at Japanese Design Centres whilst the author was working and researching there, as well as through lists supplied by the embassies and cultural centres of various countries. This study was conducted from January 2000 to September 2001. The first part of this research on Basic Design yielded a response rate of 29% (178 universities) to the questionnaires originally mailed to these universities. However, only 19% could be analyzed because only 118 schools actually reported teaching Basic Design courses. These response rates and the associated countries data are shown in Table I, below. As noted by one of the referees to this paper, these response rates are typical to surveys of this kind.

In qualitative absolute terms, it may be observed from Table I that the largest number of responses came from France (30), Japan (26), Great Britain (23), the United States (18), Germany (15) and Belgium (11) and so on. This variability in response rates and small sample sizes from many of the respective countries suggested that a qualitative rather than a quantitative (statistical) analysis was the way to proceed with the related data in this research.

Questionnaire 2: Design Project teachers

This second part of this survey, targeted at the DP teachers, was conducted in the following manner. The 118 teachers of Basic Design who responded to the first questionnaire were provided by mail with the analysis and findings related to their responses to the questionnaire. As part of this mailing, they were asked to pass on the second questionnaire, described above, to their colleagues involved in design project teaching in the academic years following the year in which Basic Design teaching took place. Unfortunately, out of the 118 universities contacted, only 18 universities responded to this second questionnaire; again, a relatively small sample size making statistical analysis difficult at this stage of the research. Interestingly, eight universities that failed to respond to the first questionnaire did in fact respond to the second one. Follow up letters by the author failed to elicit additional responses. In this case, the actual reasons for this low response rate are not clear although it may have been due to poor communication between individuals. As a result of this poor initial response from project teachers, an additional 80 universities were contacted with the noted questionnaire for DP teachers. The final number of responses was thus 80, spread among only 12 countries; this list of universities and schools is shown in Appendix 4. This study was conducted during the period September 2001 to June 2002. The analysis of the survey data will be discussed next.

TABLE I
Questionnaire country and respondent data

	No. of questionnaires mailed to institutions	No. of respondents (individual teachers)	No. of schools effectively teaching Basic Design
Argentina	21	2	2 (9.5%)
Australia	15	3	3 (20%)
Austria	7	3	3 (23%)
Belgium	20	11	8 (40%)
Bulgaria	2	0	0 (0%)
Brazil	10	2	2 (20%)
Canada	15	5	5 (33%)
China	20	5	5 (25%)
Croatia	4	1	1 (25%)
Cuba	1	0	0 (0%)
Czech Republic	4	2	2 (50%)
Denmark	3	1	0 (0%)
Finland	5	2	2 (40%)
France	47	30	9 (19%)
Germany	57	15	13 (22%)
Great Britain	73	23	15 (20.5%)
Greece	2	0	0 (0%)
Egypt	2	0	0 (0%)
Hungary	1	0	0 (0%)
Ireland	5	2	2 (40%)
Israel	3	1	0 (0%)
Italy	9	0	0 (0%)
Japan	90	26	25 (27%)
Korea	17	0	0 (0%)
Malaysia	9	2	1 (11%)
Morocco	2	0	0 (0%)
Netherlands	2	0	0 (0%)
Norway	10	5	3 (30%)
Poland	10	2	1 (10%)
Portugal	16	2	0 (0%)
Singapore	1	1	0 (0%)
Spain	14	5	3 (21.5%)
Sweden	5	0	0 (0%)
Switzerland	6	4	2 (33.3%)
Thailand	16	4	4 (25%)
United States	92	18	9 (9.7%)
Total	616	178 (29%)	118 (19%)

ANALYSIS OF SURVEY RESULTS

The two noted questionnaires elicited a number of responses regarding the teaching of Basic Design including the future pedagogical directions as expressed by both BD and DP teachers. It is worth noting that a negligible number of design project teachers were found to be also involved in the teaching of basic design subjects or modules. Hence, the

two groups have been treated as mutually exclusive from this viewpoint. In order to better understand the links between these two essential periods in the students' courses of study, that is, their sequential learning of Basic Design and Design through Projects respectfully, it is useful to compare the respective points of view, between BD and DP teachers. Recall that this survey recorded the responses of 118 BD teachers spread throughout 26 countries and these may be compared to the 80 responses from DP teachers from only 12 countries – 45% of the latter were responses from Japanese DP teachers. It is realized therefore that the responses of the DP teachers are significantly influenced by the views of Japanese DP teachers. However, the 55% (44 individuals) of DP teachers from other countries still represent a sample size that will allow for a reasonable qualitative analysis. The responses to the respective noted questionnaires are discussed below in relation to the most relevant sections.

Analysis of responses to the survey questionnaires

Analyses of responses to a selection of the most representative questions follow here. The questions selected concerned the positioning of Basic Design in a particular course of studies; the principal pedagogical or teaching and learning approaches linked to Basic Design (namely, the use of discovery and analytical types of exercises) and the principal themes of Basic Design exercises. These questions were selected to highlight the differences and similarities of points of view between the BD teachers and the DP teachers. These questions were structured into six main sections as follows:

1. Duration of the foundation (basic design) courses: With respect to this characteristic, analysis of teachers' responses were expected to highlight differences between the actual duration of the basic design courses and the ideal duration of courses as perceived by BD and DP teachers (refer Figures 1–3).
2. The Pedagogical approach (refer Figures 4 and 5): – As characterised by the type of introductory basic design exercises used by the teachers. Analysis of responses to this question would presumably identify the main methods of teaching derived from the classical Schools (Bauhaus, etc.), namely, through the methods of:
 - Experimentation (this means, leaving students free to investigate or develop in their own intuitive ways such creative outcomes as novel three-dimensional forms or simple technical functional inventions or mechanisms.)
 - Exercises with set limits (this method, involves controlling the time allocated for completion of the exercises in order to enable junior or naïve students to gradually organize and manage their time – an

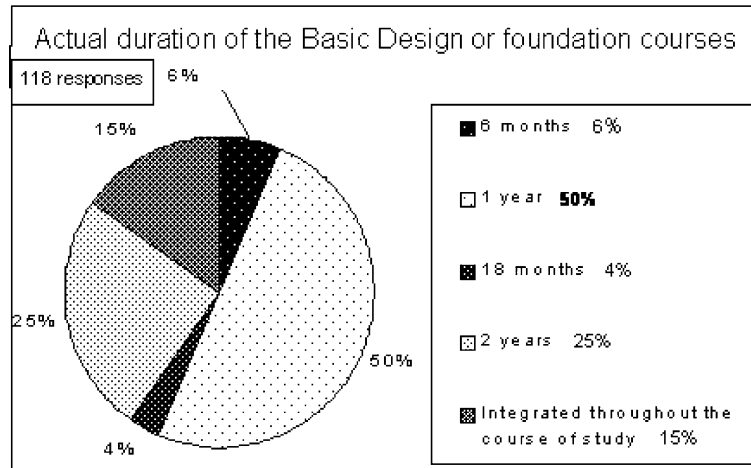


Figure 1. Responses from Basic Design teachers – actual duration.

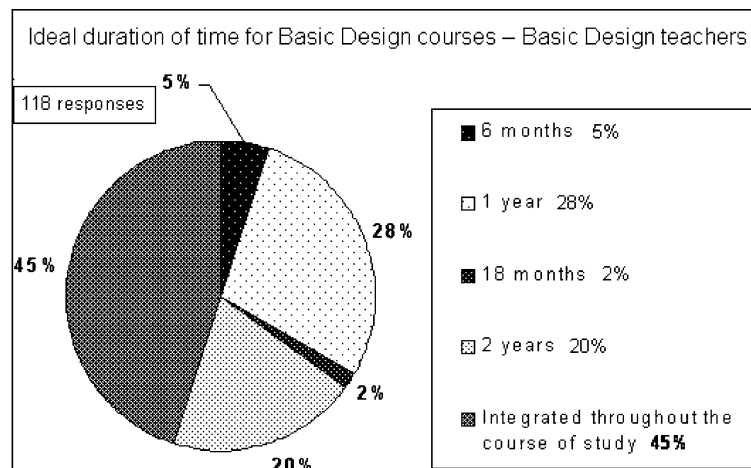


Figure 2. Responses from Basic Design teachers – ideal duration of time allocated.

essential capability when moving on to more complex design exercises and, in due course, design projects).

- Exercises based on economy of means (by this method, it is understood that the quantity of the materials and the type of tools to be used in the exercises are limited or restricted. As a simple example, working with only one sheet of paper and the like in order to stimulate the students' creativity).
- Reduction of parameters (this means that students are expected to solve a limited number of problems at any one time, before

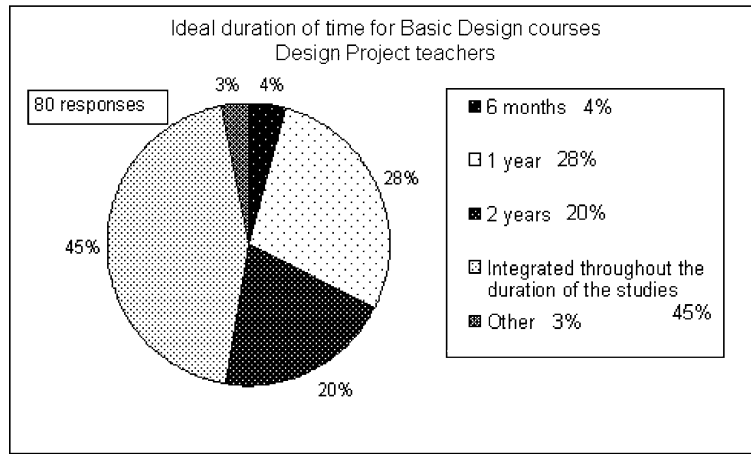


Figure 3. Responses from Design Project teachers – ideal duration of time allocated.

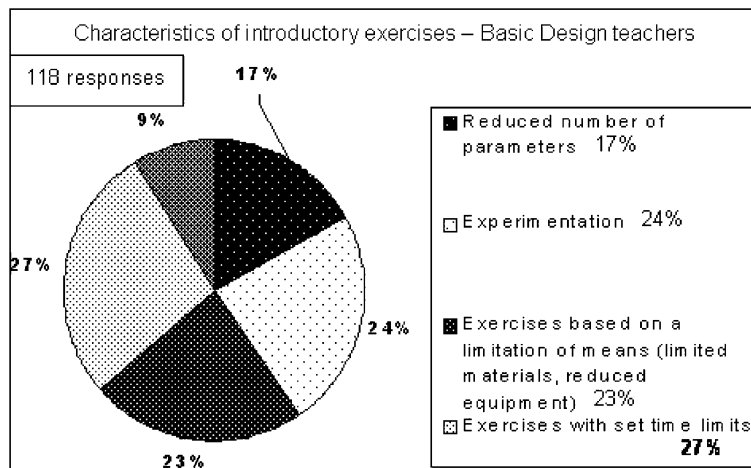


Figure 4. Responses from Basic Design teachers.

moving on to more complex problems. For example, beginning with a basic geometric shape such as circle, to develop an exercise on rhythm, followed by an exercise on deformation and then an innovative pattern all in a two-dimensional, graphical poster presentation on A3 paper).

- Copying of existing projects (for example, producing simple reproduction drawings of existing products such as a building of simple construction, a sculpture or a consumer product).
3. Pedagogical approach – as characterised by analytical exercises (refer Figures 6 and 7).

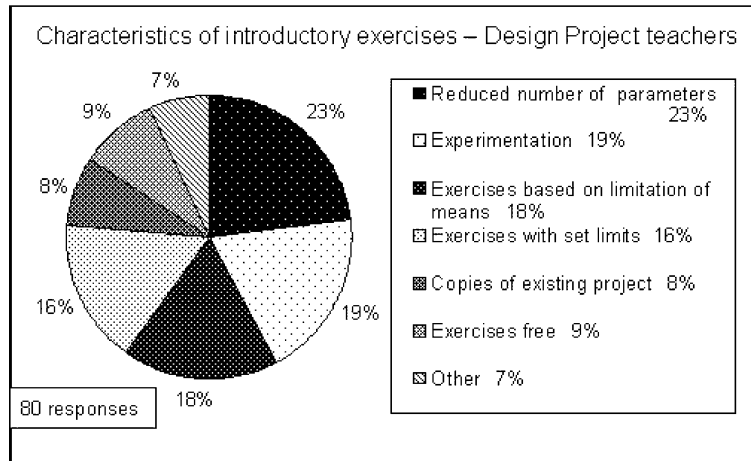


Figure 5. Responses from Design Project teachers.

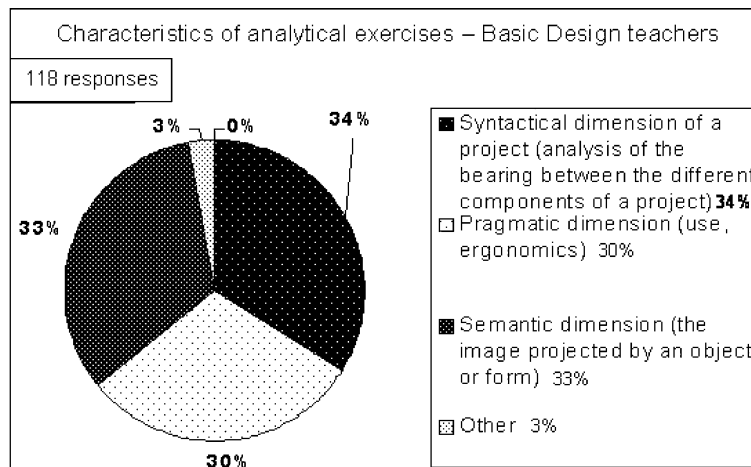


Figure 6. Responses from Basic Design teachers, analytical exercises.

4. The essential themes to be developed in the Basic Design courses (refer Figures 8 and 9).
5. Detailed study of colour (see Figures 10 and 11). To identify the common dimensions of colour theory.
6. Teaching visualisation techniques (see Figures 12 and 13). The purpose of this question was to discover the different techniques of perspective and freehand sketching teaching methods employed by the teachers such as Axonometric, Isometrics, Freehand sketches,

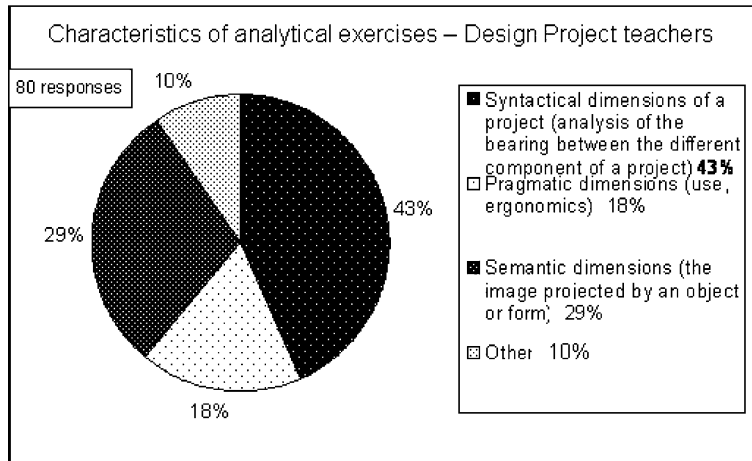


Figure 7. Responses from Design Project teachers, analytical exercises.

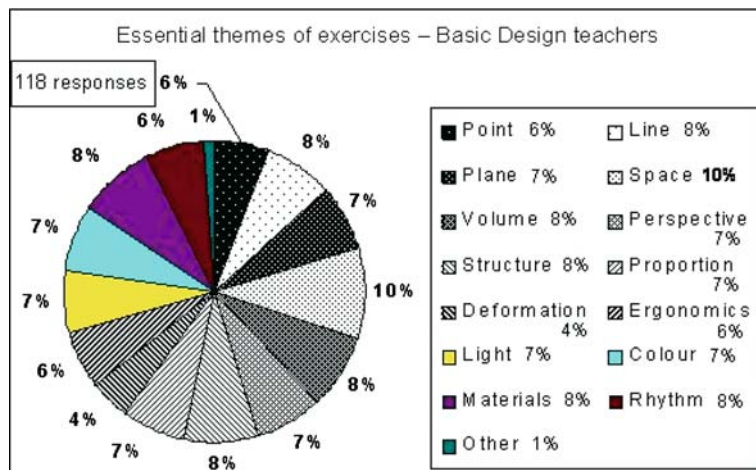


Figure 8. Responses from Basic Design teachers – essential themes of exercises.

Models, 3D Software, etc. The analysis of the responses to the above list of questions is given hereunder.

Duration of foundation (Basic Design) courses

The percent response data in the three charts shown here refer to the actual duration of the foundation course (Figure 1); the desired or perceived ideal, duration of the Basic Design course of study for DP teachers (Figure 2); and desired duration of the Basic Design course for BD teachers (Figure 3).

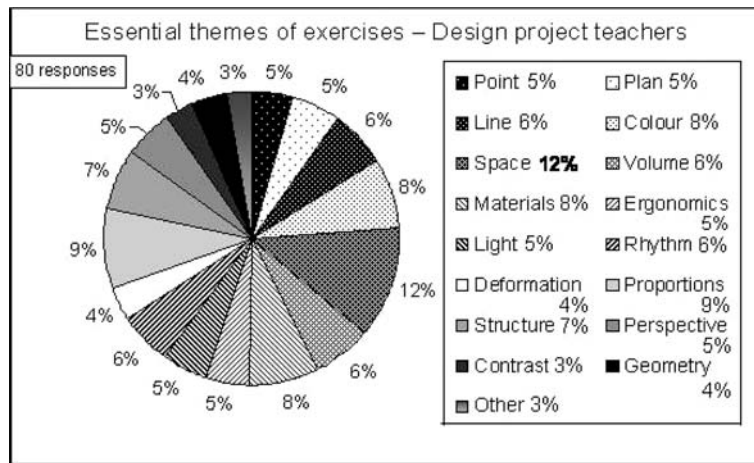


Figure 9. Responses from Design Project teachers – essential themes of exercises.

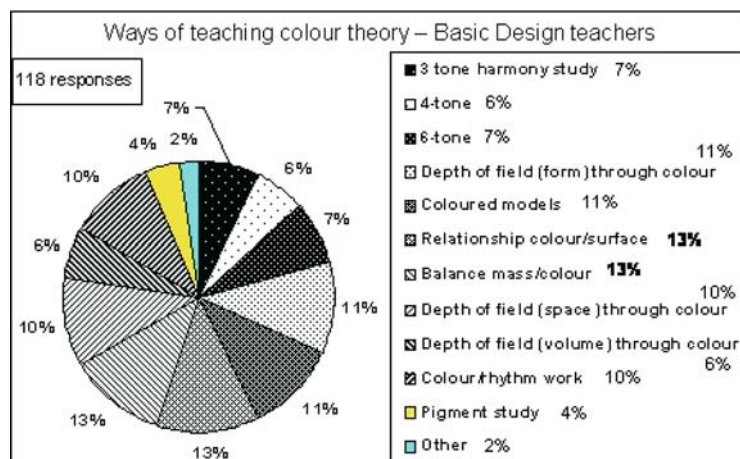


Figure 10. Responses from Basic Design teachers; ways of teaching colour theory.

Figure 1 shows the actual duration of time allocated to the teaching of Basic Design in relation to the responses from teachers expressed as a percentage fraction of the teachers surveyed (sample size = 118 teachers from 118 institutions). From this figure it is clear that:

- (i) 50% of the teachers’ surveyed (59 persons) taught Basic Design for a period of 1 year, 25% of the teachers taught the subject for 2 years, 6% taught for 6 months and 4% for a period of 18 months.
- (ii) Significantly, only 15% of the teachers surveyed taught Basic Design as an integrated course of study over the whole academic

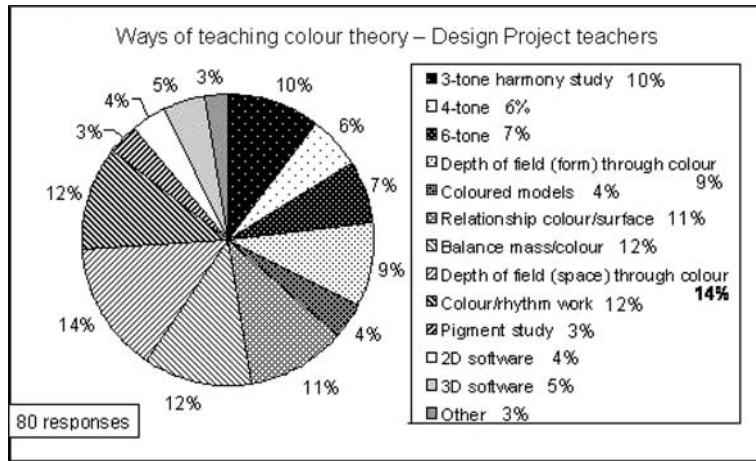


Figure 11. Responses from Design Project teachers; ways of teaching colour theory.

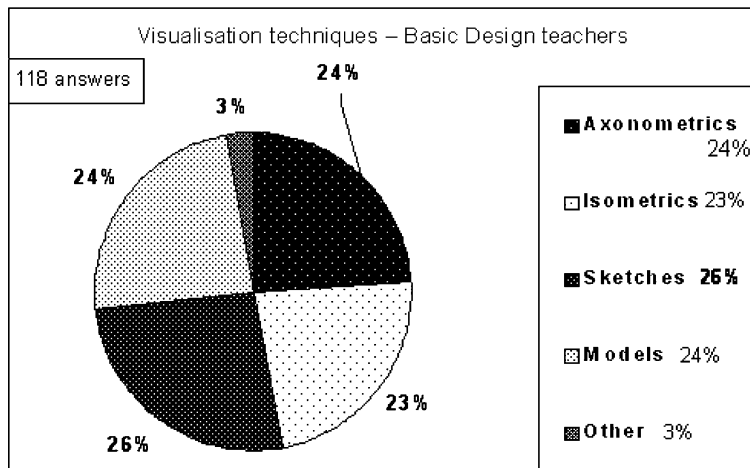


Figure 12. Responses from Basic Design – visualisation techniques.

program. It is clear that the teaching of Basic Design is still regarded as very important in many design programs (118 institutions) with 79% of the respondents teaching BD for period ranging from 1 to 2 years. It follows that further research into the pedagogy of BD should prove to be worthwhile in terms of identifying and improving pedagogical methods, especially as the small and variable sample sizes, along with the respective variable response rates, for the different countries surveyed made inter-country comparisons difficult.

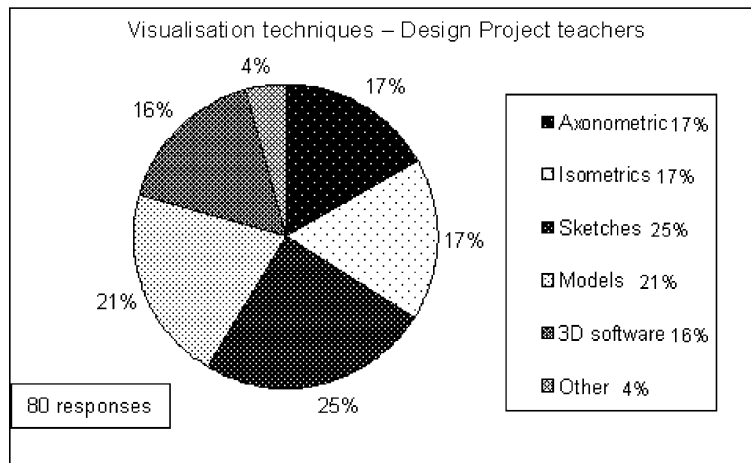


Figure 13. Responses from Design Project teachers – visualisation techniques.

It is of interest to compare the responses from BD and DP with respect to what they perceive would be the ideal duration of BD courses in academic programs. These data are shown in Figures 2 and 3 hereunder.

Figure 2 shows the response from the noted BD teachers in terms of what they perceived to be the ideal duration of time allocated to the teaching of BD. In brief, it can be seen that:

- (iii) 28% of the teachers surveyed thought that Basic Design should be taught for a period of 1 year, 20% of the teachers were of the opinion that the subject should be taught for 2 years, 5% taught ideally for 6 months and 2% for a period of 18 months.
- (iv) Significantly, in qualitative terms, 45% of the teachers surveyed were of the view that Basic Design should be taught as an integrated course of study over the whole academic program. From (iii) and (iv) above it follows that, ideally, 45% of BD teachers would prefer that the teaching of BD be integrated into an academic program over all course years. In this case, 55% of the teachers would keep BD teaching to the first two years of a program. Hence, the current situation in the teaching of BD in the surveyed school (Figure 1, above) does not accurately reflect the wishes of the teachers. The related responses from the DP teachers surveyed are given below.

Figure 3 shows the response from the noted DP teachers in terms of what they perceived to be the ideal duration of time allocated to the teaching of BD. From this figure, it can be seen that:

- (v) 28% of the DP teachers surveyed thought that Basic Design should be taught for a period of 1 year, 20% of the teachers were

of the opinion that the subject should be taught for 2 years, 4% taught ideally for 6 months and 3% for other periods.

- (vi) Significantly, 45% of the DP teachers surveyed were of the view that Basic Design should be taught as an integrated course of study over the whole academic program. Referring to the results shown in (v) and (vi), and comparing Figures 2 and 3 referring to the perceived ideal duration of BD courses, it is interesting to find very close qualitative relation between the views of BD and DP teachers. Both groups believe in the perceived importance of teaching BD as an integrated part of the program curriculum over the duration of a course. Therefore, this result has important implications for program curriculum designers and researchers.

The pedagogical approach – characteristics of introductory exercises

From Figure 4, considering the totality of responses from BD teachers, it is found that the pedagogical approach of BD teachers was distributed as follows namely, 17% included exercises, which specified a reduced number of parameters (example; to produce an object which focuses on one theme such the use of as two or three colours); 24% included exercises based on experimentation (such as generating an original concept); 23% included exercises based on limitation of means; 27% included exercises with set time limits and 9% included other approaches. The pedagogical approach based on exercises with a reduced number of parameters is somewhat relatively lower percentage wise than the noted following three approaches. However, most of the teachers appear to be using a pedagogical approach, which is consistent, whether the teachers realise it not, with the teaching of the great design schools, namely the Bauhaus, the Vhutemas, the Chicago Bauhaus and the Ulm School which used these four approaches in their pedagogy.

Figure 5 shows the distribution of responses obtained from 80 DP teachers with respect to the pedagogical approach, which they favoured. The structure of this chart differs compared to the chart in Figure 4 since additional types of exercises are used, namely, ‘copies of existing projects’ (or products which already exist); and ‘free exercises’ (where students are given much freedom to select the subject for their design project). However, it is possible to make two observations, namely:

- (vii) Recall that the BD teachers showed the following priorities in decreasing order of magnitude for their pedagogical approach, i.e., exercises with set limits (27%); experimentation (24%); exercises based on economy of means (23%); and reduction of parameters (17%). In contrast, the DP teachers show priorities: which are inverted in relative order of magnitude, i.e., reduction of parameters (23%); experimentation (19%); exercises based on economy of means (18%), and exercises with set limits (16%). It follows that the order of priorities in setting the types of exercises

is qualitatively different for the DP teachers case, as one might expect in teaching through design projects where the parameters are usually closely fixed as part of the design briefs.

- (viii) For the DP teachers, copying of existing projects only represents a minor percentage (8%) of the total approach, which suggests that conventional academic way teaching based on rote learning and copying (as in many art and design schools), as rejected by the Bauhaus philosophy, has also been largely rejected by the DP teachers although their responses highlight that the 'free exercises' (9%) should still be closely controlled.

The pedagogical approach – characteristics of analytical exercises

Figure 6 below shows that, for analytical type exercises, the responses of the BD teachers favouring the three analytical dimensions are more or less evenly distributed, namely, syntactical (34%), semantic (33%), and pragmatic (30%). In contrast, the replies of the DP teachers show greater variations. They give first priority to syntactical analysis (43%), well ahead of semantic analysis (29%) and pragmatic analysis (18%). This priority is an indication of the importance given to structure, and to the links that connect the elements of a composition of a product or architectural design from a connectivity viewpoint.

Essential themes developed in Basic Design courses

Figures 8 and 9 show the responses from BD and DP teachers, respectively in terms of the essential themes to be developed during a Basic Design course. Except for the theme of space, which is marginally higher, note a relatively even and similar distribution of the responses for the thematic exercises in the two graphs favoured by both BD and DP teachers.

From these charts, it is clear that for many teachers the pedagogical approach or methodology of teaching Basic Design has not changed much over the years. That is to say, the fundamental themes of point, line, colour, etc., are still taught in the conventional segmented manner or step-wise fashion.

Detailed study of colour

Figures 10 and 11 show the responses of BD and DP teachers, respectively with respect to their views on how the elements of colour theory should be taught in Basic Design courses.

It is interesting to note that, in general, there is a very good level of agreement between the two groups of teachers on how colour theory should be taught. The DP teachers however appear to place a low priority on the teaching of colour theory using 2D and 3D software, although the BD teachers were not asked questions about these software tools – so the responses of the latter are not known for this part of the

questionnaire. Note that the responses favouring space and colour are relatively high for both groups of teachers.

Teaching visualisation techniques

The questionnaire responses regarding these techniques are shown in Figures 12 and 13. These two figures are not identical because the chart for the DP teachers has one more classification, i.e., “3D computer tools.” Comparison of the data in these two figures reveals an important difference. For the BD teachers, the actual teaching preferences show that the four traditional approaches are evenly distributed i.e., axonometric techniques (24%); isometric (23%); sketches (26%), and models (24%). The use of computer software for visualisation of concepts was hardly mentioned by the BD teachers as indicated by the ‘other’ category (3%). The DP teachers, on the other hand, show how they think the visualisation techniques should be taught, namely in two distinct groups. Firstly, the use of sketches (25%) and models (21%) form one group (similar to the BD teachers); and in the second group, axonometric (17%), isometric (17%) and 3D computer tools (16%) are evenly distributed. This indicates that while the DP teachers consider skill in sketching to be important, they also favour a more pragmatic and efficient approach that includes the use of computer software. Otherwise, there is a reasonable agreement between the practice of BD teachers and the wishes of DP teachers.

FINDINGS AND CONCLUSIONS

This research has revealed a number of important finding and conclusions. Although the respondent data have not been analysed on the basis of using statistical methods (e.g., for intra and inter country differences and related issues on the teaching of Basic Design) for the reasons noted, the number of responses from teachers has been sufficiently large to enable strong qualitative conclusions although further research is needed. These conclusions are summarised below:

Duration of Basic Design course (refer 1.1 of the Analysis)

It is interesting to find that 85% of the BD teachers of the survey actually taught Basic Design for a period ranging from 6 months to 2 years. However, and qualitatively this is most significant, 45% of the BD and DP teachers were of the view that the teaching of BD should be integrated over the full length of the academic program. It may be concluded that the present contemporary state of the art with respect of the teaching of Basic Design diverges significantly from what the large sample of teachers perceive to be the ideal situation. This result suggests that related curriculum reviews are urgently required.

Pedagogical Approach – characteristics of the introductory exercises (refer 1.2 of the Analysis)

It is interesting to find a difference of opinion between the BD Design and DP teachers, namely, DP teachers consider that the control of the parameters in design projects is an important consideration, as might be expected when teaching with relatively free or open-ended design projects or assignments. On the other hand, BD teachers are found to be preoccupied with teaching design fundamentals in more structured ways by controlling the limitations of means, and the learning conditions, including the time allocated to the exercises. However, there are relatively small differences in the practice of BD and DP teachers in this case, so it would appear that both groups of teachers are thinking along similar pedagogical lines.

Pedagogical approach – characteristics of analytical exercises (refer 1.3 of the Analysis)

In this case, it may be concluded that BD teachers place an equal importance on the three main analytical classes (syntactical, pragmatic and semantic dimensions). In contrast, DP teachers place a higher emphasis on the syntactical dimensions of design projects. This follows logically because students undertaking design projects have to carefully consider how the component parts of the design and their construction fit and are connected together in the product.

Essential themes developed in Basic Design courses (refer 1.4 of the Analysis)

There is general agreement on the themes to be considered in the teaching of Basic Design and Design through design projects. Note that there are a relatively large number of themes, which are considered to be important in the pedagogy of design, and it suggests comprehensiveness in the approach is preferred by both groups of teachers.

Detailed study of colours (refer 1.5 of the Analysis)

There is very good agreement between the two groups of teachers with respect to this pedagogical aspect, although the DP teachers have attached a relatively low importance to the use of software tools in teaching colour theory. It appears, therefore, that the traditional approach to the teaching of colours is considered to be essential by both groups of teachers.

Visualisation techniques (refer 1.6 of the Analysis)

The majority of the teachers ticked the all four techniques (axonometric techniques (24%); isometric (23%); sketches (26%), and models (24%))

which indicated that they gave an equal weighting for each of these form of teaching.

However, and not surprisingly, the DP teachers attached some importance to the teaching of perspective through the use 3D software, given the well-known advantage and efficiency of using such tools in the design process.

In closing, several general conclusions from this research work are worth noting:

1. The pedagogy of Basic Design teaching is still a very important component in design education programs in many the world (see Table I for details).
2. BD teaching should be integrated across design education programs as witnessed by the opinion of a significant group of BD and DP teachers. It makes sense to link the fundamentals of design knowledge as covered in BD teaching with the practical aspects of professional design practice, as introduced in DP teaching.
3. The findings of this research suggest that additional research is required into the teaching of Basic Design, which treats the fundamentals in a rational way whilst linking the related knowledge, attitudes and skills derived from the study of Basic Design to the pedagogy of design practice.
4. Despite the advance and common application of computer based design tools, it is still fundamentally important for design students to develop perceptual motor skills such manual modelling skills and skill in the manipulation of materials, the object being to develop a personal understanding and relationship with object making and materials. Finally, it appears that further research, including experiments involving statistical analysis of data, is required in the field of Basic Design in order to investigate the influence of the pedagogy of the classical schools (Bauhaus, Vhutemas, Chicago Bauhaus, and Ulm schools) and the reinterpretation of this pedagogical thinking in a contemporary design education context.

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APPENDIX 1: QUESTIONNAIRE 1, BASIC DESIGN TEACHER

Name of the Professor:

Electronic address (e-mail):

Name of the school: University of Arts and Design, Helsinki, Finland

Address of the school:

Primary Area of Specialisation of the school:

Architecture Furniture Design Interior Architecture Industrial Design

Visual Communication Textiles Ceramics Interdisciplinary
Other —

10. General organisation of the course of study

1-1 Program development

Regulated by the Ministry Decided by a panel or board within the school Left to the guise of the teacher

Prepared in collaboration with professors of future areas of specialization

Other —

1-2 The place of Basic Design ('Foundation Course' or 'Enseignement Preliminaire') within the curriculum of your school

Prerequisite subject common to all areas of study Orientation towards an area of specialisation at the end of the preliminary study Individual preliminary subject for each area of specialisation Area of specialisation decided from the onset Other —

1-3 Duration of the 'Foundation Course'

6 months 1 year 2 years Integrated throughout the course of study Other —

1-4 Qualifications of the teachers

Architect Sculptor Designer Engineer Colourist Painter

Graphic Designer Other —

1-4-1 Teaching only Basic Design Teaching Basic Design and overseeing the project

1-5 Guest lecturers

Architect Sculptor Designer Engineer Colourist Painter

Graphic Designer Other —

1-6 Testing and evaluation

School panel or board Individual correction Other —

1-7 Publications or presentations of Basic Design research projects

Each semester Each year Compendium Internet Other —

11. Objectives of the 'Foundation Course' (Basic Design course)

Study of different workshop techniques General knowledge of various subjects To facilitate the choice of an area of specialisation Acquisition of the basics necessary for all artistic disciplines Project preparation As a link between different subject areas To free the student from mere copying To teach the student how to manage work-time Other —

12. Pedagogical Approach (basic principles of teaching)

Time % allotted to each (introductory exercises, analytical exercises, assimilation of new material/knowledge)

3-1 Introductory exercises: %

Reduced number of parameters Experimentation Exercises based on a limitation of means (limited materials, reduced equipment) Exercises with set time limits Copies of existing projects Other —

3-2 Analytical exercises: %

Syntactical dimensions of a project (analysis of the bearing between the different components of a project)

Pragmatic dimensions (use, ergonomics) Semantic dimensions (the image projected by an object or form)
Other —

3-3 Assimilation of new material/knowledge: %

(academic classes paralleling Basic Design studio-work)

*13. Exercises and practical work assignments**13-1 Average yearly number of Basic Design works*

Between 5 and 8 Between 8 and 12 Between 12 and 20 Other —

13-2 Essential themes to be developed

Point Plan Line Colour Space Materials Ergonomics Volume

Light Rhythm Deformation Proportions Structure Perspective Other —

13-3 Division and increase of time allowed, and theme, for each Basic Design work

1st exercise/work: theme — time — 2nd: theme — time —
 3rd: theme— time— 4th : theme — time — 5th : theme—
 time — 6th : theme— time — 7th : theme— time —
 8th : theme— time — 9th : theme— time — 10th : theme—
 time — 11th : theme— time — 12th : theme— time —
 13th : theme— time — 14th : theme— time — 15th : theme—
 time — 16th : theme— time —

13-4 Material means available to the student

4-4-1 Studio/workshop:

Wood Metal Plastic Ceramics Textiles Plaster Paint
 Photo Lab Computers Other —

4-4-2 Computer technologies

4-4-2-1 Computer lab 2D software 3D software

Software: AutoCAD MiniCad Power Draw Photoshop

Illustrator

Strata Studio Other —

4-4-2-2 Themes of computer-based exercises

Point Plan Line Colour Space Materials Ergonomics
 Volume Light Rhythm Deformation Proportions

Structure

Perspective Other —

4-4-2-3 Percentage (%) of computer-work in the 'Foundation Course'

Non-existent 5% of works 10% 20% 30% Other —

14. Examples of introductory coursework at the respective school

14-1 Graphic Arts

Segmenting of a picture Assembling of an image, from modules Use
 of different writing styles/fonts in graphic compositions Transition
 from flat plans to volume using only graphic elements Form analogy
 studies Caricatures Other —

5-2 Study of colour

3-tone harmony study 4-tone 6-tone Depth of field (form)
 through colour Coloured models Relationship colour/surface
 Balance mass/colour Depth of field (space) through colour Colour/
 rhythm work Pigment study Other —

5-3 Study of material and textures

Production of sample cards of different materials and different textures
 Other —

5-4 Study of structure

Production of 3D structures Other —

5-5 Study of perspective

Axonometrics Isometrics Sketches Models Other —

5-6 Study of space

Production of models Work done with/from existing buildings
Work to scale Other —

5-7 Study of light

Study of all types of lighting, through models Use of established
sunlight charts Other—

5-8 Ergonomics

Mastery of body dynamics, during usual poses in everyday life (sketches)
 Study of articulations, joints, and movement of the different body
parts Other —

5-9 Work on correlation of the senses

Exercises/work using the various senses: sight, touch, and hearing
examples —

15. Analytical exercise

Breakdown of a painting into its main outlines Breakdown of a still-
life into its basic shapes Analysis of existing buildings/structures
Thematic breakdown of a building: Structure Space Light Colour
Materials Circulation (traffic areas) Other —

16. Chronology and link between the different exercises

Use of a same object for different exercises/works examples —

17. Teacher/instructor ideals or wishes

Amalgamation of all areas of specialisation into one institute Pre-
requisite 'Foundation Course' common to all areas of specialisation
Orientation towards an area of specialisation at the end of the pre-
requisite Individual prerequisite (Foundation Course) for each area of
specialisation Area of specialisation decided from the onset Basic
Design (Foundation Course) integrated throughout the duration of the
studies Lengthening the duration of the time of study in Basic Design
Other—

17-1 Ideal duration of time of study of Basic Design

6 months 1 year 2 years Integrated throughout the duration of
the studies

Other —

SUGGESTIONS OR COMMENTS:

APPENDIX 2: QUESTIONNAIRE 2 (PROJECT TEACHERS)

Name of the Professor:

E-mail:

Name of the school:

Address of the school:.....

Area of specialization:

Architecture Furniture Design Interior Architecture Industrial Design

Visual Communication Textiles Ceramics Interdisciplinary

Other.....

1. General idea of the concept of Basic Design

Basic Design is a diagnostic period during which the students should discover and develop their aptitudes and competences towards this type of work in order to facilitate the choosing of a future area of specialization. It is also a preparation time for the project. Therefore, Basic Design should:

- a. develop the creativity and curiosity of each student-personality
- b. develop the ability to structure the basic elements (line, plan, colour, etc.)
- c. allow for the mastering of the use of bi-dimensional and tri-dimensional supports
- d. serve as a learning base in numerous artistic subjects
- e. develop a methodical approach to work
- f. develop personal-time management with respect to work
- g. develop an analytical approach, a sense of critique, and a sense of observation
- h. teach the role of the artist and the designer in a historical, social, or cultural context

Other.....

2. Pedagogical approach (basic principles)

2-1. Introductory exercises

Reduced number of parameters

Experimentation

Exercises based on limitation of means

Exercises with set limits

Copies of existing project

Exercises free

Other.....

2-2. Analytical exercises

Syntactical dimensions of a project (analysis of the bearing between the different component of a project)

Pragmatic dimensions (use, ergonomics)

Semantic dimensions (the image projected by an object or form)

Other.....

3. Essential themes to be developed

Point Plan Line Colour Space Volume Materials

Ergonomics Light Rhythm Deformation Proportions

Structure Perspective Contrast Geometry

Other.....

4. Know-how

Sketch Paint Sculpture Collage Photography Models

Computer graphic Software: AutoCAD Minicad Powerdraw,

Photoshop Strata Studio

Illustrator Other.....

*5. Exercises**5-1 Graphic Arts*

Segmenting of a picture Assembling of an image, from modules

Uses of different writing styles/fonts in graphic compositions Transition

from flat plans to volume using only graphic elements Form

analogy studies Caricatures 2D software 3D software

Other.....

5-2 Study of colour

3-tone harmony study 4-tone 6-tone Depth of field (form)

through colour Coloured models Relationship colour/surface

Balance mass/colour Depth of field (space) through colour Colour/

rhythm work Pigment study 2D software 3D software

Other.....

5-3 Study of material and textures

Production of sample cards of different materials and textures 2D

software 3D software

Other.....

5-4 Study of structure

Production of 3D structures 3D software

Other.....

5-5 Perspective:

Axonometric Isometrics Sketches Models 3D software
 Other.....

5-6 Study of space:

Models Work done with existing building 2D software 3D software
 Other.....

5-7 Study of light:

Study of all types of lighting, through models Use of established sunlight charts
 3D software
 Other.....

*6. The organization of the teaching*6-1 The system of tutors

6-2 The links to outside from the first year of study: companies
 museums visit existing buildings
 Other.....

6-3 Guest lecturers: Architect Sculptor Designer Fashion Designer Painter
 Graphic Designer Colourist Engineer
 Other.....

7. Teacher/instructor ideals

7-1 Place of the Basic Design within the curriculum of your school

Amalgamation of all areas of specialization into one institute
 Prerequisite'Foundation Course' common to all areas of specialization
 Orientation towards an area of specialization at the end of the prerequisite

Individual prerequisite (Foundation Course) for each area of specialization Area of specialization decided from the onset

Basic Design (Foundation Course) integrated throughout the duration of the studies Lengthening the duration of the time of study in Basic Design

Other.....

7-2 Ideal duration of time of study of Basic Design

6 months 1 year 2 years Integrated throughout the duration of the studies

Other.....

8. Suggestions or comment

APPENDIX 3: LIST OF INSTITUTIONS PROVIDING RESPONSES FROM BASIC DESIGN TEACHERS

FINLAND

Helsinki University of Technology, Department of architecture.
Oulu University, Department of architecture.

GERMANY

Bauhaus University Weimar.
Cornell University, Department of Architecture.
Fachhochschule Darmstadt.
Fachhochschule Erfurt FB Architektur.
Fachhochschule Karlsruhe, Hochschule für Technik.
Fachhochschule der SRH-Gruppe Fachbereich Architektur, Heidelberg.
Fachhochschule Münster FB Design.
Hochschule Bremen.
Universität Dortmund, Fakultät Bauwesen.
H.T.W. Saarbrücken.
F.H. Hildersheim.
Hochschule Magdeburg – Stendal (FH), Der Dekan FB Gestaltung.
F.H. Münster (University of Applied Sciences).

FRANCE

Ecole Regionale des Beaux-Arts, Caen.
Ecole Municipale des Beaux-Arts de Bordeaux.
Ecole d'Architecture de Nancy.
Ecole d'Architecture de Bordeaux.
Ecole d'Architecture de Paris-Conflans, Charenton le Pont.
Ecole Supérieure d'Art et de Design, Reims.
Ecole Supérieure d'Art et de Design d'Amiens.
E.N.S.A.D, Paris.
Ecole d'Architecture de Languedoc Roussillon.

GREAT BRITAIN

Barnsley College.
Bradford College.
Cavendish College, London.
Central Saint Martin College of Art & Design, London.
Loughborough University School of Art and Design.
Nottingham Trent University.
Shrewsbury College of Arts and Technology.
School of Architecture, University of East London.
University of Central England in Birmingham.
University of Wales Institute Cardiff.

IRELAND

Dublin Institute of Technology.
National College of Art and Design.

JAPAN

Akita Kenritsu Daigaku.
Gifu Jyoshi University.
Kagoshima University, Department of Architecture.
Kobe Design University.
Kyushu Sangyo University.
Nagasaki Sogo Kagaku University.
Okinawa Kenritsu Geijutsu Geijutsu University.
University of Osaka Arts/Osaka Geijutsu University.
University of Industrial Design of Osaka Sangyo, Osaka.
Fukui Kongyou Daigaku.
Meiji University.
Mie University.
Niigata University.
Shinshu University.
Takushoku University.
Tokai University.
Tokyo University of Fine Arts and Music.
University of Tokyo.
University of Industrial Art of Kyushu.
University of Industrial Art & Architecture de Tokai.
University of Architecture of Tohoku.
Utsunomiya University.
Wakayama University, Faculty of Systems Engineering.
Nihon University.

NETHERLANDS

Utrecht School of the Arts.
Design Academy Eindhoven.
Hogeschool voor de kunsten Arnhem.

NORWAY

Akershus College University, Department for Product Design.

POLAND

Academy of Fine Arts – Cracow, Faculty of Industrial Design.
Silesian Technical University in Gliwice.

SPAIN

Escuela Tecnica Superior de Arquitectura, Madrid.
Escuela Tecnica Superior De Arquitectura.
Granada. E.T.S. de Arquitectura.

SWITZERLAND

E.T.H. Zurich, Swiss Federal Institute of Technology.
Ecole d'ingenieurs et d' architectes de Fribourg.

APPENDIX 4: LIST OF UNIVERSITIES PROVIDING RESPONSES FROM
DESIGN PROJECT TEACHERS*AUSTRIA*

Technical University of Graz.

BELGIUM

Hogeschool Gent, Department Academie (2 respondents).
Hoger Institut Voor Architectuurwetenschappen, Antwerpen.
Institut Supérieur d'Architecture de Mons.

CANADA

University of Montreal.
University of Toronto.
Nova Scotia College of Art and Design.

CHINA

Qing Hua University (2 respondents).
Hua Dong University.

CROATIA

Zagreb University, Faculty of Architecture.

FRANCE

Ecole d'Architecture de Marseille Luminy (4 respondents).
Ecole d'Architecture de Paris Belleville (3 respondents).
Ecole d'Architecture de Montpellier.
Ecole d'Architecture de Languedoc Roussillon (2 respondents).
Ecole d'Architecture de Grenoble (2 respondents).

GERMANY

Fachhochschule Karlsruhe, Hochschule fur Technik.
 Fachhochschule Munster FB Design (3 respondents).
 Hochschule Magdeburg – Stendal (FH), Der Dekan FB Gestaltung.

GREAT BRITAIN

Cardiff School of Design.
 Duncan of Jordanstone College of Art.
 Design, University of Dundee. (2 respondents).

JAPAN

Akita Kenritsu Daigaku (3 respondents).
 ICS College.
 Mikan (3 respondents).
 Kobe Design University. (26 respondents).
 Kyushu Sangyo University.
 Okinawa Kenritsu Gueijutsu University.
 Okinawa Prefecture Art University.

POLAND

Silesian Technical University in Gliwice.

SPAIN

Granada. E.T.S. de Arquitectura (4 respondents).

THAILAND

Srinakharinwirot University, Bangkok (4 respondents).

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