

Architecture from Teaching to Learning to Practice: Authentic learning Tasks in Developing Professional Competencies

N. Utaberta, B. Hassanpour, M. Surat, A. I. Che Ani, N.M. Tawil

Abstract—The concerns of education and practice of architecture do not necessarily overlap. Indeed the gap between them could be seen increasingly and less frequently bridged. We suggest that changing in architecture education and clarifying the relationship between these two can help to find and address the opportunities and unique positions to bridge this gulf.

Keywords—Architecture education, Learning, Practice, Teaching

I. INTRODUCTION

EDUCATION has an impact on its recipients not merely in terms of knowledge transfer but also in terms of the acquisition of modes of operation and the creation of attitudinal preferences. A characteristic feature of the architectural design studio is its learning methods, which are rooted in experiential learning or learning by doing. One of the strengths of the architecture education is that it has always used a range of teaching and learning strategies. Experimental learning through the studio has been at the core of these. The project as a vehicle for learning by doing is recognized as a highly successful mechanism for developing and embedding knowledge and skill. The greatest contribution any educational establishment can make to its graduates is to provide them with self awareness and abilities to learn in whatever context they find themselves throughout their lives [1]. In order to cope with the knowledge explosion and the rapid rate of change in society, architects like other professionals need to develop the habit of monitoring, evaluating and managing their own learning and of learning from practical experience.

Research has shown that in order to develop successful worked-based learning old prejudices must be set aside and new understanding and skills acquired [1]. In fact Past assurances about the status of a career in architecture are no longer valid and the role of the professional in society is under scrutiny. Design education has increasingly become an isolated, indoor activity [2], disconnected from tangible experience, real problems and the cities in which we live and work.

Dr. Nangkula Utaberta IAI, was a Senior Lecturer and Profesional Architect at the National University of Malaysia, UKM Bangi Malaysia (phone: 60389217035; e-mail: nangkula_arch@yahoo.com).

Badiossadat Hassanpour is with the department of architecture, Universiti Kebangsaan Malaysia, 43600, Bangi, Selangor, Malaysia (phone: +60-16-619-1224; e-mail: badih.hassanpour@gmail.com).

Ar. Mastor Surat was a Senior Fellow and Profesional Architect at the National University of Malaysia, UKM Bangi Malaysia.

Sr. Dr. Adi Irfan Che Ani, was a Senior Lecturer and Profesional Surveyor at the National University of Malaysia, UKM Bangi Malaysia.

Dr. Norgainy Mohd. Tawil, was a Senior Lecturer at the National University of Malaysia, UKM Bangi Malaysia.

The educators and practitioners, they are not mutually exclusive, but like the distinction between pedestrians and motorists, who may be both at different times, when acting as either they tend to adopt the behavior and prejudices of that particular group. In order to bridge the gap and to meet the challenges posed by practice and lifelong learning, it may be necessary to reexamine not only the educational process but also the relationships that exist in the schools amongst learners, and between learners and tutors.

In this paper first of the position of teaching and learning in architecture education explained under one title and then by investigating in architecture practice world, paper tries to find and assert the relation vertexes between architecture education and practice and finally some suggestions has given to upgrade the current architecture education.

II. FROM TEACHING TO LEARNING

The traditional view of education is that it is about teaching through curricula, structures and prescribed activity. However, promoted by research in psychology and neuroscience, a new insight has been gained into the ways in which we learn. This has served to shift the emphasis in education from teaching to learning. Learning is now accepted as a multifaceted activity. Recent research suggests that each of us has a particular set of learning characteristics that determine the ways and means by which we learn. However these innate learning preferences are almost immediately modified and developed by activity and experience. This continues over time and in relation to context, through the variety of learning experiences we encounter [3]; as an activity the design process, in education and practice, has been used as an exemplar by schon 1983 and others of how reflection in action operates. The iterative nature of the design process also mirrors Kolb's learning cycle and connects theories of individual learning styles and preferences [4][5]. Architecture students learn by undertaking projects that stimulate and simplify practice or they taken on real world under close supervision. Students need to be more adequately supported in work based learning. By developing learning contacts, students become independent learners and managers of their own educational process.

Students would be expected to acquire the material by reading, listening and watching, familiarizing themselves with examples of practice problems matched to the appropriate categories of theory and technique.

While active learning is necessary condition for the development of personal understanding it is not sufficient on its own, according to learning research [6]. To develop understanding from experience requires students consciously and systematically to reflect on the experiences that result from action. Critical reflection is a process of analyzing and evaluating personal experience, and making sense and generalizing from that experience so that future learning is more skilful and better informed.

Reflection is a way of linking together theory and practical experience so that both inform each other. Often a problematic situation presents itself as a unique case and some problematic situations are situations of conflict among values. The unique case falls outside the categories of existing theory and technique; the practitioner cannot treat it as an instrumental problem to be solved by applying one of the rules in his store of professional knowledge. The case is not in the book. If he is to deal with it competently, he must do so by a kind of improvisation, inventing and testing in the situation strategies of his own devising. Reflection on our past reflection in action may indirectly shape our future action.

The book by Schon 1987[7] has had a resounding effect on all areas of education because it identified the importance of reflection for professional practice. Schon analyzed the demands of professional practice and showed that in practice most real world problems are, by nature, messy, ill defined, uncertain and invariably unique, and those solutions to these problems call on the integration and use of knowledge from many different domains. He showed that mastery in these indeterminate zones of practice cannot be achieved through the rigorous application of scientific knowledge. Instead expert professionals resolve the dilemma of practice through a continuous process or reflection in and on action. They use reflection to discern patterns in the complexity of practice situations to identify critical factors and to ask further questions before resuming action. Over time this reflective activity becomes a natural part of thinking of professionals and becomes a habit of mind. Schon used the concept of the reflective practitioner to characterize such professionals.

While some aspects of Schon writings have been criticized by Eraut 1994 [8] but most of researchers now agree about the benefits of cultivating critical reflection in students in their undergraduate years in order to help them develop more productive thinking and the wisdom or artistry needed for practice.

Researchers such as Kolb 1984 [2] and Cowan 1998 [9] have shown how learning can be enhanced when it is organized around cycle of learning activity and reflection. Cowan 1998 distinguishes three different types of reflection that can contribute to learning and development [9].

- 1) Students can reflect before they engage in activity (that is reflection for action)
- 2) They can reflect while in activity (reflection in action)
- 3) They can reflect after an activity (reflection on action)
- 4) Before going to next step

Each of these three types of reflection helps develop deeper and more elaborated knowledge and skills.

Each new experience of reflection in action enriches student's repertoires.

Depending on our disciplinary backgrounds, organizational roles, past histories, interests and political/economic practices, we frame problematic situations in different ways.

Picking up a practice on one's own has the advantage of freedom- freedom to experiment with out constraint of received views. But it also has the disadvantage of requiring each student to reinvent the wheel, gaining little or nothing from the accumulated experience of others.

III. PRACTICE

Practice training is the description given to work-based activity. This is promoted as a model for future education. The importance of what Mumford describes as negative capability in the learning process is the ability to allow people to learn on the job from their mistakes in both academic environment and the work place.

Most offices, firms, factories and clinics are not set up for the demanding tasks of initiation and education. Pressures for performance tend to be high, time, at a premium and mistakes costly. The practicum is a virtual world, relatively free of the pressure, distractions and risks of real one.

The difference in nomenclature between architectural education and practical training has tended to support the idea that these are mutually exclusive and different forms of activity, fulfilling different functions. In the world of the 1958 conference this may indeed have been the case [1] and [10].

- 1) Education was assumed to be open-ended, exploratory and expansive. Essentially associated with theory, success in this arena was defined in terms of individual intellectual attainment and rewarded by the titles and letters appended to an individual's name.
- 2) Training, on the other hand, was assumed to be restrictive, skill based and linear in nature- specific to the needs of the task and or organization rather than individual and achieved through the repetition of specific activities or standardized process.

Learning could serve as an important vehicle for the initial development of attitudes, communication and team working skills regarded as so important for architecture education.

When someone learns a practice, he is initiated into the traditions of community of practitioners and the practice world they inhabit.

There are familiar situations where the practitioner can solve the problem by routine application of facts, rules and procedures derived from the body of professional knowledge. In city planning, for example, there are rules of thumb by which a planner can calculate, under a given zoning by law, the number of parking spaces required for each living unit in an apartment building. The problems of real world practice do not present themselves to practitioners as well framed structures. Indeed, they tend not to present themselves as problem at all but as messy, indeterminate situations. The practitioner experiences a surprise that leads him to rethink his knowing in action in ways that go beyond available rules, facts, theories and operations. They response to the unexpected or anomalous by restructuring some of their strategies of action, theories of phenomenon or way of framing the problem and they invent on the spot experiments to put their new understandings to the test [10]. Framing the problems that arise in practice situations and shaping the situations to fit the frames. One of the characteristic and criticism of any profession is its tendency to privilege its own view of the world and knowledge base over those other groups. Educators and practitioners are demonstrating all the boundary conditions and preference for internally referencing structures described in this criticism.

It is therefore not surprising to see that, rather than working together in a mutual aid and support mechanism, education and practice have developed increasingly isolationist attitudes and an increasing lack of vision as to the interdependence of education and practice.

IV. UPGRADING ARCHITECTURE EDUCATION

Clients are becoming increasingly knowledgeable and demanding in their dealing with the construction industry and architects. Clients are no longer content to rely on the architect as primary adviser. Clients wish to be more involved in making design decisions. In addition team working is increasingly demanded within and across built environment disciplinary, as clients and users call for better industry performance man more integrated construction service. Both these trends demand that architects acquire a broader range of people and communication skills. Not only must architects develop interpersonal skills in relation to clients and other professionals, but they must also become better at least listening and responding to, and communicating with, building users and public.

Change is always inevitable, even in architecture education. But for change to be constructive it must respect existing contexts and accommodate some of the traditional approaches in architecture education.

Architecture education must respond to these changes:

- 1) It must enable students to develop the skills, strategies and attitudes needed for professional practice and it must lay the foundation for continues learning throughout life.
- 2) Architects not only must develop interpersonal skills in relationship to clients and other professionals, but they must also become better at listening and responding to, and communicating with, building users and the public.
- 3) The architect's role is to provide a medium in which these different aspects of design come together.
- 4) In schools of architecture priority is given to design as product in terms of visual and graphic output rather than a process.

A. Collaborative Learning

In schools of architecture there are some use of peer group discussion and interaction around design project. This can now be judged a valuable feature of architectural education, given the large body of research evidence showing that interaction and discussion in student groups positively enhance individual learning. Research in education has clearly demonstrated the benefits of collaborative and cooperative learning arrangements for the development of students' critical thinking, development of self concepts, social skills, personal responsibility, values and attitudes [1].

Group learning gives students practice in thinking and explaining, it increases learner activity, it exposes students to multiple perspectives that help develop more elaborated thinking, it provides opportunities for students to support each other's learning, and it often results in students teaching each other, which is profitable for teachers as it is for the students being taught.

There are two other reasons for increasing the amount of group work in courses for the architecture profession.

Firstly: group discussion on learning tasks increases the focus of students on the processes of learning [1]. Thus group discussion extends and reinforces the potential of reflection for learning.

Secondly: group work makes it possible to focus the learning of students especially on the processes of communication and interaction within groups. Thus group learning could serve as an important vehicle for the initial development of attitudes, communication and team working skills regarded as so important for architectural practice.

B. Process rather than Product

There is no unreasonable action in the world and all are perusing a prominent target, especially in educating system that in fact it is the base of all forward steps in community around us. But there are some critiques given by some professional architect that most part of our academic education can't completely cover the needed knowledge in real working world as the theory thought is different from practice[11]. In architecture studios same problem exist and we can see many projects that are brilliant on presented sheets but they aren't applicable or in best statues they cost exorbitant (e.g. large spans) so designs will remain on papers and never will come to real. This paper analyses architectural studios in order to find the weak and strength points and also to identify procedures and tools that can be used to support the studio based pedagogy in architecture. Evaluation of architecture – primarily by the industry itself- is presently weighted towards judging how innovative the form (the physical object) is rather than the innovation of the process (the building in use). This is evidenced by the architectural work that is published or wins award [12]. In turn the creators of these forms act as role models for students, with the result that student invest most of their study time in the design form. Those students who do focus on process and develop new programs or way of reconceptualising space and user relationships are rarely given credit because of the current system of assessment used by schools of architecture. In effect, what is valued in the profession –form- is reflected in architecture schools, and of course vice versa.

In addition, the understanding and language required to evaluate form is, of necessity, very specialized. This may be one reason why the general public, as well as minority groups, are excluded from debates about what is or is not good architecture. Evaluation and assessment systems, in the profession and in schools of architecture respectively, must establish an appropriate balance between process and form. The most direct means of achieving this is to invite user involvement in the evaluation and assessment (formative feedback) of work.

C. Clients, and users at studio

Elimination four walls of crit sessions will help students to make better understanding about project's needs and real practice world's constrains. This also will motivate them to do more effort and find their own window to look to the problems and potentials.

V. CONCLUSION

As the emphasis moves from teaching to learning, and outcomes and levels of achievement become the main focus

rather than inputs and duration of study, a more flexible and student centered architectural education can be designed. By integrating learning opportunities across practices and academic institutions, rather than offering an either/or in/out situation, students, education and practice can reap benefits. Learning through practice, rather than just learning in practice, has considerable potential.

REFERENCES

- [1] David Nicol, Simon Pilling, "*Changing Architecture education: towards a new professionalism*", Spon press, 2001.
- [2] J.Ausubel, "*The liberation of environment*", *Daedalus*, p 14, 1996.
- [3] D.A.Kolb, "*Experiential Learning: Experience as the source of learning and development*", Englewood Cliffs, NJ:Prentice hall, 1984.
- [4] P.Honey and A. Mumford, "*Manual Learning Style*", 3rd edn, London: honey, 1992.
- [5] P.Honey and A. Mumford, "*managing your learning environment*", London: honey, 1996.
- [6] A.BrockBank and I.McGill, "*Facilitating reflective Learning in higher education*", Buckingham:Society for research into higher education and open University Press, 1998.
- [7] D.Shon, "*Educating the reflective practitioner*", Sanfrancisco:Jossey Bass, 1987.
- [8] M.Eraut, "*Developing professional knowledge and competence*", London: The Flamer Press, 1994.
- [9] J.Cowan, "*On becoming an innovative university teacher: Reflection in action*", Buckingham:Society for research into higher education and open University Press, 1998.
- [10] RIBA, "*Strategic study of profession: phase2, Clients and architects*", London: RIBA, 1993.
- [11] Badiossadat Hassanpour, N.Utaberta, "*Redefining the idea of design studio in architecture education: Bridging academic and practice* ,5th ASEAN postgraduate seminar, p60-67, Malaysia, 2010.
- [12] Ruth Morrow, "*Architecture Assumption and environmental discrimination the case for more inclusive design in schools of architecture*", Chapter 4, 2002.