Design of School on Wheels

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Abstract:
India is classified as a developing nation. The huge population in India results in relatively low per capita income. The main cause of poverty in the country is the low literacy rate of 74.04%, which is below the world average literacy rate of 84%. Many illiterate people live in slum area of the cities and the rural areas. The children of such underprivileged community are not enrolled to school or might have dropped from the school due to various reasons. The present project, “school on wheels” is conceptualized such that it can reach out to the children by bringing the school to where they live.

Initially, GEMBA study was carried out with the school head teachers and officers in Block Education Office (BEO) to know the facilities required in “school on wheels”. The Quality Functional Deployment (QFD) matrix and Product Design Specification (PDS) were generated by combining technical requirement with customer’s voice, based on the data collected from GEMBA study. A medium sized bus was taken as the benchmark for the concept design of the project. Three different exterior and interior concept layouts of the medium sized bus were generated according to PDS. The concept layouts were generated by considering the proper dimensions and ergonomics. The most suitable concept was chosen by using weighted ranking method. The detail design was carried out for the selected concept and the geometric model was created by incorporating all the features. The ergonomic analysis and the visibility analysis were carried out to justify interior design.

The conceptual geometric model of ’school on wheels’ was successfully designed by providing all the facilities required for school. The interiors of the “school on wheels” were ergonomically designed to suite the school environment. A scale-down prototype model of the detail design was created with all the interior and exterior features as per the design.

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First concept | Second concept | Third concept

Conceptual designs of school on wheels

Exterior features of final concept | Interior features of final concept | Ergonomic analysis