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An epistemological inquiry

Introduction

Epistemology is the study of the nature and limits of knowledge. The subject of an epistemological inquiry in architecture is not its relationship with science but the nature and limits of the knowledge found in the field. Religion claims knowledge of the ultimate and absolute truth, while science chases pieces of knowledge through research. What does architecture do? It could be said that, as an activity, architecture has been identified as such much earlier than many other human endeavours which are considered by some to have reached a more mature stage as disciplines. The purpose of this paper is to attempt a deeper understanding of the nature of architectural knowledge which will hopefully allow for a better assessment of such a claim.

Information about a certain kind of knowledge, assuming that different types or kinds of knowledge do exist, could perhaps be obtained by considering its nature or characteristics, by examining the means of its production, the way it is used, the methods of testing its validity and the manner it is shared by those who possess it or those who are interested in possessing it. Consequently, except for those rare cases, various groups of people have different relationships with the knowledge found in a field. First of all, there are those who experience the effects of applying the knowledge. Others may have the knowledge but do not use it either because they choose not to, or because they don't know how to. Then there are the people who are involved in producing the knowledge and those who reflect on the whole arrangement and on the means of knowledge production themselves.

A useful if not necessary distinction to be made is that between knowledge and skill. A piece of knowledge may be given to anyone but may be useless if the skill or potential or even interest to use it are not present, while a skill is the ability to perform a certain task which, if not perfectly repetitive, could be seen as the ability to process some kind of information or knowledge. The efficient application of the skill depends on the provision of the necessary pieces of knowledge

or information. On the other hand, even if the necessary information is there, the skill may not be adequately developed. So, an epistemological inquiry in architecture should investigate the skill, the knowledge used in using the skill, as well as the relationship between the nature of the skill and the knowledge it uses. A discussion on the relationship between theory, research and practice cannot but facilitate such an undertaking.

The nature of architectural theories

Architectural theories have been characterised by many as polemic, ideological, and normative rather than analytic, and have been accused for having no impact on practice which they follow rather than guide. It has also been argued that architectural theory may not be theory at all but more part of practice.

Etymologically the term theory comes from the Greek word *teoria* which means 'I see' or 'observe', an act which implies a distance between the observer and the object. Seeing or observing a glass of water is an act and it may include an assessment of whether it is out of reach, full of water or other liquid, beautiful or whether it should be grasped and used, but this act is clearly different from the actual act of grabbing it, an act which is also quite different from accidentally knocking it down. In other words, the theoretical element related to the actions of an individual may be in the form of thoughts, assumptions, concepts which are infinitesimally small and are interchanged with praxis or practice which informs and is informed by them. Such may be the kind of theory used in many aspects of everyday life. Anthony Giddens calls this 'practical consciousness' with which agents can have a continuing theoretical understanding of their actions, one which is not based on any rigid logic, as discursive consciousness is, but on routinization (1981). Similarly, in a vernacular setting a builder has what Glassie (1975) calls 'architectural competence', a capacity or skill which is also a product of culture.

Clearly theory cannot come from nowhere but from the experience of previous practice or from experiencing the results of previous practice, from the exposure to other theory. Similarly, practice cannot come from nowhere but from some kind of thought process which allows the skill already possessed by the architect to be adapted to the specific situation faced each time. The setup is thus more of a sequence which alternates between theory and practice with the one following the other in a continuous path. In such a setup then theory neither follows nor guides design. If theory is taken to just reflect what is happening in practice without itself having any impact on it, then any changes taking place are either due to accidents or due to the influence of other practices or theories from other areas. The other possibility is a mechanistic arrangement where there are no real agents but passive participants or ingredients, a view not easily defensible.

Everything which encourages a certain kind of attitude towards life contributes to cultural production (Bourdieu, 1984). Such is the act of drinking coffee, or the act of designing a house. The difference between the two acts mentioned may lie in the identity of the person who reflects on them; rather than the person who drinks coffee, it is a doctor, an anthropologist or a sociologist who is more likely to reflect more on what it means to have such a habit while it is the person performing the act, the architect himself/herself who will reflect more on the act of designing a house. In other words, the architect is part of the setup he/she is supposed to reflect on and may thus have to struggle to replace habitual with reflective thinking if indeed this is desired. Still, even Glassie's vernacular builder will provide a cause and effect narrative which accounts for how things are done, a construct which may not withstand rigorous analysis but a theoretical construct nonetheless. The inability to be logically argued may be taken to mean that such a theory is not good or even valid. But what is a good theory supposed to do? Rapoport argues that

> ...there is explanatory theory, which is based on research and supported by empirical data and which leads to understanding and prediction, and then there is "theory", which is really nothing more than opinion, ideology, and the like...the construction of explanatory theory cannot begin until there is sufficient empirical data to suggest directions and to constrain such theory construction. (1982: 241)

But even in science, the idea that a theory can be proven true and thus provide absolute knowledge has been replaced with a much more realistic and modest role.
Science has long been considered by many as the safest method of arriving at 'true knowledge', a view challenged by

thinkers and researchers examining the philosophical and actual characteristics of the field. Acknowledging the problem with induction, Popper (1959) argued that a scientific theory cannot be proven to be true just by adding new evidence since it theoretically takes one extra experiment to falsify it. An irrefutable theory is simply not scientific. For him, science progresses by the creative leaps of individuals who put forward a hypothesis that speculates. Lakatos (1986) assumes what can be seen as a relativist approach to scientific theories since he finds that a number of different theories can be supported by a given data. He argues that science develops or changes by way of research programs and not individual theories. Each of these programs has a hard core of theories which are surrounded by a protective belt of supplementary theories. This periphery may eventually change thus influencing the centre which is comparatively more stable. In other words, it is not the substitution of one theory but a group of theories which brings change to a research program which may then influence other program as well. What is quite important for the subject of the present discussion is that he goes on to argue that a new theory should be given the benefit of the doubt in order to give it a chance to show its worth. He believes that the evolution of science is not so much directed by facts but mainly determined by the imagination of scientists.

A general assessment is that architectural theories are normative while scientific theories are analytic, with the latter seen more suited to guide practice. This either/or grouping of theories were challenged by Kuhn (1962) who argues that even in science, an established theory becomes normative for a period since scientists use it as a paradigm to carry on experiments without actually challenging its assumptions. These 'paradigms' have shortcomings which will eventually trigger new insights, bringing a revolution through which the paradigm shifts to a new way of looking at the subject matter, only until the next paradigm shift occurs. There are thus periods of normal science between scientific revolutions. Since the paradigm used is actually the way of thinking through the data, Kuhn argues that a paradigm cannot be rationally justified. He finds that using a paradigm implies a certain commitment which does not allow one to critically examine the assumptions inherent in it. Imagination is needed to exit one's own paradigm and objectively view its strengths and weaknesses from the outside.

Acknowledging the peculiar nature of architecture, Johnson (1994:13) suggests that normative theories should be judged according to their persuasive strength unlike positive theories which are judged according to their predictive strength. He argues that the ability to persuade may be due to the theory's resonance with the specific culture or because it manages to go deeper, reaching human elements which transcend the specific time and place. If prediction is replaced with persuasion and if paradigm is the sharing of a common conceptual framework which reproduces results, then the emergence of a style for instance may then be a sign of the existence of a paradigm. This may also explain the polemic character architectural theories take.

Still, an important issue arises; who is to be persuaded by architectural theories; the other experts in the field or the public? Johnson seems to imply the latter. But the way to persuade fellow experts is or should be different from the way one persuades the public not only because the former will use the theory while the latter will experience its effects but also because experts have, or should have a comparatively stronger ability to reflect on and evaluate the underlying assumptions and implications of what is presented to them. This distinction may help understand to some extent the accusation that architectural theories are ideological. A theory on advertising for instance will naturally address the experts of the field and it is those whom it will have to persuade, while an advertising concept is used by these experts to persuade the public. A scientific theory put forward is for the researchers and scientists to evaluate and not to persuade the public. Things are different in religion where the expert, the priest that is, accepts the theory as dogma and his job is to persuade the people, with logical arguments up to the point where a leap of faith is required. Is architecture closer to the setup in religion rather than to the one found in science? Is this the reason architects have been accused of not being able to distinguish polemic from theory? (Heath, 1991,18) The discussion is naturally led to the way architectural theories are ultimately evaluated. If such an undertaking is to be systematic in one manner or other, then it will be one form of architectural research or other.

Architectural research

So what is architectural research and when does or should take place and by whom should it be carried out? A comparatively distinct type of research, irrespective of whether it is considered to be strictly architectural, is the kind which contributes to the quality of the product by providing pieces of factual knowledge used in parts of the design process. Such is the research which provides technical information about the different physical aspects of buildings. Environment Behaviour Studies or EBS may also be seen to be of this kind.

Rapoport sees EBS as both humanistic and scientific while Johnson (1994) finds that 'EBS may have yielded a wealth of information about how people react in and to buildings that is as close to a 'scientific' knowledge base in architecture as we are likely to get' but expresses the following reservations: EBS assume that 'buildings offer cues above and beyond any taught behaviours yet so far there seems to be no such evidence; no product of such research developed into dictums or axioms for designers despite the underlying assumption that observations can be generalised; architects do not seem to use information obtained from EBS and; all design is experimental while the assumption that we can observe the past to predict the future implies a constancy in environment-behaviour relations which does not exist. (Johnson, 1994, 62)

One could see the above criticism as rather unfair in the sense that most architectural, as opposed to building research probably includes human perception as one of the parameters, and is consequently as unreliable as EBS. In fact, most architectural research is EBS in one way or another. Furthermore the problem of induction is a serious problem in science as well, yet scientific achievements cannot be denied. Rather than talking about phenomena as having constancy and predictability as if such qualities are either present or are not, perhaps a more realistic approach would be to have in mind the degree of such characteristics in phenomena while using information derived from them. Johnson also argues that design will always necessarily speculate regarding the outcome yet he does not seem to value what POE (post occupancy evaluation) can offer, even though, perhaps the only other chance for any kind of assessment of an architectural project, apart from the award system which does not judge the result on its actual impact on the public, is what history will tell us, much much later. But, without underestimating the value of historical research, how can the observations regarding something recent be less relevant to the present from something in the past which may have survived for a number of reasons which are not always the right ones? Admittedly, there is danger in assuming that what has been observed in a project studied will necessarily be found to be the case elsewhere as well. But one thing that POE does teach the architect is humility by revealing that architectural determinism is an outdated notion. So, what are the reasons behind Johnson's blow below the belt? Is such an attitude regarding attempts to scientifical research aspects of architecture shared by many? If yes, what are the reasons behind it? Rather than negative disposition, could it be more of a form of conservativism similar to that found in strong cultures?

Groat and Wang (2002) argue that design itself cannot be considered as research as such since the latter is "a fact-based activity" while design is 'a series of subjective commitments', but believe that research can aid the design process in many ways. They distinguish between 'design as research' and 'research about design' by arguing that

> ...we can make a distinction between design as research, which we hold to be at best a difficult conceptual union of all the mental faculties, and research about the design process. The former seeks to subsume a reality that is inherently nonpropositional (generative design as a mode of art production) under the domain of propositional activity (analytic research) which raises logical difficulties. The latter seeks, by well-defined propositional frameworks, to understand more deeply the processes involved in the nonpropositional process of design. There is no logical problem with this notion. (106)

While they do not support the idea of 'design as research' they argue that there may be ways design and research can enter into a symbiotic relationship where "episodic research" takes place within "generative design" and suggest models which attempt, in greater or lesser degrees, to critically reflect on what is happening in design and inform the act itself. These are: design as analysis and evaluation, design as action research, design as a learned skill, the generator/conjecture/analysis model, and design in collaboration (108).
A proposal which has similarities with most of the just mentioned models is also presented by Donald Schon, who suggests that the architect should enter into a 'reflective contract' with the client, in which, among other things, 'he needs to reflect on the limits of what he knows and communicate this

process honestly to the client', while the client may "not agree to accept the practitioner's authority" but rather accept "to suspend disbelief in it" (Schon 1983, 295-299) Can the architect afford to do this though? What is basically at stake here is the architect's authority. The proposal can only be evaluated if the authority of the architect is first defined. If, for example, the architect's skill is to create a myth (Charles Jenks, 1969), would letting the client see it manufactured defeat the purpose? A priest may admit he doesn't know the answer to a specific problem but bypasses the difficulty by placing the responsibility to God by saying that 'God works in mysterious ways' or that 'God may be testing you now but will eventually show you the way' or simply that 'you should have faith and trust in God'. Can the architect refer to any such authority when deadlocks are encountered after he fully exposes the design process to someone who will most probably need a cause and effect reasoning to be persuaded that what the architect proposes is better than what he himself may have in mind? Is it even possible to take the client along a path in which the architect himself/herself cannot be fully reflective about? What if, like in religion, the authority of the designer begins exactly where neatness and logic stop? Will the client accept the architect's claims that from then on he/she, the designer that is, knows better? Clearly, for such an attempt to be successful it needs the right attitude not only from the client but from the architect as well. Such an attitude may require a quite dramatic shift in the way the designer sees his/her role in the design process, especially when it comes to dealing with aesthetics.

The practice of design

Design is by definition a creative activity not necessarily in the usually assumed sense which basically sees it as artistic expression but mainly because the initial givens contain many parameters which are indeterminately and dynamically interrelated. Consequently, the basic characteristic of design is the inability of the data or initial givens to determine a proposal. And while the quality and quantity of factual knowledge available to the architect has undoubtedly increased tremendously, many observe no corresponding improvement in the architectural schemes proposed. This could be due to a number of reasons; the initial givens have become more complex while the architect's skill has not developed accordingly, the factual information provided is irrelevant or simply because factual information does not really help improve the quality of designs.

Hillier, Musgrove and O'Sullivan account for the mentioned phenomenon which they call 'applicability gap', by arguing that the wealth of knowledge or information available now does not easily become part of the 'pre-structuring' apparatus through which the designer processes information and comes up with a proposal (Hillier et al., 1972). This makes sense if this pre-structuring apparatus is not a logically structured framework but a product of a mechanism similar to what Giddens (1981) calls 'stucturation' and Bourdieu (1977) calls 'Habitus'. In other words, the apparatus under discussion is acquired through the designer's exposure or participation to some form of culture or other.

It has been argued that 'theory is the substitute for tradition' (Scott 1924:259-260), implying that the appearance of theory presumably in a discursive form automatically means that we have indeed left tradition. The question then is, have we indeed left tradition and replaced it with theory? It was and may still be considered as one of the targets of architectural education to erase what is considered as the restraining effect of culture on students in order to enable them to be more innovative or more efficient as designers. Yet, in light of what has been discussed, it could be argued that what has actually happened is the replacement of traditional or more societal culture with architectural culture which serves a similar role as its predecessor.

Could it be otherwise though? If the description of architectural design presented above is correct then the synthesis expected from the architect will, at one point or other in the design process, resort to the mechanisms culture itself uses to satisfy its own mission which could be similarly described as the, as efficient as possible, handling of discontinuities, contradictions and the absence of an all encompassing logical scheme.

Since architecture is predominantly about designing physical entities, aesthetics or the way things look, naturally offered itself as one such mechanism and has been considered as one of the main tools architects have traditionally used to give the impression that what is proposed has been purposefully and logically configured that way, even though, as already explained, the various parts or aspects contained in the proposal are not so efficiently or deterministically connected or

related, not because of any lack of competence but because of the complexity of the setup which inevitably only allows for a perfection that is iconic rather than actual. The specific mechanism though has many times become the end rather than the means though, admittedly producing quite interesting compositions but also allowing architecture to be criticised for dealing mainly with what seem as the superficialities of form, failing to address other, equally important if not more urgent issues (Markus 1993, Leach 1997).

As stated at the beginning, the purpose of this paper was to attempt a better understanding of the nature of architectural knowledge in order to evaluate the claim which finds architecture lacking in maturity as a discipline. What the present investigation seems to suggest though is that architecture has more of the characteristics of culture rather than those found in a discipline. So a number of questions present themselves.

.If architecture is indeed more of a culture, is it desirable or even more importantly, possible to strengthen those of its aspects that will make it shift towards becoming more of a discipline?
. If architecture is indeed more of a culture, how does it rate as such? Has it advanced in areas such as ethics, human rights, what are its prejudices and what is its relationship with other cultures? How does it faces the challenges of today? Will it survive into the future or will it be consumed by its neighbours or invaders?

A quick and thus potentially unfair assessment is that architecture seems to lack the maturity of an advanced culture where religious fanatism, prejudices and power imbalances have been counterbalanced by a well defined code of ethics that allows for pluralism and diversity, with a strong reflective ability to see itself within the broader context. As to whether it will successfully face the challenges of today and survive as a culture only the future can tell.

Architecture, being an activity carried out by humans for humans, could focus on increasing the humanness of individuals and society. Acknowledging the fragmented and illogical nature of human existence in dealing with the complexity their skill is called in to handle, it seems that architects are already beginning to adopt a more responsible attitude towards resources and are developing a stronger desire to reveal potential choices or limitations rather than conceal, pacify or anaesthetise.

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