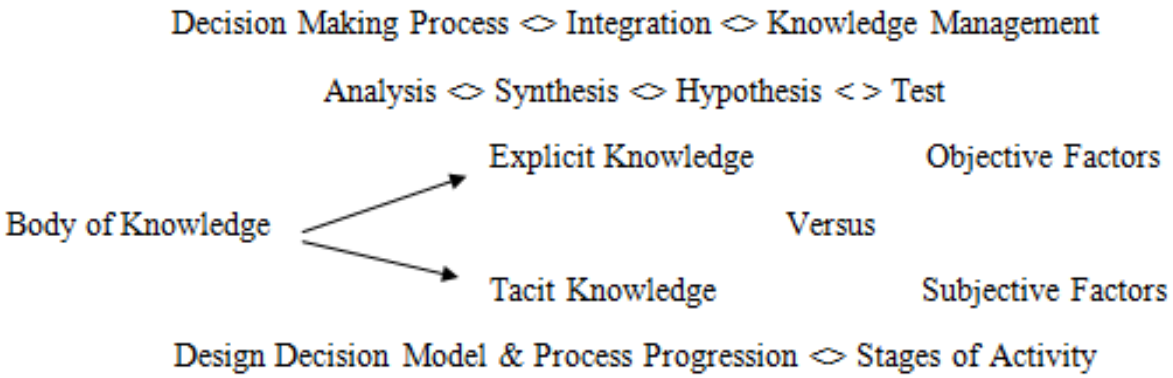
KNOWLEDGE INTEGRATION

Ar. Asif R Khan[1]
www.asifrkhan.in

[1]*Head of Department, Al Salama Institute of Architecture*
Perinthalmanna, Malappuram,Kerala,India.
www.alsalamaschools.in/architecture/

Fig. 1 Ideation Illustration 1



Source: Author

1 DECISION MAKING PROCESS

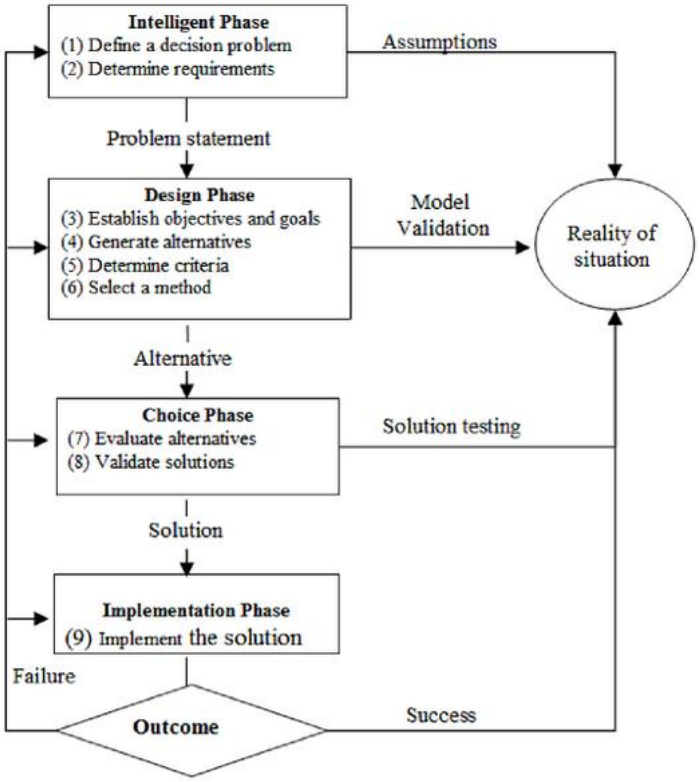
A conceptual framework that would legitimatise the approach and rationally classify the parameters involved in ideation while choices are being made is essential. More preciously a design decision model that is constituted by rational procedures and rooted in contextual aspects is the objective behind the endeavour. When confronted with a design issue or problem, one has to follow a certain progressive path involving certain stages of decision making at each level. A proper understanding of decision making and associated sphere of influences is crucial to understanding the conception of a design decision model.

Making decisions can be difficult because of the large amount of factors that influence the decision making process. Various aspects like personal indents, contextual factors, objective principles, subjective values, characteristic qualities and imageability play a crucial role in defining the line of approach.

Generally speaking, a decision-making process (or simply called decision process) begins with awareness of a decision problem, and ends up with a final solution among finite or infinite alternatives. A general decision – making process proposed by Simon

(1977) involves three phases: Intelligence, Design, and Choice. A fourth phase, Implementation, has since been added (1 p. 5).

Fig. 2 Decsion Making Process Framework



Source: Redepiction of Simon Model

Another relevant factor that has to be considered during decision making is the desired long term aim because it can help determine options and set a course of action. The basis of all above activity is however grounder in proper collection, analysis, synthesis and interpretation of available data and facts about determinant aspects.

Knowledge comprehension is vital component at any stage in design development leading to proper conception, rationalisation, realisation and implementation. This would provide proper insights for smarter design decision and outcomes while resolving a spatial issue. Human perception of knowledge management plays an important role in progression from familiar situations to arriving at new possibilities.

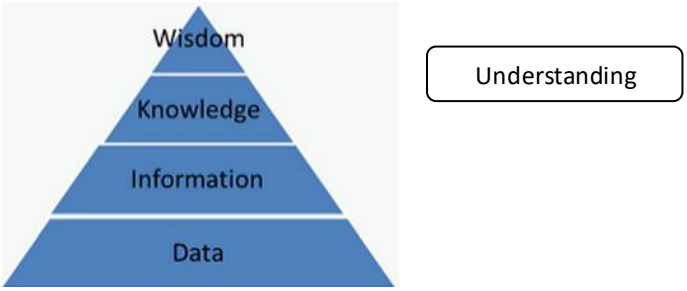
2 KNOWLEDGE MANAGEMENT

The traditional basis of arrangement of facts depends on the DIKW Pyramid of hierarchy, while facts are processed for generation of solutions to a given issue at hand.

"The knowledge hierarchy is now usually seen as a pyramid ascending from data to wisdom as first suggested by Ackoff (1989)...Ackoff introduced a pyramid with five

constructs: data, information, knowledge, understanding, and wisdom , in which the existence of higher level is predicted on existence of the lower ones. Traditionally speaking, the knowledge management literature retained only the four concepts of data, information, knowledge and wisdom ordered into a hierarchy" (2 p. 54).

Fig. 3 DIKW Pyramid



Source: Archetype by Ackoff

It is useful to distinguish between different kinds of knowledge as this would aid in formation of frame work that would assist in knowledge management. "Lundvall and Johnson (1994) proposed a distinction between four types of knowledge, called as know-what, know-why, know-how and know-who" (3 p. 1169). Know –What refers to knowledge about facts, Know –Why is the fundamental understanding of basic principles and laws of nature, Know-How relates to the capacity or ability of doing something and Know-Who refers to the social networking – involves act of cooperation and communication with different kinds of people and experts.

The precedent research points towards existence of specific forms of knowledge domain in general. The bases of all these insights are to bring about positive intervention in knowledge building. Knowledge generation in architecture studio was linked to learning – preparation of drawings from which buildings could emerge. In the earlier days the focus was primarily on atelier form of training, here the attention was more towards tacit form of knowledge assimilation. This approach gradually changed during the movement of Modern Architecture. It is well known how the new masters faced the challenges of the new materials of construction and the emerging new forms. The studio was now transformed from the atelier to the institutionalized environments for learning architecture design. Concern for rationalism seemed to dominate the designers mind more than the romanticized approach of the earlier days; primary focus was on explicit knowledge base.

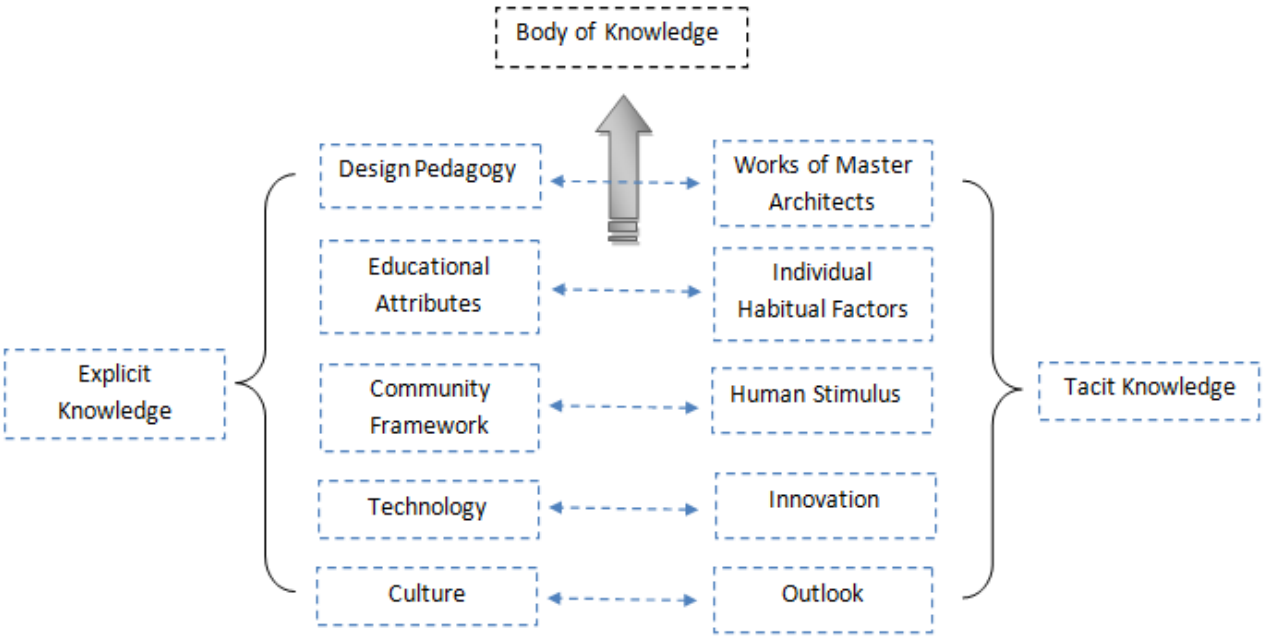
Knowledge building generally involves interplay of explicit knowledge and tacit knowledge. Explicit knowledge is easily accessible. It is formally articulated and shared with

others in the form of books, reports, portfolios and so on. Meanwhile tacit knowledge is exploratory, experience based, hard to formalise and difficult to articulate.

> I shall reconsider human knowledge by starting from the fact that we can know more than we can tell. This fact seems obvious enough; but it is not easy to say exactly what it means(4 p. 4).

The reference is towards a type of knowledge that is relatively difficult to cognise and eternalise. It most cases this indescribable character tag attached with this domain of knowledge forces people to explore the phenomenon through action. Let's take the case of fine arts; painting. "Rules of art can be useful, but they do not determine the practice of an art; they are maxims which can serve as a guide to the art only if they can be integrated into the practical knowledge of the art. They cannot replace this knowledge"(5 p. 52). Tacit knowledge is developed in an individual through experiential exposures over time. Transition happens by dialogue and hands on exposure. It is individual oriented and requires to be properly documented and codified to be rationally externalised. "By watching the master and emulating his efforts in the presence of his example, the apprentice unconsciously picks up the rules of the art, including those which are not explicitly known to the master himself" (5 p. 55).

Fig. 4 Knowledge Cognition Key



Source: Author

Table 1 Body of Knowledge Structure

Body of Knowledge			
Explicit Knowledge (Objective Factors) ⟷ Tacit Knowledge (*Subjective* Factors)			
Design Pedagogy	Design Pedagogy Design Studio Environment Supportive Subjects	Master Architects	Design Philosophy Archetypal Works Critical Appraisal Apprenticeship
Educational Attributes	Models of Teaching and Learning Human Resource Interface Creativity Educational Psychology	Individual Habitual Factors	Attitude Aptitude Skill Tactic Endurance Social Conditioning
Community Framework	Governance Politics Economics Commerce Social Structure Demographics	Human Stimulus	Cognitive Response Affective Response Psychomotor Response Perception Response
Technology	Determinism Futurism Globalisation	Innovation	Precedents Evolution & Transformation Iconic Approach
Culture	Identity Ethnicity Traditions Life Style	Profile Outlook	Function & Morphology Prosperity Development

Source: Author

In similar lines the body of knowledge in architectural pedagogy, could be broadly classified under the similar domains of Explicit and Tacit knowledge. Design Pedagogy, Educational Attributes, Community Framework, Technology, Culture forms the basis of explicit classification. Meanwhile tacit knowledge is often linked to the subjective factors and individual mannerisms like Commission of Master Architects, Individual Habitual Factors, Human Stimulus, Innovation, Outlook and so on. The attributes that make up each field can further be analysed in detail, however explicit knowledge base is anchored to fundamental knowledge while tacit knowledge base is more individual centric in nature . Knowledge cognition is an integrative process combining the explicit and tacit realm. The efficiency of knowledge management is also often influenced by the teaching approach adopted .

3 TEACHING APPROACH

Transmission and transaction of learning in a design studio is generally influenced by the teaching approach adopted . Critical understanding of the relevance of process embedded in a particular teaching approach determines the effectiveness of content delivery and proper assimilation by the learners. The maturity level of the learners during the duration of the architectural curriculum establishes the teaching model to be emphasised. Generally pedagogical and andragogical modes of approach are used to provide a comprehensive integration of learning experience.

> Pedagogy is derived from the Greek word “paid” meaning “child”, plus “agogos”, meaning “leading”, therefore defined as the art of leading and teaching children. The pedagogical model is a content model concerned with the transmission of information and skills, where the teacher decides in advance what knowledge or skill needs to be transmitted and arranges a body of content into logical units, selects the most efficient means for transmitting this content (lectures, studio work, readings, laboratory exercises, films, tapes, for example), then develops a plan for the evaluation of learning by the learners. Pedagogy is a teaching theory, rather than a learning theory, and is usually based on transmission (6 p. 2).

Therefore any logical activity designed to enhance the learning experience of an individual or group of learners in an instructional environment leading to better cognition could be generally defined as pedagogy. However accomplishment of a pedagogical approach is purely based to a large extent on the professional expertise of the teacher and the practical skills that the teacher has learned and practised.

Andragogy is a choice when adult learners are involved and alternative approaches are required to enforce effective learning. Generally the focus is to enhance the motivation levels required for learning by orienting the focus to task specific and life centered objectivity.

> The conception of Andragogy was put forward by Knowles (1970) and has continued to be influential. Knowles identifies four major characteristics of adults associated with increasing maturity: (a) the self concept moves from dependency towards self-direction; (b) experience becomes an increasing resource for learning; (c) learning is increasingly directed towards social roles; (d) learning becomes less subject – centred and increasingly problem-centred (7 p. 72).

These observations guide as to the conclusion that pedagogical approaches are more content specific while andragogical is more process oriented. Proper cognition and application of the teaching and learning approaches play a crucial role in design studios.

4 ARCHITECTURAL DESIGN DEVELOPMENT FRAMEWORK

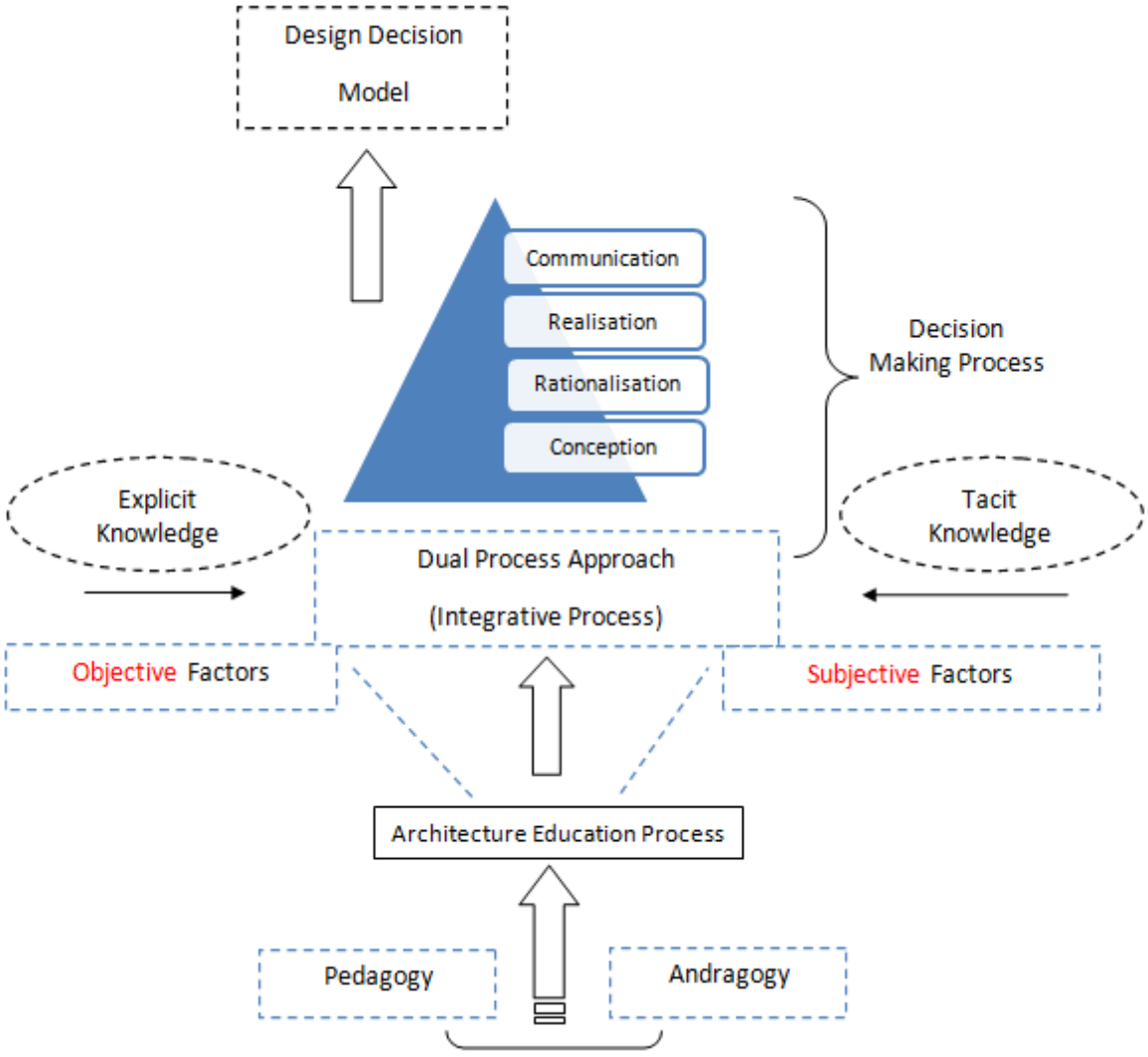
The precedent studies clearly depicts that an architectural design development framework which aids in realisation of performative dimensions of space is achieved rationally by following a process. This would aid in resolving issues and arriving at solutions while addressing spatial concerns in habitat design and town planning. The process oriented research also defines the character of architecture being envisioned.

Generally the studio environments facilitate learners through an expedition were learning is not limited to the institutional environment or borders of a continent. The students explore micro as well as macro level parameters relating to habitat design and planning of cities and towns. They explore the built environments in detail comprehending the logic behind various naturally evolved human settlements, relating it to planned cities as well as trying to understand the stature of urban agglomeration and associated chaos of unplanned growth – the bench mark being the relevance of Time, Space & People. Such studio assignments also arouse in the students the novel personality of a researcher.

Categorization of knowledge basis into explicit as well as tacit knowledge domains further aids in understanding the complex multi disciplinary nature of component of architectural education framework. Knowledge management is achieved by an integrative approach. A dual process approach integrating the domains of knowledge by use of pedagogical and andragogical modes of teaching. Paving way for rational decision making in conceptualisation of habitat design, this is constituted by several stages involving critical

thinking and action. The stages are constituted in a progressive manner by the following: conception, rationalisation, realisation and communication. Collectively this whole progressive thought forms the basis of a Design Decision Model.

Fig. 5 Architectural Design Development Framework



Source: Author

5 INFERENCE

Critical understanding of the importance of knowledge and its integration within the design studio, leading to a comprehensive whole is a significant aspect to be properly evolved and nourished. It can be argued that knowledge is not a substitute for architectural imagination but inadequate knowledge would handicap the general level of design.

Being satisfied to manipulate formal configurations does not provide insights into the human experience. If the different types of knowledge which architecture requires are

ignored, the profession will lose its credibility in the eyes of society. With body of knowledge expanding diversely with the escalating wants of the user and to further sustain the built environment with further progression it's quite certain to have an innovative design process which has a feel of antecedents yet nourished by rationalism.

The architectural design development framework developed as part of the research is based on an approach which emphasises the integration of instructional domains: the explicit and tacit knowledge base. Categorization of knowledge basis into explicit as well as tacit knowledge domains further aids in understanding the complex multi disciplinary nature of component of architectural education framework.