

**Who Should Be a Designer? Controlling Admission Into
Schools of Architecture**

Gabriela Goldschmidt & Rachel Sebba

Technion - Israel Institute of Technology, Faculty of Architecture and Town planning

Carmel Oren & Ayelet Cohen

National Institute for Testing and Evaluation

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Abstract

This paper introduces the issue of criteria for admission into schools of architecture. Following a historical description of admission into schools since the institutionalization of architectural education, we present data from an international survey conducted over the past year. A qualitative analysis of these data reveals a number of admission criteria used in different combinations, and with diverse emphases in all schools, everywhere. The different admission policies that emerge from the analysis reflect the state of the art and prevalent priorities in the different social settings in which schools operate.

Architects receive their professional education and training in hundreds of schools of architecture the world over. Practice is usually locally regulated, sometimes licensed. However, the practice of architectural design (as well as other design disciplines) appears to be remarkably similar everywhere, at least enough so to enable significant mobility of architects among firms, areas of expertise, and locales, even where cultural differences are quite restrictive otherwise.

Similarities and differences among schools of architecture are widely documented; but it is still far from clear how such similarities and differences affect the experience and performance of graduates. We know little about architectural students, and even less about ways in which schools exercise control over their intake of students via the admission criteria they impose. Such criteria reflect institutional and societal values and norms regarding design and its context, and are therefore of great interest to us.

In practically all schools of architecture the number of applications exceeds the number of places that can be offered and in order to assure competency schools screen applications; to do so they use a variety of procedures and criteria. Studying admission criteria offers a wealth of information and insights on systems of beliefs,

norms, values and biases of different micro and macro cultures regarding design. In this paper we present an initial report of a study in progress on criteria for admission of students into schools of architecture. Our survey includes about 70 schools of architecture in 21 countries (almost half of them in the United States). The admission criteria that have been identified include: high school records, scores in general scholastic aptitude tests (such as various psychometric tests), results of special aptitude tests for architecture, portfolios, interviews, recommendations, statements of intent, and written essays. Each of these criteria has numerous varieties and may assume a different weight in the overall assessment systems used by various schools.

The paper presents the data, analyses them, and comments on their significance, following a brief look at prominent historical exemplars.

1. Schools of architecture

The history of university-level professional education in architecture is relatively short. Before World War I, the great majority of schools of architecture in the western world were modeled after the French *Ecole Nationale et Spéciale des Beaux Arts*, which was founded in 1819 by the *Academie Royale d'Architecture* (Earlier training had been provided by the *Academie* itself, established in 1671 under the auspices of Louis XIV). Its main purpose was to serve the needs of French aristocracy (Carlhian 1979, Egbert 1980). Throughout its long existence, *Beaux Arts* education promoted the value of historical precedents and the primacy of the great classical traditions, namely Greek, Roman and Italian Renaissance architecture. The *Beaux Arts* educational system was extremely influential and many a school in many countries followed its tradition and were hence identified as *Beaux Arts* schools (to distinguish them from schools of other 'denominations'). Leading 19th century American architects went to Paris to study at the *Ecole des Beaux Arts* (Cuff 1992). A *Beaux Arts* diploma was in good currency in the USA well into the 20th century (Esherick 1977). European *Beaux Arts* schools of architecture were widespread until well into the 1960s and even beyond alongside other types of schools, notably the 'Polytechnic' institutes and schools that reflected the ideology of the Modern Movement. In France the *Beaux Arts* system was abandoned only after the events of 1968.

An alternative model of architectural education was launched in the 1920s in Europe in two avant-garde institutions, the *Bauhaus* in Germany (established in 1919)

and the *Vkhutemas* (Higher State Artistic and Technical Workshops) in Russia (consolidated in 1920). In both institutions architecture was a unit alongside other units devoted to the arts and to crafts [1]. The foundation of the new schools resulted from novel cultural attitudes and from reforms in education prevalent in contemporary arts, design, and architecture, in the aftermaths of World War I and the Russian Revolution. These reforms, which rejected classicism, were strongly motivated by a social and political agenda and by a wish to empower the arts, the crafts and design through the use of industrial and technological advances. Experimentation and creative initiative were central to the educational philosophy of the *Bauhaus* and the *Vkhutemas*, as opposed to the conservative approach of the academies, embodied in *Beaux Arts* education, that emphasized classicism and trained students by teaching them primarily to master styles of the past. Although the avant-garde *Bauhaus* and *Vkhutemas* were shut down prematurely due to the political circumstances of the 1930s in Europe (the *Vkhutemas* was dissolved in 1930, in part due to internal difficulties; the *Bauhaus* was closed by the Nazi authorities in 1933), they enjoyed a lasting influence on architecture and architectural (and design) education. In fact, the name '*Bauhaus*' has become an emblem of the modern movement in design and architecture, still in wide use today [2].

The second half of the 20th century has seen a phenomenal growth in higher education, for which the university has become the prime vehicle. Many new universities were founded around the globe. The great majority of schools of architecture, whose number has surged proportionally [3], operate today as academic departments within universities, sometimes independently but often in partnership with other departments (e.g., planning, construction, environmental studies, engineering, or art). Despite the many differences among schools of architecture and their institutional contexts, almost all of them share similar goals and the programs they offer are based on training principles that were, to a significant extent, inherited from the *Beaux Arts* and the *Bauhaus-Vkhutemas* traditions. The omnipresent design *studio*, central to the curriculum of every school of architecture, is a direct descendant of the *Beaux Arts*' *atelier*. A strive for originality and innovation and the legitimization of exploration and search by trial and error have been handed down from the *Bauhaus* and *Vkhutemas*. Needless to say, new curricular components have been added to professional education to catch up with technological and scientific developments as well as dynamic social sensitivities and awareness. Schools of

architecture have developed three basic types of programs, leading to different degrees (a non-professional degree, a professional degree, and a higher graduate degree). The most common degree is the professional degree; in most architecture schools five years of study are required to earn it. In this study we focus on programs that lead to a professional degree in architecture.

Professional architectural education has recently attracted the attention of several researchers (e.g., Boyer & Mitgang 1996, Porter & Kilbridge 1981); a number of theses and dissertations have been devoted to its core element, the studio (e.g., Bar-Eli 1998, Salama 1995, Schön 1985). The question of who should teach design, what qualifications are needed or desirable and how are they to be assessed is likewise on the agenda of many schools of architecture. In contrast, the question of who should *study* architecture is hardly ever asked, much less debated. In as far as students are addressed in published studies, those who are already enrolled are referred to; studies that pertain to potential students and admission criteria (Doble & Palmer 1998, Dolke-Ashok & Sharma-Rajiv 1975) are extremely scarce. Yet on a societal level, this is a major question not only because it reveals social norms and biases related to social mobility, but also because the characteristics of the student body are later embedded in the profession and in the physical environment produced by graduates of architectural schools.

2. Admission into the *Ecole des Beaux Arts*, the *Bauhaus*, and the *Vkhutemas*

2.1 *Ecole des Beaux Arts*

The *Ecole des Beaux Arts* was run like a confederation of *Ateliers*. Each Atelier, headed by a *Patron*, usually an accomplished architect, had its distinct character. Aspiring students joined the Atelier of their choice, where they trained towards the Entrance Competition, usually for long months. The competition consisted of three parts. Two were ‘*Esquisse*’ (Sketch) problems, that is, the execution of design and rendering tasks in the atelier, within a limited period of time. In the first problem, candidates were asked to design a simple architectural structure using classical motifs. In the second *Esquisse* problem candidates were to produce a large-scale accurate drawing of a decorative architectural element, (e.g., a capital of a column). The third part of the competition was a comprehensive written test that examined the scientific knowledge of the candidate (Carlhian 1979). If successful the candidate was

officially admitted to the Atelier, were his studies normally lasted for quite a number of years. Drafting and rendering competence was a key to success in most tasks the student was faced with throughout his training.

2.2 *Bauhaus*

When the *Staatliche Bauhaus* was opened in Weimar in 1919, it stated that: “Any person of good repute, without regard to age or sex, whose previous education is deemed adequate by the Council of Masters, will be admitted, as far as space permits.” (Gropius, quoted in Wingler 1969, p 33). Proof of adequate previous education was, for those who wished admittance as apprentices, to be complemented with what would today be called a portfolio: “Original work (drawing, painting, sculpture, craft work, designs, photography, etc.)” (ibid., p 44). Candidates with more experience could apply for admittance as journeymen or junior masters, in which case they were required to submit “certificates of previously completed training in the crafts” (ibid., p 44). Successful applicants of all standings were first admitted for a trial period of six months, during which they had to take the ‘preliminary course’ (*Vorkurs*). Success in this obligatory course and a high level of independent work during those six months were the criteria for final admission, after which the student was allowed to “join the workshop of his choice and freely select his artistic master from among the membership of the Council of Masters” (Wingler ibid., p 44). Admission was severely constrained by available resources and in the *Bauhaus*’ later years “The student enrollment increased, so that entrance requirements had to be made more stringent to keep the student population within the necessary limits” (Forgács 1995, p 160). These admission criteria were in effect until the *Bauhaus* moved to Berlin in 1932, shortly before it was closed down [4]. The Berlin establishment had less stringent requirements (Wingler 1969, p 182).

2.3 *Vkhutemas*

Following the Revolution, art education throughout the Soviet Union was entirely reorganized. Consequently, the various art schools and colleges were replaced by *Free State Art Studios* (Kahn-Magomedov 1987) where, in accordance with the spirit of the Revolution, the intention was to admit all applicants who were interested in receiving artistic education, irrespective of their previous education (Lodder 1985). The *Vkhutemas* was created as a fusion of two such Free Studios in Moscow, and it

was envisioned that the tradition of accepting all interested persons would persist. However, entering students were faced with the demands of the highly acclaimed Basic Course (which originally lasted two years and was later shortened to one year and finally to one term) requiring more knowledge than most students were able to demonstrate. In 1921 the *Rabfac* (Workers' Preparatory Faculty) was established in order to provide necessary advance education. Success was partial because diversity among those who completed the *Rabfac* training was still too great. It was therefore decided to administer entrance examinations that were held from 1925. According to Lodder (1985) the admission examination tested the prospective students' abilities in drawing, painting, modeling and technical drawing.

The *Vkhutemas* was a much larger school than the Bauhaus, numbering an average of about 1,500 students at any given time (Bojko 1980) as opposed to a total of 1250 students who attended the *Bauhaus* throughout its lifespan of almost 15 years (Forgács 1995). The Entrance Examinations were not mandated by constraints on the school's intake capacity, but rather were meant to ensure an adequate threshold of preparedness [5].

3. Survey: Architecture schools' admission policies – state of the art

3.1 Investigation of Technion admission criteria

The Technion (Israel Institute of Technology) Faculty of Architecture and town Planning, one of the two Faculties with which it opened its gates in 1924, admits into its first year of undergraduate studies each year about 100 students, who are typically selected from amongst 400 to 600 applicants. Admission is determined on the basis of a composite score, composed of three components: the Matriculation exams (administered by the Ministry of Education upon completion of high school), Psychometric tests (administered jointly by the universities), and a 'special architecture exam' administered by the Faculty of Architecture at Technion. This exam has been in use for some 50 years. Recently we have undertaken an examination of our admission criteria, and in particular the ability of the special exam to predict success in architectural studies. It is in this context that we have discovered that almost no studies have been published regarding the policies, procedures and criteria governing admission into schools of architecture. Our research program is quite elaborate and includes an in-depth study of correlation between admission

scores and academic grades, which is not reported in this paper. In the following sections we report the results of an international survey we conducted in order to gain insight into prevalent norms of admission around the world.

3.2 Survey results

In July 2000 we sent letters to 184 schools of architecture, requesting information about practices, policies and procedures pertaining to admission of students. The mailing list was derived from the web site of the American Association of Collegiate Schools of Architecture (ACSA) and included full and affiliate member schools [6]. A reminder was mailed in December 2000. The last response was received in May 2001, bringing the total number of replies to 79. Of those, 69 are relevant to the survey, the rest including no relevant information or belonging to a category of schools that is not compatible with the study's objectives (e.g., programs with graduate studies only). All 69 schools, in 21 countries, offer professional degrees in architecture; the programs are varied in their structure and duration of studies (between 4 and 6 years) and so are the degrees awarded.

Most replies consisted of a cover letter and printed material such as catalogues, newsletters and reports. In some cases printed matter arrived without a cover letter; in a single case our information is based on a school's web site only. The responses most worthy of note, however, were those in which a head of school or another concerned individual also wrote a personal letter describing and evaluating the practices of the school, and in a number of cases also offering general views and criticism. We shall quote extensively from those letters to instantiate our data and arguments.

We have extracted an exhaustive list of eight different criteria for admission into schools of architecture. All the schools in our survey use one or more of those criteria to screen candidates: no school admits applicants without any scrutiny. In some cases screening according to some of the criteria is not implemented to determine intake into first year, but serves to control admission to a subsequent stage of studies. The criteria are general and each includes many variations that cannot be reported here in detail. The following is a short description of the criteria.

High school records: According to the norms in each country, high school records may consist of average grades such as the GPA (Grade Point Average) in the

USA, a state-administered final exam such as the Matriculation, or a Baccalaureate (there even exists an International Baccalaureate certificate).

Psychometric tests/General scholastic aptitude: In many countries university entry applications require that the candidate submit records of a general scholastic and/or psychometric test. Such tests examine various cognitive and scholastic abilities to estimate future success in academic studies. These tests are normally administered by the state or by the universities; examples are the SAT (Scholastic Assessment Test) and ACT (American College Tests) scores in the USA.

Special architecture aptitude test: Some schools use special tests that are believed to reveal candidates' aptitude for architectural studies. Tasks given in those tests pertain to visual memory, spatial organization, drawing, simple designs, and so on. In most cases these tests are administered by the Architecture Departments themselves.

Interview: Interviews of candidates by faculty members and sometimes also advanced students are conducted in several schools. The weight of the interview results varies largely among schools. Sometimes the interview includes the presentation of a portfolio of creative/design work. In some cases interviews are not held at the point of entry into the school, but as part of the process of controlling admission into a higher phase of studies.

Portfolio: A portfolio of design work (where applicable) or other creative work is reviewed in quite a number of schools as part of the requirements for admission into first year or a subsequent year. In some cases a portfolio is required at more than one point along the way to graduation. Sometimes a portfolio is presented as part of an interview. In some schools the submission of a portfolio is voluntary and is encouraged in border cases.

Essay: A few schools require essays – for the most part short ones (approximately 500 words); in other cases a longer writing assignment is given. The purpose is to test the candidate's ability to clearly communicate ideas and reason about them.

Written statement: Some schools require personal statements explaining why the candidate wishes to study architecture.

Letters of recommendation: Letters of recommendation from former or present teachers or persons who are acquainted with the candidate's work and personality may also be required, sometimes in conjunction with a personal statement.

Table 1 presents the frequency distribution of criteria, broken down by country. We have identified mild regional (on a global scale) tendencies to apply similar admission strategies and have therefore listed countries by regions (more detailed information on individual schools is needed to discern this tendency clearly). It should be stressed that the number of schools per country is arbitrary, as per the responses we have obtained.

As is evident from Table 1, some admission criteria are more prevalent than others. High school records figure in almost every case (91%). Good standing in psychometric/scholastic aptitude tests is required by approximately half the schools (55%) we surveyed. A similar proportion of schools (45%) chose to review candidates' portfolios, although this is often a requirement only for later advancement rather than for admission into first year. Less widespread are interviews (26%), special architectural aptitude exams (26%), essays (14%), personal statements (10%) and letters of recommendation (17%). The average number of criteria used, across schools, is 2.8.

Table 1. Criteria for admission into schools of architecture

Global Region	Country	No. Schools	High School	Psychometric/ General Apt. Tests	Arch. Special	Interview	Portfolio	Essay	Statement	Recommendations	
N. America	USA	30	29	24	1	5	19	9	4	9	
	Canada	3	3	0	0	1	2	1	0	1	
	Australia	5	5	1	0	0	0	0	0	0	
Oceania	New Zealand	1	1	0	0	0	1	0	0	0	
	Belgium	1	0	1	0	0	0	0	0	0	
W. Europe	Denmark	2	2	0	2	0	2	0	0	0	
	Finland	2	0	0	2	0	0	0	0	0	
	Netherlands	1	1	0	0	0	0	0	0	0	
	Spain	1	1	0	1	0	0	0	0	0	
	Sweden	1	1	1	1	0	0	0	0	0	
	Switzerland	2	2	0	0	0	1	0	0	0	
	UK	5	5	3	0	3	4	0	3	2	
	Poland	1	0	0	1	0	0	0	0	0	
	E. Europe	Slovakia	1	1	0	1	0	0	0	0	0
		Bolivia	1	1	0	0	1	0	0	0	0
S. America	Costa Rica	1	1	0	0	1	0	0	0	0	
	Guatemala	1	1	1	0	1	0	0	0	0	
Asia	India	3	2	1	3	1	0	0	0	0	
	Thailand	2	2	2	2	2	0	0	0	0	
	Israel*	4	4	3	4	2	1	0	0	0	
-	South Africa*	1	1	1	0	1	1	0	0	0	
-											
	Total	69	63	38	18	18	31	10	7	12	

* Data from Israel and South Africa could not be fit into a regional pattern

Let us now engage in more in-depth analysis of the criteria and the reasons for their use. The nature of our sample, which is wide but not necessarily representative, calls for a qualitative rather than a quantitative analysis.

3.3 Analysis of admission criteria

High school records are, in most countries, the prevalent means used to control admission to higher education, since they reflect scholastic ability reasonably objectively, they are easily obtainable and both understood and accepted by society at

large. High school achievements are accepted as one of the best indications of a young person's ability and motivation to study.

Our survey shows that an overwhelming number of schools of architecture use candidates' success in high school as a screening measure; some schools use it as the sole yardstick for admission (63% of those using a single criterion). A school of Architecture in Perth, Australia states that several screening methods have been tried out over the years but now they "... take students strictly on academic merit unless they are awarded advanced standing in which case a folio review and interview are included." Applying different criteria for advanced or transfer students is a common practice that we shall not discuss here. Similar views have been expressed by schools in Canada and Switzerland.

Admission by high school scores is not uniform. Many schools require, in addition to an adequate average, above-average grades in particular prerequisites, depending on the school's orientation: English language or a cluster of scientific subjects are cases in point. In The Netherlands prospective students must demonstrate successful high school achievements in an appropriate 'profile' (cluster of subjects) before they can be admitted to the Faculty of their choice.

Not everyone agrees that prerequisites in particular and high school achievements in general are relevant, as we can learn from the view expressed by a UK school: "There appears to be very little correlation between previous school qualifications and later success." In an Alabama (USA) school they agree and a Welsh school reports: "We have examined the statistics to see whether there is any correlation between high achievement in school exams and eventual success in architecture at University. From the limited sample of statistics that we looked at, it appeared that there was no correlation between the two..." A Department of Architecture in Queensland, Australia reports a mixed experience: "In general, success does seem to correlate with high matriculation scores... They [studies of graduates] showed no particular correlation between particular secondary subjects and success in the architecture programme."

Some observers have conducted detailed studies of correlation between high school grades and performance in different phases of architectural education. A school in Auckland, New Zealand, found that "Overall performance in the matriculation examination correlates strongly with overall performance in the first two years of the program (and probably in the subsequent years)."

Performance in secondary education, then, is used by almost all schools to help assess candidates: for the most part because they believe in its predictive power, and sometimes for lack of better means of screening. In Ahmedabad, India, for example, the current weight of high school records in admission ranking is 30%, but they would have preferred a reduced weight of 20%. We have encountered a small number of cases in which high school scores are a prime criterion for admission, and the university runs a preparatory/remedial program for inadequately prepared potential students to help them reach the required standards. A South African school reports its frustration due to lack of success with these kinds of programs: “There are a number of mechanisms in place at our university to help previously disadvantaged students (predominantly black) to reach the required standard... These programs have been successful in other fields, but failed dismally in bringing in any students into the B.Arch.Stud. program... The required background for Architecture seems to be too substantial to fall within the scope of any politically correct ‘Quick Fix Program’.” We shall conclude with an insightful remark that comes from Virginia, USA: “We have had, over the years, some success in having the University determine admission decisions. They simply find the best high school students in a general sense rather than look for specific indicators of potential in architecture. I know there is much debate on this point. Our belief is that education has to do with potential rather than making perhaps a premature determination of professional ability.”

A little more than half the schools in our sample (in the USA - 80%) review candidates’ scores in tests of general scholastic assessment or aptitude, sometimes referred to as psychometric tests. The commentary on such tests is very scarce in our data. A private Bolivian school tells us that it, like most other private universities in Bolivia, does not use such tests. In contrast, a general aptitude test is the basis for admission to all public universities in Bolivia. In Israel where scores in the Psychometric Test are reviewed by almost all institutions of higher education as part of admission procedures, this test is presently debated and even as we write, the Parliament is discussing a proposal (seen by many as problematic) to eliminate it. The main argument against the test states that it is meant to test aptitudes that are to a large extent non-curriculum based, whereas in reality many prospective students attend expensive private preparatory classes that succeed in training them towards attaining high scores. It is therefore thought that the system is economically and culturally unfair.

Of more interest are the special aptitude-for-architecture tests that are used by 18 schools in 10 countries. Such tests vary considerably according to the aims of the schools that administer them. In some cases all applicants take the test; in other cases, where admission is staged, only those who reach a second or third stage take them. All tests look for evidence of non-verbal, or Visio/Spatial intelligence. The only school in the USA to use such tests elaborates: "The purpose of this test is to provide the College Admissions Committee with the means to identify those candidates who exhibit the strongest motivation and the greatest talent for architecture. The Admission Test consists of a number of exercises designed to call forth the candidate's visual memory and logic, and ability to order space, form, pattern and color." Other schools have similar motivations in using special 'architectural' tests, although they do not necessarily share the overwhelming importance attached to them by the school quoted above. In one Slovak school the tests require an advanced level of preparation: "Applicants must pass an Entrance Examination where their abilities and knowledge are examined in the following: drawing, history of architecture, design, a second language, creative abilities, concepts of spatial proportion, plus mathematics and modeling for the design programme." In at least one case, in India, a school testifies to desiring special tests for architecture that are currently lacking.

The Swedish schools of architecture have a very interesting composite system of admission. Competition to enter architecture school is held in three parallel tracks, based on either high school achievements, or a general Higher Education Aptitude Test, or a special Architecture Test. Depending on one's strengths, one can compete in either of these tracks (or in all of them). 45% of the admitted students enter via the High School Grades track; 22% enter thanks to very high scores in the Aptitude Tests, and 33% are chosen based on excellent results in the Architecture Test: "The background of the Architectural test is that the schools believed that neither the gymnasium grades nor the aptitude test were 100% relevant for architects; artistic merit etc. did not show that way. The Architectural test has now been used for 14 years and has been a success." In Denmark, too, academic achievements are not believed to be a good enough yardstick for admission. Only 60% of the incoming students ("Quota 1") are admitted based on their high school records. The balance ("Quota 2") gain entry on the basis of work experience, or architecturally related qualifications. The Danes, too, are satisfied: "Generally speaking the system works reasonably well. It seems like the quota 2 system secures an intake of students that

cope well in their studies although they got rather low marks at their secondary examinations.”

At the Israeli Technion, where an Architecture Test has been in practice for many years, concern has been voiced because grading these tests often reveal poor inter-rater agreement, and because correlation with students' subsequent performance is quite low. A similar finding comes from Ahmedabad in India.

Essays are required exclusively in the USA and Canada (see Table 1), but some of the schools that request them attach great importance to them. Typically the demand is for a short essay explaining why the applicant wishes to study architecture. In these cases it is the candidate's goals rather than his or her writing skills that are at stake. Where longer essays are requested the departments in question are interested in the prospective student's intellectual and logic thinking powers. The importance of good writing (reasoning) skills is corroborated by the importance that several schools attach to the language component of the Matriculation and/or Aptitude test. Evidence is offered, for example, by an Australian school: "... our experience and surveys indicate that there is no correlation between school subjects and achievement in the undergraduate architecture course, other than a strong tendency for those with good English-writing skills to perform better overall in the architecture course than those with lesser English skills." Other schools reports similar findings.

Personal statements of intent and letters of recommendation are required in some USA and UK schools (in the UK a statement is part of a standard application form); no revealing commentary on their usefulness is offered in our data.

Interviews are mandatory or encouraged in quite a number of schools, whereas others forego them out of conviction or per necessity (travel distances are too great). The debate over the credibility of interviews that is prevalent in the occupational psychology literature is reflected in the differences of opinion that we find in our data. On the one hand we have those who, like one school in Australia, firmly oppose interviews on professional grounds: "Interviewing students was not a good indicator of success unless the interviews were carried out consistently by a properly trained small team." Rejection may also reflect goals, as in the case of a New Zealand school: "As a rule we do not interview (we briefly tried it and found it unhelpful, and at odds with our University's emphasis on academic performance)."

A positive approach towards interviews is expressed by those who use it primarily as a setting for the presentation of a portfolio, as in one Canadian case: "Our

analytical studies show that the interview/portfolio review is a very good predictor of success in the design studio. Indeed “A” interviews as a group show themselves to be the leaders in the studio.” In one UK school an interview is seen as a useful tool to discover talent that is not testable, which they regret not using regularly because it is too labor intensive.

The submission of portfolios is requested by almost half the schools we surveyed. Those who request a portfolio at the outset, as part of the initial admission screening, use it for purposes similar to those described by schools that have special architecture aptitude tests. One Israeli school that administers a special test and also requests a portfolio, states that through both means it hopes to assess “creativity, abstract thinking, expression of ideas, understanding of subjects, and more.” In a New Zealand the portfolio is regarded as a very successful screening means and one New York State school advises its applicants: “A design portfolio will be an essential element of your application.” In contrast, other USA schools object to portfolios, as one of them states: “Our school does not require a portfolio of visual work or an interview. American high school art education is inconsistent in availability and quality; a portfolio requirement would be unfair to our applicants.” Other schools accentuate this point as well.

Portfolios, however, serve as indispensable means for controlling admission into advanced phases of study, after the first or second year, or as part of a formal application to enter the fourth or fifth year of a professional program, following receipt of a non-professional Bachelor degree in architecture. Many schools believe that performance in architecture cannot be accurately predicted ahead of time and therefore the best policy is to allow as many students as possible to begin architectural studies, with control points at pre-established points along the way. Students can proceed beyond those ‘checkpoints’ provided they reach a certain grade average, and if their portfolios are deemed satisfactory. In one Australian school the belief is that ‘the proof of the pudding is in the eating’ and students must pass more than one checkpoint along the way. The first is after the first year: “...evidence suggests that the best indicator of success was success at the end of first year.” A second and crucial screening occurs at the end of the 3rd year: “our solution to ensuring a high standard graduate is to place a barrier of 60% minimum average in 3rd year before students can progress to 4th year.”

Many other schools use performance during the first year as a screening guide. A school in Thailand reports that this happens naturally: “within the first one or two years in school students who have not achieved the minimum required GPA may drop out of school or shift to other disciplines.” At one Alabama, USA, school, a structured prerequisite course is offered prior to the first year: “A pre-architecture semester is required, during which self-selection normally takes care of admission problems.” In another USA school, the entire first year work is used to regulate subsequent studies: “We have developed a first year DESIGN studio which is designed as a ‘super studio.’ ... Our first year enrollment in design is 275. Upon completion of first year a portfolio is required... To be considered for the Second Year ALL first year course work must be completed... All grade point averages are then added to the portfolio grades, with the portfolio having twice the weight of grades, and the students are then ranked. The top sixty students are then admitted to our Second Year.” Yet another school in the USA accepts to its first year any interested student who has gained acceptance to the university. Screening occurs after the second year.

A handful of schools look for evidence of special activities in the community, hobbies, adventurous travel and the like.

As can be surmised from the compiled evidence above, there is no consensus over the best criteria for admission into architectural study programs. Clearly, all schools wish to admit those students whose potential to succeed is the greatest, but very few schools make an effort to verify that their criteria indeed result in an optimal intake of students. We shall now briefly summarize our findings in the form of a few admission profiles that can be inferred from the data we have compiled.

4. Summary

The following consolidates our reading of the major strengths sought by schools of architecture as the basis for their admission criteria. Different schools have different priorities regarding these strengths.

Scholastic achievements: A large number of universities regard the performance of youngsters in their previous academic settings, i.e. high school, as the major yardstick for predicting success in any field, and therefore for admission into any department. Consequently Matriculation grades, often in conjunction with independent general scholastic aptitude scores, are the basis for admission into the

university in general and also into its school of architecture. In some cases writing skills are particularly significant in this scrutiny.

Creative achievements: Many schools prefer students who have already had experience in creative pursuits and they inspect the results of those pursuits, submitted in the form of portfolios.

Creative potential: A considerable number of schools are somewhat suspicious of formal academic achievements of teenagers and prefer to rely substantially on special aptitude tests designed to reveal suitability to architectural design.

Personal impression: Interviews are (arguably) meant to provide the schools with accurate impressions regarding applicants' personalities and details on their non-testable strengths.

Composite factors: Whereas almost all schools use more than one criterion in their admission procedures, some schools go to extreme pains in order to ensure that candidates of diverse backgrounds and abilities are identified and offered places. Methods differ: from the application of multiple screening devices to the implementation of separate application tracks for candidates of differing strengths.

It is possible that tendencies towards admission policies emanate at least in part from sweeping cultural attitudes towards architecture and towards higher education. However, our sample is not representative and we are not qualified to carry out comparative cultural studies. We certainly refrain from engaging in statistical analyses. We believe that the orientations of the schools and the institutions of which they are part are strongly manifest in admission criteria. Research universities, for the most part, tend to emphasize general academic achievements and success is measured in students' overall performance. In some of the other schools design skills are the single most important mark of accomplishment, measured in studio performance. Admission criteria reflect these differences (although incongruence between department and institution is not unheard of).

5. In conclusion

The question of admission criteria into schools of architecture has, in our view, two sides. On the one hand, each institute of higher education and every school of architecture within it manifest a legitimate aspiration to admit the best possible students it can attract. On the other hand society, which sponsors most of its institutes of higher education, shares that aspiration but is normally also committed to

social mobility and cultural diversity. Admission criteria to universities at large and to architectural programs in particular are affected by the orientation of those who have the power to determine admission policies. Equal opportunity and excellence of performance might be contradictory, at least in the short range, and the difference in admission criteria into public and private universities, e.g. in Bolivia, exemplify this dichotomy.

A historical perspective reveals that not much has changed as far as accessibility to architectural education is concerned: schools have always been selective as to who they admit, due to constrained resources as well as a need to set an appropriate threshold for quality of performance. What has changed is the diversity and complexity of yardsticks used to determine suitability and appropriate performance. In yesteryears design skills – mostly technical presentation skills – were an overriding measure of adequacy (*Beaux Arts* tradition). Today creativity (following the *Bauhaus* and *Vkhutemas* heritage), as well as reasoning power and high general aptitude (prevalent in higher education in general) play a much more important role in determining who will be allowed to acquire architectural education (Oliver & Hayward 1990).

Not much is known about the success of prevalent admission criteria to provide schools of architecture with the students they desire to enroll. Even less is known about the impact of selection methods on the built environment everywhere in the world. It is our hope that further studies by others, and by ourselves, will shed much needed light onto these all-important issues.

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Notes

1. The architecture department opened only in 1926, after the *Bauhaus* moved from Weimar to Dessau. However, informal architectural experimentation and discussion groups were active in the Bauhaus already earlier.
2. The *Vkhutemas* was not less influential than the *Bauhaus* in shaping the modern movement (mainly through *Constructivism*). The Iron-Curtain limited the exposure of the Western world to Soviet culture and the *Vkhutemas* is to this day by far less known than its Western counterpart, the *Bauhaus*.
3. To get an idea of the extent of growth we might look at the proliferation of schools in the USA. Draper (1977) quotes a list prepared by Weatherhead (1941) of 27 schools of architecture in the USA prior to the end of World War I. At present more than 100 schools of architecture operate in the USA, most of which were founded since World War II.
4. Its architecture program then moved to Chicago where it became part of the Illinois Institute of Technology (1937).
5. Information regarding admission criteria and procedures to the *Bauhaus* and the *Vkhutemas* concerns all departments of those schools and not specifically architecture. No specific criteria were forged for any of the fields of study.
6. Other sources of information were attempted, including the European Association for Architectural Education (EAAE), but no lists of schools were available on the web at that time.

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