

PEDAGOGIC PRINCIPLES TO DEVELOP DESIGN STUDENTS' SPATIAL ABILITIES IN THE STUDY PROCESS

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Abstract

Spatial abilities of students are essential in order to understand interrelationship between knowledge acquired during the learning process and decision making on learning tasks.

Objective of the current study is to find out pedagogical possibilities for promotion of spatial abilities of design students applying principles of Universal Design for Learning (UDL) in learning process. In start-up phase of learning process students were tested by Santa Barbara Sense-Of- Direction Scale, Spatial Orientation Test, The Visual-Spatial/Auditory-Sequential Identifier. Testing was performed with 23 interior design students of the second and fourth year students. Results of tests demonstrated that students are diverse in their spatial abilities. It was found that there are differences in perception of space, spatial reasoning as well as in way of teaching.

Learning process according to UDL principles was organised diversifying ways of information presentation, involvement and possibility of task performance. Evaluation of intermediate phase tests and design project development during the learning process was done by involvement of students in discussions, varying the way of idea expression and presentation according to variety of students' presentation skills.

Assessment of spatial cognition was carried out according to the following criteria: navigation and mental rotation.

For evaluation of final design projects the following 5 spatial cognition criteria are used:

1. Disembedding (perceiving objects, paths, or spatial configurations amidst distracting background information)
2. Spatial Visualization (piecing together objects into more complex configurations or visualizing and mentally transforming objects, often from 2D to 3D or vice versa).
3. Mental rotation (rotating 2D or 3D objects)
4. Spatial Perception (understanding abstract spatial principles, such as horizontal invariance or verticality)
5. Perspective Taking.(visualizing an environment in its entirety from a different position)

Tests repeated in the closing phase of learning demonstrated essential increase and equalization of spatial abilities in comparison to those observed in the beginning of investigation and reflected in spatial solutions of control experiments (design projects).

Results of investigation demonstrated that implementation of UDL principles in learning process is helping to develop spatial abilities of interior design students.

Keywords: Universal design, spatial abilities.