BNCA | Mental Model Teaching

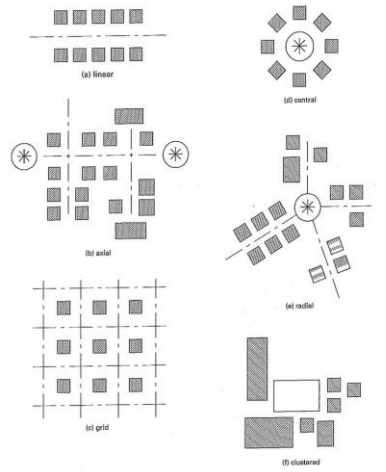
Mental model teaching is a student-centered instructional strategy that uses mental models to help students understand content and develop design step-by-step.

Second year 1st sem design is an important start point for students to learn planning of a house. For the students of this semester, a house is complex as the numbers of spaces are many, they have to manage designing with climate considerations, design with knowledge of load bearing structural system, use a combination and of open and built spaces for good lighting and ventilation. All the above parameters are overwhelming and may hinder students design process.

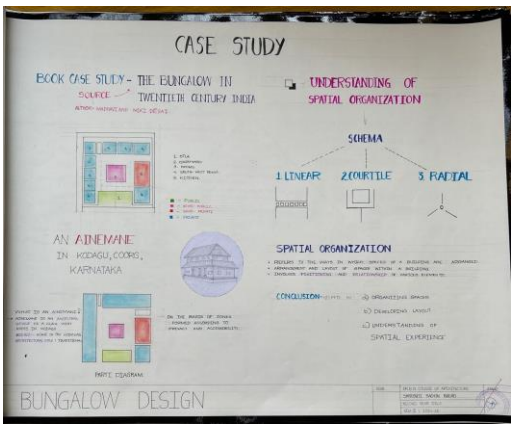
Concerning this, we have broken down the design process into a step-by-step progression, yet allowing creative digression. The process is below

1. **Understanding the planning typology.**

Students are given a list of bunglow designed by various architects. Students study the plans of the allotted project and prepare simple line diagrams of the plans. The simplistic plans are devoid of any details and claen space demarcations. Once this step is over, faculty presents about the planning typology describing linear, radial and courtile or central plans. While explaining with brief examples, students are suggested to analyse and categorize the case study plans. This step helps students understand and be able to categorize and plan the layouts with knowledge of planning typolog



a. Slide explaining different types of planning strategy.



b. b. Case study sheet of student showing courtile planning analysis.

2. **Understanding and Applying climatic design strategies**

A brief presentation is given to the students to make them understand importance of climate knowledge for planning. These strategies can be used to minimize heating and optimize wind circulation in the house. The second stage for applying climatic strategies for openings and façade treatments. The presentation also focuses on how the size of openings on the external wall can help achieve thermal comfort inside the houses.

The students use the first part of presentation for strategizing the orientation of the building block. Through series of discussions, the zoning of the building block can be formatted along with planning type. The detailing of the plans then progresses with consecutive discussions.

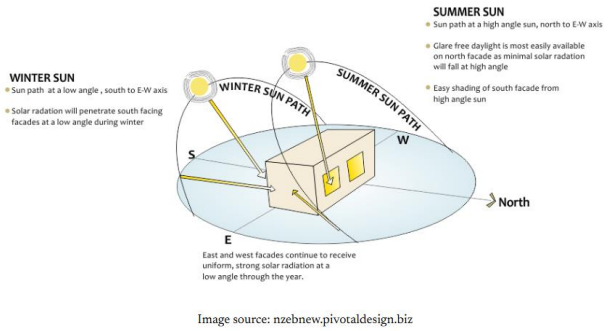
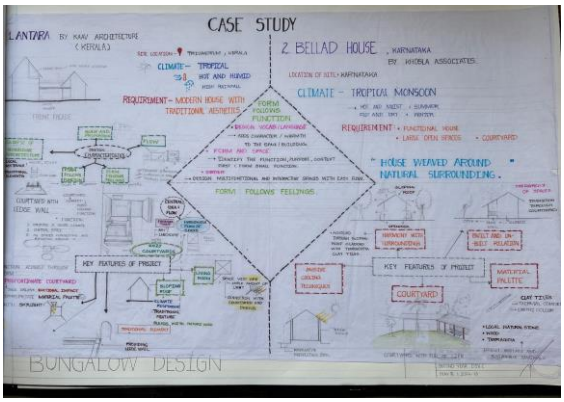


Image source: nzebnew.pivotaldesign.biz

a. Slide explaining importance of climate strategies for zoning



b. Case study sheet of student showing different strategies including climate for design.

3. **Step-by-Step design development**

Throguh different variations of planning and climate strategies, students progess in their design whilst discussing with their mentors. Students are encouraged to discuss with different mentors to get larger perspectives for design.

Schemas, Parti diagrams, block models, etc are some tools used to explore possibilities of plans for their designs. These design tools can be used by students at any juncture of their academic and professional practice, thus giving a more robust ground of designing philosophy and principles.