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Architectural Education:
Lessons from Nairobi and Future Prospects

Edwin Oyaro Ondieki*

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Abstract

Changes in architectural education in the East African region for over half a century do not appear to have made discernible difference to social and environmental concerns in the built environment. The formulation of the curriculum is partly to blame and requires scrutiny. This paper has reviewed the influences and adequacy of architectural education since its inception in Nairobi. The approach of the study was through a review of archival materials at the University of Nairobi, literature review of contemporary architectural education and input from architectural practitioners. The study found that increased demand for architectural education has witnessed the establishment of new schools in Kenya and across the East African region, a pointer to increased demand for architectural services. However, observation of the region's built environment has not witnessed a variety of architectural products that match the increased number of schools. The study found that apart from resource constraints, the curriculum for architectural education across schools has many similarities. To confront current and future built environment challenges, Schools of Architecture should anchor their training model on varied philosophical approaches rather than conform to a single or uniform model, invest in modern training facilities and tools, and actively engage the industry and professionals in training. The study recommends that while training guidelines provided by various architectural bodies and institutions are important, Schools should be required to be continuously innovative in the manner in which they develop and periodically reappraise the curriculum to make it more accommodative, innovative and predictive of the future demands and needs of the society.

Keywords: Architecture, Curriculum, Education, Practice, Precedents, Training.

INTRODUCTION

Architectural education at university level in the Eastern Africa region was established at the University of Nairobi (then Royal Technical College) in 1956 by British colonial administration. The institution was aimed at developing a pool of local professionals to serve a rapidly expanding building industry. For many years, graduates of the university, who came from all the countries of Eastern Africa, shaped the practice of architecture and the built environment in their respective countries. It was not until 1989 that a second school was established, followed closely by another 10 in subsequent years; with the latest being at Mbeya University of Science and Technology - Tanzania - in 2019. This is evidence of increased demand for architectural education and services. The influence of the University of Nairobi in shaping architectural education in the region has been significant because much of the bench marking has happened there, notwithstanding its challenges of constrained resources and increased demand for training. This paper attempts to overview architectural education through time and space at the University of Nairobi using archival research to discuss the curriculum development process. It further uses literature review and feedback from architectural practitioners to glean lessons of novel ideas from architectural education and practice to enrich the curricula, and thus prepare graduates for present and future built environment challenges. The paper argues that despite an established order of the nature of architectural education by international and local institutions, there is opportunity within for universities to mold curricula that are diverse and contextually grounded.

The subject of curriculum and curriculum development is a well-understood area of study and practice (Tyler,

*Corresponding author:
Edwin Oyaro Ondieki (posthumous), *Department of Architecture University of Nairobi, Kenya.*
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1949; Apple, 1982; Lau, 2001; Postiglione & Lee, 1997; Schubert, 1986). At a basic level of understanding, a curriculum implies an experience that is set to achieve a particular goal in a defined period. Numerous writers on the subject have defined curriculum in many different ways (Lau, 2001). Each definition reveals the emphasis and characteristics within the overall concept of what constitutes a curriculum. Van Loggerenberg (2000), avers that a curricula is a societal construct of its social, economic and political status and thus, how that society selects, classifies, distributes, transmits and evaluates the educational knowledge it considers to be public reflects both the distribution of power and the principle of social control. Many curricula philosophies have reflected in their educational processes the specific modes of societal control and reproduction of particular respective historical paradigms. According to Saidi (2005), there are important social and political dimensions to the curriculum. The way in which knowledge is organized in a school curriculum is a social activity which produces a social product; it reflects particular points of view and values, and it is anchored in the experiences of particular patterns of success and failure (Saidi, 2005). Viewed in this way, the curriculum can never be neutral or removed from the patterns of power. An appraisal of the curriculum development process for architectural education will start by understanding the underlying philosophies and influences under which it was established and continues to exist. As Van Loggerenberg (2000) notes, curriculum development is a continuum of philosophies that vary from the traditional to the contemporary era. Philosophical approaches will continuously vary over time and space, based on overriding influences that include: precedents, power structures, development in the knowledge milieu and forecasting. These influences form the basis for discussion of the curriculum for architectural education.

THEORY

The literature review under this section is divided into two parts; first, is a historical overview of architectural training, which was through apprenticeship, and second, formalization of architectural education through curriculum development processes.

Architectural Education: A Historical Overview

The industrial revolution and its modes of production and consumption has had great influence in the training and practice of architecture over the years. Rapid urbanization and the development of new materials and technologies brought about varied demands for the architectural profession, thus requiring superior training. Consequently, architectural education, since it formalization at the turn of the 19th century, has been changing in line with these developments (Crinson & Lubbock, 1994). Before architectural education was formalized, there was no single established route for becoming an architect, and anybody offering built environment services could declare themselves an 'architect' after undergoing pupillage or apprenticeship under a built environment practitioner (Crinson & Lubbock, 1994).

Over the last 100 years, this transformation has been significant due to development in materials and technology, and the advent of the modernist movement. The movement, evolving from the Bauhaus tradition, gained majority adherence within the profession. The modernists considered the Beaux Arts model of training fixed and unchanging, and thus, unsuitable for providing students with an 'education for change' in the modern world (Crinson & Lubbock, 1994). In its place, they embraced the Bauhaus model of training that emphasized experimentation and exploration of materials, patterns and designs within the studio and workshop context and utmost, the designing for mass-production (Curtis, 1987; Cross, 2006; Crinson & Lubbock, 1994). Thus, the approach to Architectural education, particularly after the 1920's, was modernist and it was effectively imposed upon new entrants by virtue of the complete phasing out of pupillage in favour of an exclusively college-based education. Following the example of the Bauhaus in the 1920s, leading international schools of architecture, such as Architectural Association (AA), Cambridge, Chicago and Cooper Union, became breeding grounds for modernist movement in architecture that dominated the urban landscape associated with tower blocks and expansive and ubiquitous settlements (Larson, 1993).

After the 1960s, there was widespread public disenchantment with the modernist version of the form of the city and its social implications (Larson, 1993). Questions arose as to why the modernist

approach had eliminated all forms of traditionalism in schools of architecture - whether in matters of style, practice or pedagogy (Crinson & Lubbock, 1994). Disenchantment with this position provided a reason for new movements such as post-modernism, apparently at odds with modernism itself. In concurrence with these apprehensions, schools of architecture reviewed their approaches to architectural education and fostered new ways of thinking. As a result, experimentation became a norm. The schools became a kind of architectural laboratory where brutalism, non-plan, archigram, post-modernism and deconstruction was experimented (Crinson & Lubbock, 1994).

Precedents of Architectural Education

The education of an architect is realized through the structure of a curriculum. Curriculum development is a complex process that is influenced by many factors that include: precedents, geographical contexts, political ideologies and social expectations, among others (Saidi, 2005). Architectural education has evolved since it was formalized and became part of higher education at the beginning of the 19th century. The models that have the greatest influence in architectural education were the Beaux Art, Polytechnic and Bauhaus. Some of the elements of these models have been adopted in the curriculums of contemporary architectural education. An overview of these models is attempted.

i) The Beaux Arts model

The Beaux Art model of architectural education was first introduced in France at Ecole des Beaux Art in 1819. It was a product of the industrial revolution and followed the demand for purposefully trained architects (Caragonne, 1996; Vidler, 2004). It was a departure from the pupillage/apprenticeship system, where learning was through copying and experience under a practicing architect (Caragonne, 1996). Under Beaux Art, architectural education was formalized and located within higher education and became a recognizable profession (Pfammatter, 2000; Wilton-Ely, 1977). The significant educational change involved the inclusion of design into the curriculum as taught course rather than relying on experience. The format emphasized learning from set theoretical projects and supplemented by lecture input for other parts of the curriculum (Cross, 2006; Webster, 2005). Under this model, design gained a new prominence as it distinguished the services and skills provided by the architect from those of other professions. The studio culture was born, and it remains a fundamental component in architectural education to date. Throughout the 19th century the Beaux Art model remained dominant, and it is not until the beginning of the 20th century that its appeal declined as the Bauhaus model gained prominence.

ii) Polytechnic model

The Polytechnic model was widely offered in polytechnic schools in Germany, and it developed in parallel with that of the Beaux Arts. This model was adopted throughout Europe and the USA at the beginning of the 19th century. This model was guided by the philosophy that "the acts of knowing and doing" are co-dependent (Pfammatter, 2000). This system's emphasis was on the application of theory to practice in an applied science education. Teaching methods used in polytechnics were lectures, exercises, examinations and physical workshop classes. Although this model was discarded at higher education level, it remains the preferred mode of education at middle level colleges across the world.

iii) The Bauhaus model

The Bauhaus model of architectural education started in Germany under the Bauhaus School between 1919 and 1933. It was closed by the Nazi's regime in 1933 but its philosophy spread throughout the schools of architecture in Europe and the USA. The modernist movement in architecture is attributed to the Bauhaus. Its establishment was enabled by the advancements made in technology and material science. It introduced a new approach to generating architectural solutions through experimentation and exploration of materials, patterns and design (Cross, 2006). This model provided new freedom to respond to the age of technology and social changes without the constraints of past architectural styles (Caragonne, 1996). The ideas and principles of the Bauhaus model were easy to embrace because they aligned closely with trends in university-based education, including the scientific/problem method. It introduced design foundation units and the staging of education from the more general background to a specialist's viewpoint.

iv) The new order

Growing opposition to the modernist movement due to its failure to sufficiently address built environment concerns in the 1950s and 60s witnessed an evolution of new architectural styles, and created a need for review of architectural education. At the same time, there was an upsurge of schools of architecture that were operating outside 'formal affiliations'. There was a need to regulate the practice of architecture and training. Guided by regional and international architectural practice organizations - RIBA in the Commonwealth, the American Institute of Architects (AIA) and later the International Union of Architects (UIA) - common principles for architectural education were developed (Crinson & Lubbock, 1994). Core subjects for architectural education were set, but allowed the freedom to incorporate in their curricula architectural styles/approaches that reflected their regional/contextual requirements. An architect that is a product of this process would practice the trade in cooperating and collaborating jurisdictions. Thus, a new order in architectural education was created guided by the philosophy of universal education, and its intention was to produce a global architect.

RESEARCH METHODS

The strategy used in writing this paper was three pronged; one, a desk review of archival materials on architectural education at the University of Nairobi was carried out and the materials organized chronologically. Second, a review of literature on architectural education - from apprenticeship training to contemporary architectural education. Third, input from architectural trainers and practitioners, who were purposefully selected and interviewed, was collected. The results of the research is organized into themes and analysed through qualitative content analysis.

RESULTS

Architectural Education in Eastern Africa

The first curriculum for architectural education in Nairobi followed a two-tier plus two-years professional practice curriculum adopted from the Royal Institute of British Architects (RIBA) model that was closely aligned to the Bauhaus model. This model, which took at least seven years, consisted of three stages:

Stage 1 - three foundation years of study,

Stage 2 - two consolidation years, and

Stage 3 - two professional practice years.

This model is applicable in most schools of Architecture in the Commonwealth to date (ARC-UK, 1931; ARB-UK, 2010).

The curriculum of architecture at the University of Nairobi has evolved over the years, but of significance was that it continually alternated between a two-tier and single-tier programmes. The first curriculum, adopted at commencement, lasted between 1956 and 1962, a non-degree three stage training; three years in-school training, two-year sandwich training and two years professional practice, culminated in registration as an architect. This programme admitted candidates from 'O' level. The second curricula review adopted a five-year single-tier programme, culminating in RIBA Part I & II. The East African Institute of Architects (EAIA) administered the yearly examinations. This programme admitted students from 'O' level and lasted between1963 and 1968.

The third review of the curricula adopted a two-tier (3-2) degree, which culminated in Master of Architecture after five years, with a Bachelor of Art in Architectural Studies as an intermediate degree after three years. This programme admitted students from 'A' level and lasted between 1963 and 1976. The yearly examinations were administered by the EAIA. It should be noted that these curriculums ran concurrently for the first few years, thus the overlapping of dates. The fourth curriculum review adopted a five year degree, single-tier, three-term and yearly examination by the faculty, culminating in Bachelor of Architecture degree. This programme admitted students from 'A' levels and lasted between 1972 and 1996. This programme was domesticated by the university as an independent institution and periodically accredited by the Commonwealth Association of Architects (CAA) for global benchmarking.

The fifth curriculum review adopted a six-year degree, single-tier, two-semester examination by the Faculty, culminating in Bachelor of Architecture degree. This programme admitted the secondary school graduates of the 8-4-4 system of education, whose political and

socio-economic intentions were to boost industrial growth and self-reliance. It lasted between 1990 and 2009. The Contemporary phase, 2004 curriculum, was the adoption of a six-year, two-tier (4-2) degree curriculum with an intermediate Bachelor of Architectural Studies qualification at fourth year, and Bachelor of Architecture qualification (equivalent to RIBA Part II) at sixth year. The motivation for this latest curriculum was experimentation, global benchmarking, gender mainstreaming, development of thematic research, and enhancement and support of graduate studies. **Table 1** provides a summary of timelines of the review of architectural education at the University of Nairobi. Following these changes in curricula, other universities in the region followed suit and gradually adopted the two-tier structure (DA&BS, 2018).

The two-tier curriculum of 2004 was also informed by precedence. Many universities within the Commonwealth adopted a two-tier curriculum in the 1990s. Among these are all the key Universities in South Africa, that is Witwatersrand, Cape Town, Pretoria and Kwa-Zulu Natal. Others include the University of Auckland in New Zealand, New South Wales in Sydney, University of Sydney, Hong Kong University and the National University of Singapore. It has now become the norm for undergraduates training in architecture in many schools across the world to run a two-tier programme. It is not therefore surprising that most of the 17 schools of architecture in East Africa are running two-tier programmes (DA&BS, 2018).

The changing demands of architectural practice require continuous innovation in the way architectural training is carried out. Over time, there has been increased demand for architectural education, as evidenced by the number of schools that have been established in East Africa in the recent past. A number of these schools were upgraded from polytechnic institutions to university level. Their teaching methods had a polytechnic bias at the beginning, but over time that was lost as it coalesced towards the common approaches espoused by regional architectural institutions. Older practitioners indicated that they noticed differences in approach to design between graduates of the University of Nairobi and the earlier graduates of Jomo Kenyatta University, a former institute of technology, but that has ceased. Influence from Nairobi through staffing of new schools may account for these changes.

From the inception of the architecture programme at the University of Nairobi to the end of the 1970s, most of the lecturers were foreigners, with a majority from Western Europe. However, from the start of 1980, local

TABLE 1: Timeline of The Review of Architectural Education at The University of Nairobi

Stage	Period in Years	Entry Level	Mode (Single or Two-Tier)	Nomenclature of Qualification
1	1956-1962	'O' Level	5 years programme (3 years in-school training, 2 years sandwich)	RIBA Part I & II Non-degree programme
2	1963-1968	'O' Level	5 years continuous study	RIBA Part I & II Non-degree programme
3	1963-1976	'A' Level	Two-tier: 3-2 years programme	Bachelor of Arts in Architectural Studies (BA-AS)/ Master of Architecture (MArch)
4	1972-1996	'A' Level	5 years continuous study	Bachelor of Architecture (BArch)
5	1990-2009	8-4-6	6 years continuous study	Bachelor of Architecture (BArch)
6	2004-present	8-4-6	Two-tier: 4-2 years programme	Bachelor Architectural Studies (BAS)/ Bachelor of Architecture (BArch)

Source: Author

staff gradually started to join the department. Most of these were former graduates of the department who had been sponsored for graduate studies in overseas universities. They considerably expanded the pool of the lecturers, thus infusing great diversity in department.

DISCUSSION

The discussions focus on three theme areas that fundamentally influence curriculum development, namely; influences of power structures within the country's education system and international demands, applied research and new modes of knowledge, and finally, predicting the future of architectural training.

Influences of Power Structure

Scholars of curricula development have explained that curriculums are generally influenced by power structures (Van Logggerenberg, 2000; Saidi, 2005), and the East African case was not different. The influence of the RIBA and the Architectural Registration Board (ARB-UK, 2010) on architectural education in the Commonwealth cannot be understated. UNESCO-UIA Charter (2011), on architectural education, together with WTO's guidelines for mutual recognition, have made architectural education and practice universal, and packaged it as a common service traded across borders. Schools of architecture that followed the guidelines in their curricula and opened up for inspection were accredited. In its preamble, the Charter's basic goal of education is to develop an architect as a 'generalist', a person ready to adapt to different contexts to offer solutions to society's challenges. Thus, it is not surprising that the curriculum for undergraduate training in complying schools tends towards convergence.

In the early reviews of the architectural curriculum at the University of Nairobi, apart from conforming to the general structure of these international institutions, the faculty played a major role in fine-tuning the curriculum to suit the local socio-cultural and economic context. For example, the second and third curriculum reviews of 1963 brought a divergence from the purely RIBA adoption that was alien to the local context after infused tenets of African traditional architecture into the curricula. In critiquing the curriculum in mid-1960s, the faculty recognized the urgency to reappraise the curriculum to include local architectural factors and lessening Eurocentric aspects that were considered to add little value to the training of the new professional in an African context (DA&BS, 2018).

The early curriculum had the following as taught subjects at both the foundation and intermediate levels: Techniques of Expression, Design and Construction, History & Appreciation of Architecture, Building Science (structures, building material science and use and special requirements of buildings). The design and construction component consisted of architectural studio work and building site experiences. The syllabus broke down these broad areas into detailed subjects. It is within these detailed subject areas that preceding appraisals of the curriculum happened and local content was introduced (DA&BS, 2018).

Further, when the country adopted the 8-4-4 system of education in 1992, the architecture curricular was appraised to create a six-year architecture course in place of the five-year programme that had existed until then. The experience from the students continuously studying for six years proved to be untenable and a break was found to be necessary. The social and academic challenges faced by students and the aspiration of faculty to confront emerging academic and practice challenges called for a review of the curriculum to improve both the faculty and students' experience. Thus, the six-year programme was split into two parts in a reappraised curriculum of 2004; an intermediate bachelor of architectural studies qualification at fourth year and Bachelor of Architecture at sixth year. The two-tier (4-2) curricula created a possibility of exiting the course entirely, or for a short period, with a qualification that reflects the investment in the four years of the programme. Further, it introduced elective areas of study that provided opportunity to diversify career choices for the students in areas such as conservation, interior design and landscape architecture. These electives also served to pursue a Departmental agenda by creating areas of research interest and enhancing graduate studies (DA&BS, 2018).

Applied Research and New Modes of Knowledge

Between the 1960s and 1980s, the department of architecture was renowned for its academic contribution to the field of architecture through its numerous publications, which were both from the faculty and the Housing Research and Development Units (HRDU) in the department. However, the extent to which research made a contribution in re-interpreting the Eurocentric disposition in training to a locally contextualized one was not adequately achieved (DA&BS, 2018). It was, therefore, not surprising that in most of that period, student unrest in the department was a common occurrence. The establishment of the HRDU in the department of architecture, was done on the behest of the government of Kenya in 1967. Being newly independent, the country was faced with severe housing challenges and it needed to develop local capacity to deal with the problem. The unit's objective to undertake research on various aspects of housing and community planning, in both rural and urban areas, was a success in the early years. Tremendous contributions were made in training and dissemination of knowledge and technology. That position changed in 1993, when the units became an autonomous research institute of the University of Nairobi.

Reduction in research activities due to underfunding has rendered the department into essentially a teaching centre. This reality has impacted the quality of graduate training. The university guidelines for recruitment of staff has an academic bias, rather than promoting a mix of both academic and practice. This has discouraged practitioners from venturing into education, moreover, there is no policy for adjunct professorships that could bring on board distinguished practitioners. Piatkowska (2016), observed that it is necessary to balance between theoretically oriented staff and those in practice in schools of architecture to produce all rounded future practitioners. To put emphasis on one aspect, either in theory and research or practice, will undermine the synergy required to effectively tackle architectural challenges of society.

In many world renowned schools of architecture, architectural knowledge has been taken to a new level where other modes of knowledge are being experimented. For example, the School of Architecture and Urban Design at the University of California, Los Angeles (UCLA) reveals a great influence in the advancement of design and design theory culture through vigorous engagement with advancing technology and critical thinking. According to Denari (2014), as from 1996, the School of Architecture at UCLA reviewed their mode of architectural instruction and paid great attention to technology and critical studies where much emphasis was placed on experimentation with emergent technologies and new modes of conceptual thinking. The School introduced sophisticated machinery that integrated advanced digital technologies and multi-dimensional media to explore conceptual problems relevant to the construction industry of the future. Further, Denari (2014), indicates that the school brought together in its faculty academics and practitioners, thus promoting higher levels of craft and conceptualization.

Consequently, and to concretize these ideas, in 2012 the School launched IDEAS; a satellite campus that serves as a hub for cross-disciplinary research and development with industry partners to expand the future parameters of architectural practice. In addition, the School, together with Frank Gehry Technologies, launched a post-professional programme that brought advanced robotics into contact with the speculative agendas of the School. Accordingly, the integration of experimental thought, theory and innovative design has been geared towards reformulating the way in which architecture and technology interact and influence contemporary culture (Denari, 2014).

Such approaches to pushing the boundaries of architectural knowledge may seem farfetched for a school such as the University of Nairobi, but this does not need to be the case. The approach can be adapted to the extent to which innovative use of limited resources, in terms of faculty and investment in research, can allow. After all, the adage 'think global act local' can find resonance in local adaptation of global knowledge and best practices such as that developed at UCLA to address architectural challenges confronting local communities.

The Future of Architectural Training

Architectural training for future practitioners will require to be structured to embrace new modes of knowledge. Knowledge is a widely defined concept

and new modes of knowledge are now acknowledged (Downton, 2003; Dunin-Woyseth & Nielsen, 2004; Gibbons et al., 1994), and there is a need to incorporate its understanding within the framework of knowledge dissemination in architectural schools. Among these is the embrace of society's know-how in seeking architectural solutions to urban challenges such as human settlements and urban revitalization and renewals. New concepts, such as multi-disciplinarity and inter-disciplinarity (Gibbons et al., 1994), will therefore require to be brought to application. The appreciation that architecture, both as an academic discipline and practice, is multidisciplinary is an important starting point.

The training of architects should start to digress to other areas to draw lessons on the complexity of the built environment. In this regard, the growing scarcity of shelter, food, water and energy at the local and global scale should be an architect's concern. In its broadest sense, architectural training and practice should take these challenges into account and define precisely where it might intervene in order to ameliorate and moderate them; it must not exacerbate them (Vidler, 2014). Therefore, sustainable architecture concepts need to be developed further in the curricula to inculcate a sense of responsibility to learners and draw them from the reverence of conspicuous consumption (Vidler, 2014). Further, architectural futurists aver that architecture schools need to contemplate the society's architectural challenges and develop briefs to address them, even when clients are not yet articulating them. The anticipation of challenges, and the considered elaboration of viable responses, are important to avoid a crisis of competence with ad-hoc reactions (Hadid & Schumacher, 2014).

Continuous development of all shades of technology necessitates that the curriculum and dissemination tools are continually reviewed to develop mastery of new technologies of representation, detailing and construction. This will allow learners to fit into the world of complex built forms that will be common typologies of the future (Rashid, 2014). Lyne (2014), observes that,

"*The next generation of designers will be trained to engage and imagine in the potential of dynamic, deformable environments with the situational awareness to adapt and transform smartly ... The next frontier in architectural innovation is not shape and complexity, but rather spectacular motion.*"

To this end, a number of schools of architecture are experimenting on robotics in studio and in live projects. The 'masses in motion' programme run at UCLA focuses on the ways robots can move things or help to redesign those parts of a building that already move with a new intelligence or new design opportunities (Lynn, 2014), a shift from the traditional way they have been understood - that of making things.

Some liberal writers on architectural pedagogy critique the straitjacket nature of the architecture curriculum that is ideologically structured to conform to institutions' requirements, such as those of UNESCO and WTO. This criticism, while valid to the extent that conformity to established guidelines might preclude innovation capabilities, does offer learners an opportunity to interrogate the foundations of the disciplines. Without these, it will be impractical to make a claim about creating or developing new perspectives on a subject matter without reference to existing knowledge and practice. To limit criticism of the training curriculum for architecture, there is need for inclusion of dedicated studies in critical thinking to prepare learners to critically reflect on alternative and innovative ways of dealing with societal challenges, within the purview of architecture and urbanism.

CONCLUSION AND RECOMMENDATIONS

How future architects are trained today is a manifestly important discourse, taking into account the dynamic concerns and demands that society has of the architecture profession. In this regard, schools of architecture should be guided by a strong philosophical foundation, upon which the training is based. This would give schools a distinctive identity, consequently bringing diversity to the practice of architecture. Accordingly, schools should not conform to a single mode of pedagogy, but should anchor it on varied philosophical positions and approaches. This will produce tomorrow's practitioners that serve the varied, and sometimes unique, expectations of the practice and society. While training guidelines provided by various architectural bodies and institutions are important, schools will require to be continuously innovative in the manner in which they

develop and periodically review curricular that is predictive of the future demands and needs of society.

Design theory and experimentation using a full range of presentation tools requires to be emphasised in schools to improve the skill of conceptualization. This will develop the inquisitive and innovative capacities of trainees, who will be better prepared to offer solutions to the built environment. Accordingly, schools of architecture should promote the creation of autonomous centres of research in collaboration with practice and industry to boost architectural education.

Technological developments and the aspirations of society are continually demanding sophisticated solutions from practice, thus requiring an architectural trainee that is equipped with the necessary skills to match these expectations. Accordingly, schools need to be equipped with appropriate and state of the art equipment, tools and facilities, including an urban context where these skills can be developed and natured.

Architecture training and practice are intertwined, and the contribution of practice is a necessary ingredient to complete the training process. Limited involvement in architectural training by experienced practitioners is a misnomer that should be reformed sooner rather than later. The interest of practitioners should be encouraged and nurtured to become part of the training process. Practising architects around the world often double up either as full faculty, or offer periodic lectures and instructions to schools of architecture. This is a noble contribution to the dissemination of knowledge and skills to future practitioners.

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