# THE ROLE OF SCHOLASTICS ABILITY AS A PREDICTOR ON CONCEPT MAPPING AT ZOOLOGY VERTEBRATE CLASS











Dr. Fransisca Sudargo, M.Pd Biology Education UPI

#### Back ground of this study

- Students activity are affected by both external and internal factors
- External factors consist of: learning environment, lecturer/teacher, teaching material, class interaction, teaching media, and learning situation
- Internal factors consist of student' scholastics abilities as a learner that consist of verbal thinking, number capacity, abstract thinking, logic thinking, learning ability, language ability, motivation and the learning gap.
- Scholastics abilities are necessary as either one factor to reach the academic achievement
- The other factors that affects the academic achievement are students' knowledge, learning skill, students' talent and interest

#### What is the problem?

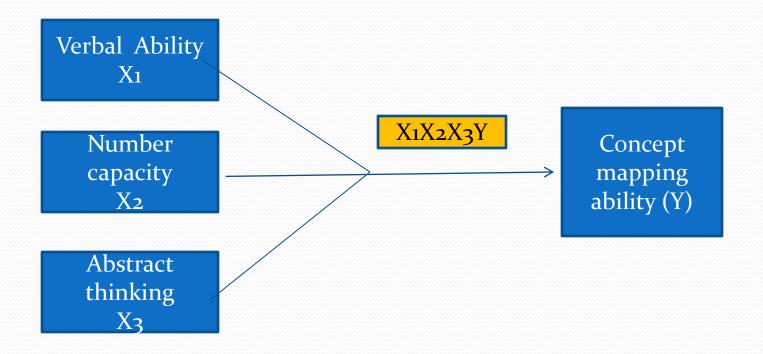
 How is the role of scholastics ability as predictor on concept mapping ability at zoology vertebrate class?



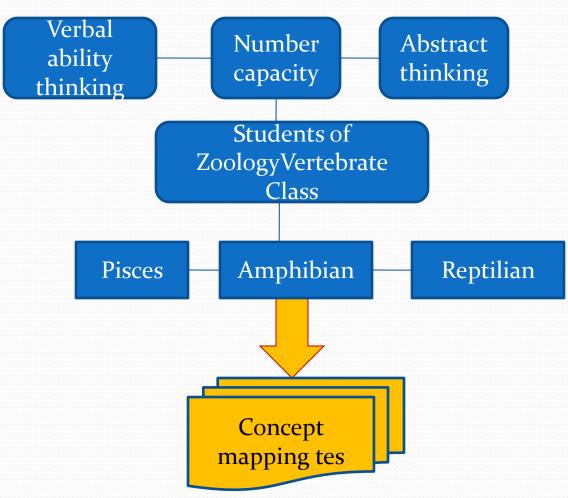
- Zoology vertebrate is a compulsory course for the 4<sup>th</sup> semester biology education students and 5<sup>th</sup> semester for biology students
- The substance of this course consist of taxonomy and systematics, diversity, distribution and the habitat of vertebrate animals especially in Indonesia.
- Content of the course consist of Superclass Pisces, class Ampibian, reptilian, Aves, and Mamalian, 2 chs (curiculum 2006).

#### The methods of the study

Descriptive correlational methods



#### The flow of the research



#### Result of the Study

	GROUP	STATISTICS	STANDARD EROR
Mean		67,275	5,5266
Level of confidence 95%	Lower group	56,35	
	Upper group	78,20	
Median		62,70	
Variance		45,51	
Standard deviation		6,746	
Minimum score		26,6	
Maximum score		87,3	

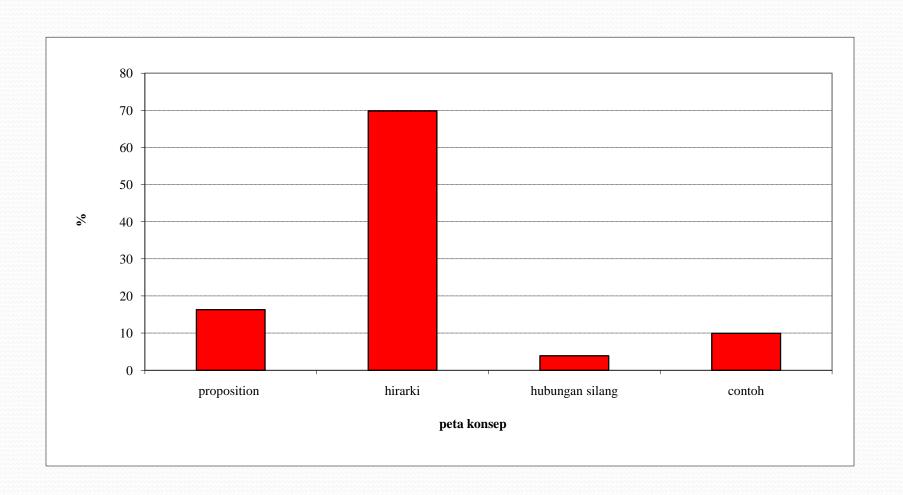
#### SCORING CRITERIA FOR CONCEPT MAPS

- PROPOSITION 

  → the meaning relationship between 2 concepts; indicated by the connecting line and linking words (score 1 for valid proposition)
- HIERARCHY→ subordinate concept from general to specific concept (score 5 for valid hierarchy)
- CROSS LINKS→ meaningful connection between one segment of the concept hierarchy and another segment. (Score 10 for valid and significant crosslink; score 2 for valid but does not illustrate a synthesis between sets of related concepts or proposition. Cross link can indicate creative ability. Unique or creative cross link might receive extra point)
- EXAMPLES → specific events or objects that are valid instances (Score 1)

A criterion concept map may be constructed and scored for material to be mapped; and the student score divided by the criterion map score to give a percentage for comparison (better than criterion can receive more than 100%)

#### Percentage of students' concept mapped criterion



### **Correlation Analyses**

	Regression analyses	Correlation & determination coefficient	
Verbal ability to Concept Mapping	Y=76,656-0,292X	r = -0.030 $(R^2)=0.001$ (0.1%)	Receive Ho: no direct effect of verbal ability to concept mapping
Number capacity to Concept Mapping	Y= 114,612- 7,625 X.	r = -0.189 $R^2 = 0.036$ (3.6%)	Receive Ho: no direct effect of number capacity to concept mapping
Abstract thinking to Concept Mapping	Y= 77,248-0,433 X	r = -0,189 R <sup>2</sup> =0,0014 (0,14%)	Receive Ho: no direct effect of abstract thinking to concept mapping

#### Analyses of overall correlation

Regression equation:

$$Y = 121,143 - 0,180X_1 - 7,60 X_2 + 0,041 X_3$$

 Based on the regression equation, the constant a=121,143 mean that the Scholastics ability is quite high

#### BUT:

- bX1=-0,180
- bX2=-7,60
- bX3= 0,041

Scholastics Ability give low contribution to concept mapping test

#### THE RANGE OF STUDENTS' SCHOLASTICS ABILITY

	VERY LOW	LOW	FAIR	RATHER HIGH	HIGH	VERY HIGH
VERBAL ABILITY						
NUMBER CAPACITY						
ABSTRACT THINKING						

#### Conclusion and Recommendation

- The role of scholastics ability as a predictor on concept mapping is very low, because academic achievement is a function of genetics potency, environment, time and learning.
- Scholastics ability can be used for placement predictor but not suitable for students' achievement predictor.
- Concept mapping test can be used as an alternative test to assess concept attainment, but rather difficult to carry out on a big class

## Thank you for your attention

