

# CERTIFICATE

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# SPATIAL REPRESENTATION OF GEOGRAPHIC LEARNING



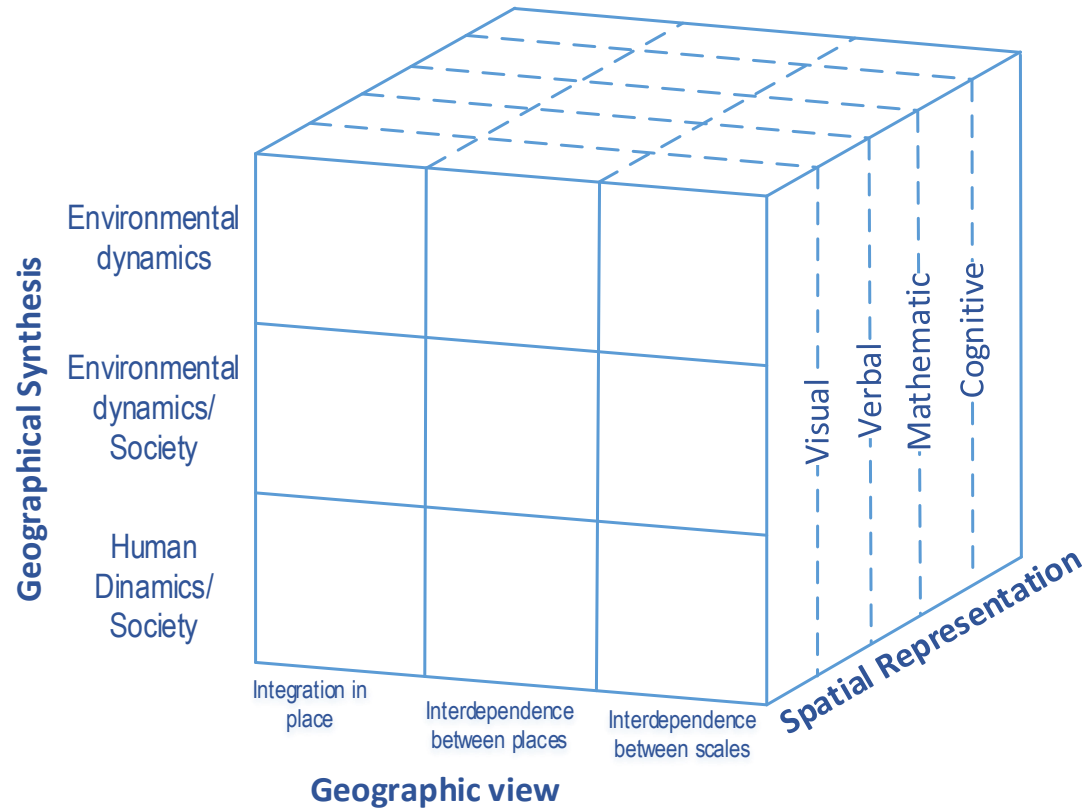
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# Background

## Geography Learning in the 2013 curriculum



Relationship between human and environmental interaction systems in three dimensions. The geographic perspective on the dynamics of the physical environment and the community environment will be seen from the aspect of spatial integration and space interdependence both between places and between scales. This perspective can be manifested in real or abstract forms (and or representations) both visually, verbally, mathematically, digitally, as well as in (cognitive) mindset. "

### Preliminary research

Spatial representation as a way of understanding the geographical environment has different conceptions among experts and practitioners

## Dimension and Factors of Spatial Representation?



# State of the Art

Bruner dan Gardner

## Learning:

### Development of thinking

- Processors,
- Thinkers, and
- information creators

Spatial intelligence

## Geography

### Essential material in the 2013 Curriculum

1. Literacy and Geography Skills
2. Physical Geography
3. Human Geography
4. Environmental Interaction
5. Regional Geography
6. Global Connection and Management of Change
7. Use of geography for development

Spatial capabilities that represent human knowledge to transform mentally by manipulation, reconstruction, navigation of physical objects to understand variations in objects, phenomena, potentials, problems in the surface of the earth along with attributes, characters and colors of character. Constructive conception is supported by three elements: the concept of space, the means of representation, and the process of reasoning. (Newcombe & Shipley, 2015; Gold et.al., 2018; Uttall & Newcombe, 2013; Gold et.al. 2018; Metoyer & Bednarz, 2017)

### Spatial Representation

1. Visual
2. Verbal
3. Mathematics
4. Cognitive

### Dimension and Factors of Spatial Representation



# Research Design

This study developed dimensions and factors of spatial representation that are valid and reliable.

- The subjects were: 10 geography expert, 15 practitioners (supervisors and geography teachers), 4 learning evaluation experts, and 15 students.
- Logical validity used the Aiken index  $> 0.6$ . Reliability estimation using Cronbach alpha.
- Data collection techniques using questionnaires and interviews.
- Data were analyzed descriptively to simplify into percentage or categorization.



# Development Result

## 1. Grand Theory of spatial representation:

- a. Spatial Representation dimension
- b. Aspects Description
- c. Factors or indicators of spatial representation

## 2. Pedoman Pelaksanaan Representasi Spatial:

- a. INTRODUCTION: Rational, Objectives and Targets, Benefits and Impacts of Development of Spatial Representation in Geography Learning.
- b. SPATIAL REPRESENTATION SCOPE OF HIGH SCHOOL LEARNING GEOGRAPHY
  - A. Dimensions of Spatial Representation
    1. Visual Representation
    2. Verbal Representation
    3. Mathematical Representation
    4. Digital Representation
    5. Cognitive Representation
  - B. The Meaning of Spatial Representation in Geography Learning
- c. GUIDELINES FOR SPATIAL REPRESENTATION IMPLEMENTATION IN GEOGRAPHIC LEARNING
  - A. Steps in implementing Spatial Representation in high school geography learning
    1. Core Competencies and Basic Competencies
    2. Approach to the implementation of spatial representation in Geography Learning
    3. Spatial Representation in the Subject of Geography Subjects
  - B. Rating System
    1. Attitude Assessment (Affective)
    2. Knowledge Assessment (Cognitive)
    3. Skills Assessment (Psychomotor)
- d. CLOSING
- e. REFERENCES



## Paradigm Of Spatial Representation In Geography

No	Spatial Representation	Conception
1	Visual	Visual representation has a role to construct or deconstruct in order to recognize, describe, and classify the shape of an object in order to feel the real picture
2	Verbal	Verbal representation is interpreted as a way of looking at geographic phenomena that are expressed verbally (not written) or abstract so that the dynamics of the environment are seen from the aspect of integration and spatial interdependence.
3	Mathematic	Mathematically as a spatial representation is interpreted with definite and precise calculations
4	Digital	Digital representation describes a quantity that is declared not proportional to its value, but is expressed by using a symbol called digit. This concept is closely related to numbers for certain calculation systems.
5	Cognitive	The applied digital representation adopts many cognitive learning theories and their applications.



## Paradigm Of Spatial Representation In Geography

No	Spatial Representation	Factors/Indicators
1	Visual	<ul style="list-style-type: none"><li>• Clarity of the appearance of objects to be seen,</li><li>• types of visual media used,</li><li>• types of visual dimensions</li></ul>
2	Verbal	<ul style="list-style-type: none"><li>• type of language,</li><li>• choice of diction,</li><li>• communication skills,</li><li>• accuracy of information</li></ul>
3	Mathematic	<ul style="list-style-type: none"><li>• accuracy of conversion,</li><li>• value of numbers,</li><li>• presentation of graphs and diagrams,</li><li>• mathematical formulation of problems</li></ul>
4	Digital	<ul style="list-style-type: none"><li>• types of multimedia,</li><li>• types of digital devices,</li><li>• types of software,</li><li>• digital reproduction capabilities</li></ul>
5	Cognitive	<ul style="list-style-type: none"><li>• ability to reconstruct,</li><li>• cognitive activities,</li><li>• findings through experience</li></ul>





## Conclusion

The results of the analysis show that these factors The dimensions of spatial representation of geography learning in the 2013 curriculum have have a relationship with the constructs of their dimensions as a spatial representation in geography learning.



# Luaran

1. Pedagogika.
2. ICCSED
3. ICERI
4. .



# Thank You

OCTOBER 24, 2019