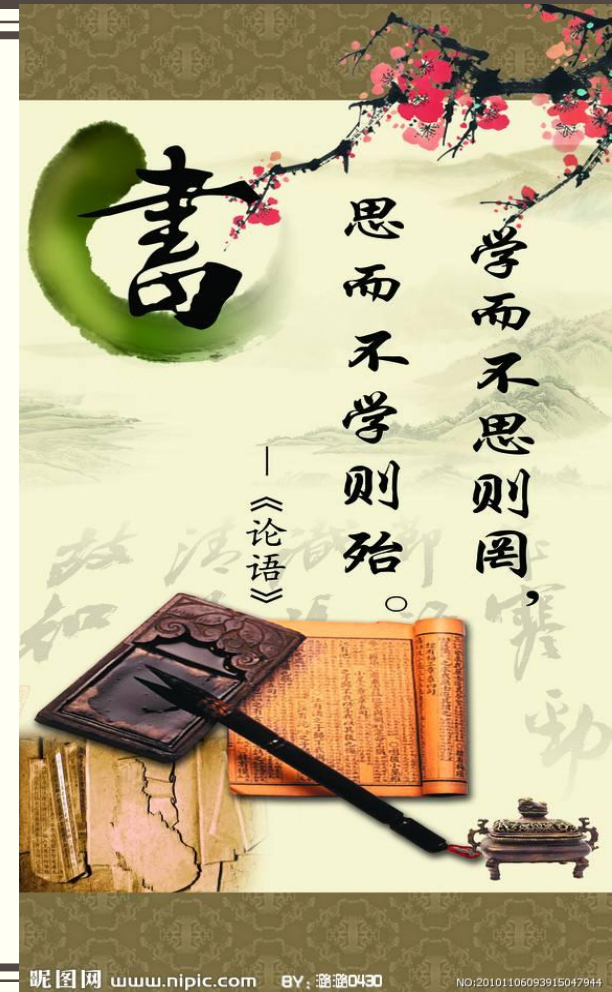


# EXAMINING STUDENTS' ATTITUDE TOWARD THINKING AND LEARNING IN COMPUTER-ASSISTED CONCEPT MAPPING AMONG UNDERGRADUATE THINKING SKILLS CLASS

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Learning without Thinking leads to confusion;  
Thinking without Learning ends in danger.  
~ Confucious





# Introduction

Malaysian Education Blueprint (Higher Education) (2015-2025) to produce a personalized learning

Flexible and Blended instructional approaches that able to catering to the needs of 21<sup>st</sup> century graduates

# Blended Learning with Concept-mapping



- There is still great lack of students' involvement in active and meaningful learning



- Incorporation of concept map into the blended-learning using the Moodle platform



- Promote the interactivity learning among the students.

# Literature Review

- **Concept map** is a tool for conceptualizing, organizing and presenting knowledge developed by Novak and Gowin (Novak, 1990). It is based on Ausubel's (1960) assimilation theory of meaningful learning.
- The **Attitudes Towards Thinking and Learning Survey (ATTLS)** is an instrument developed by Galotti et al. (1999) to measure the extent to which a person is a 'connected knower' (CK) or a 'separate knower' (SK).
- Being a "**separate learner**" involves a preference for **objective and analytical behaviour**, and a desire for argument and debate.
- Being a "**connected learner**" involves trying to see things from the **other person's perspective**, and trying to **understand** their reasons and arguments.

# Ways of knowing

## Separated Learning

- ▶ Prefer **self-directed learning**
- ▶ **Challenging** others ideas
- ▶ Convincing other through **logic**
- ▶ Maintaining order through **explicit agreement** and rules
- ▶ Resolving conflict through detached imposition of **rules**
- ▶ **Doubting** others ideas until being proven
- ▶ Attempting to reveal truth that is general, impersonal, grounded in **rational thought**
- ▶ Objectivity through reference of **discipline**
- ▶ Holding thought and feeling **separate**

## Connected knowing

- ▶ Prefer **collective activities**
- ▶ **Listening** when knowledge is uncertain
- ▶ Convincing others through **sharing**
- ▶ Maintaining order through **implicit agreement** to avoid conflict
- ▶ Resolving conflicts through **reconciling** differences
- ▶ **Believing** others' ideas
- ▶ Attempting to create truth that is personal, particular and grounded **in personal experience**
- ▶ Objectivity through reference of other **persons**
- ▶ Keeping thought and feeling **together**

# Methods

## Participants

80 undergraduate students majoring in Mathematics and Statistics enrolled in the Thinking Skills class. 50 respondents partook in this survey and became respondents to this study.

## Instruments

Attitude Toward Thinking and Learning Scale (ATTLS). The 20-item Attitude Toward Thinking and Learning Scale measures connected procedural knowing and separate procedural knowing.

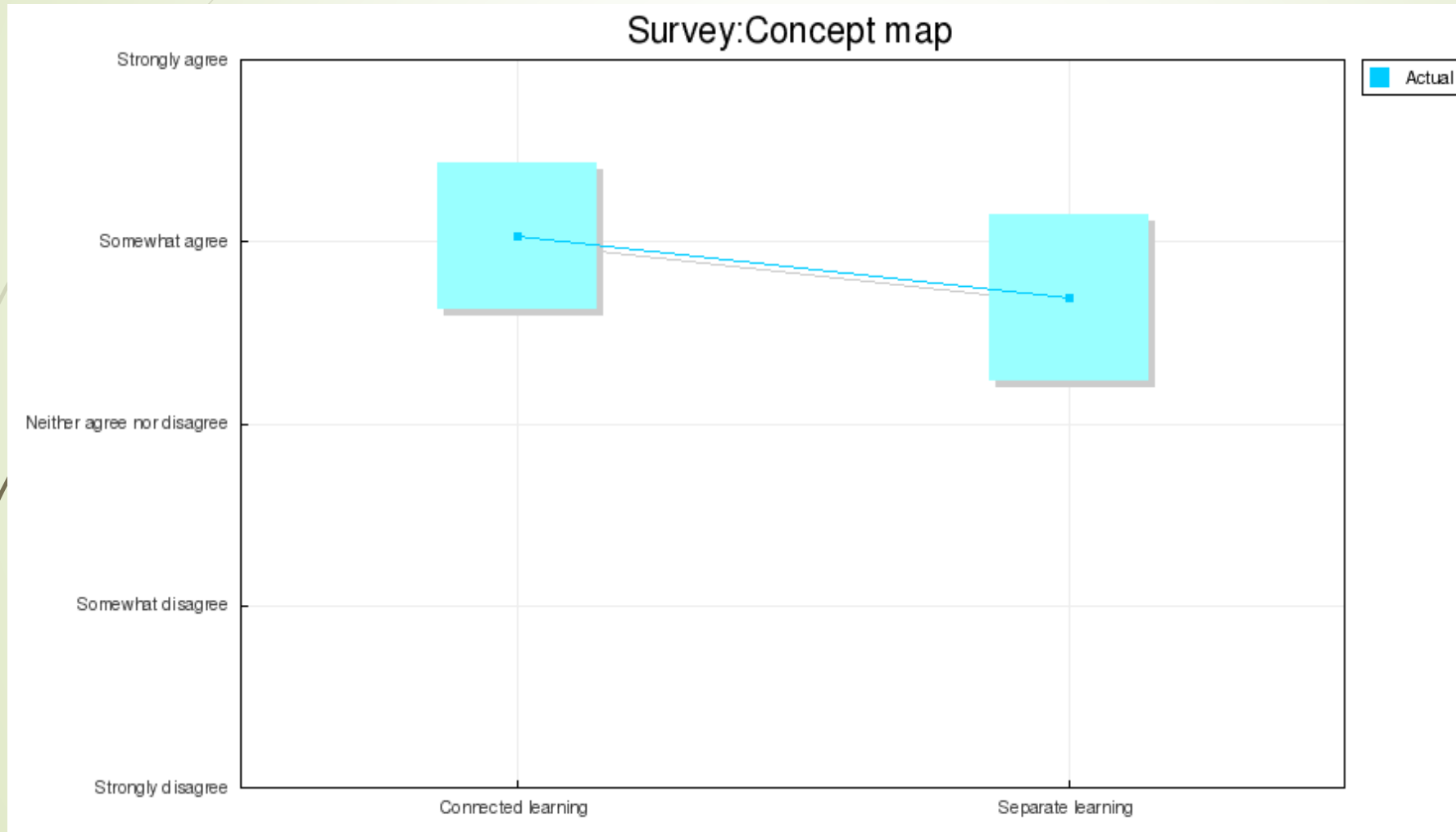
## Procedures

14 weeks layout and students were required to construct the concept map based on the topic. Begin with week 1 on briefing of concept map and how to use the Cmap tool. End with the final online survey

# RESULT

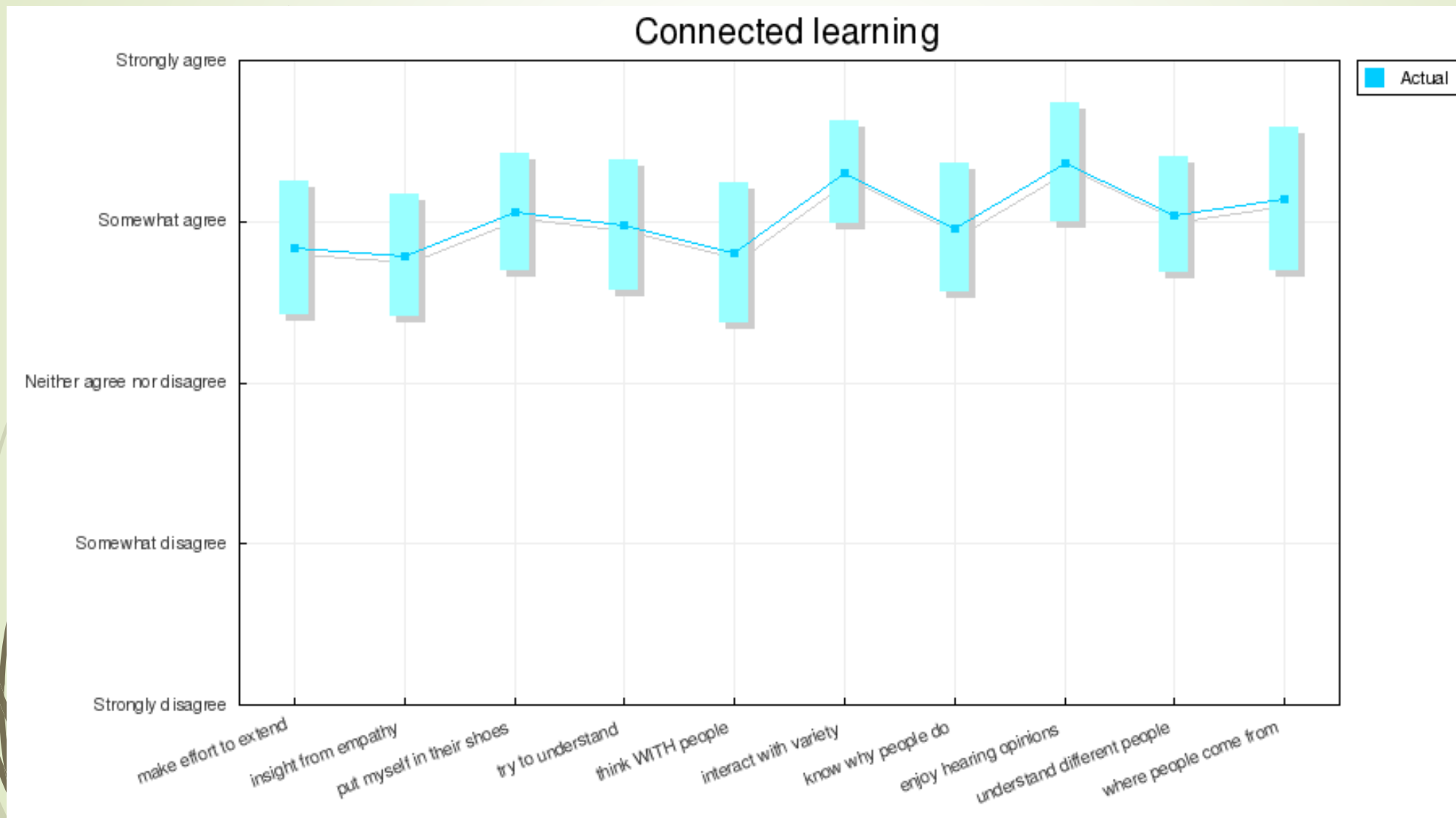
**Figure 1: Overall student ATTLS scores**

It show that most of the students are connected learners



## Figure 2 – Scores ranges in the connected learning

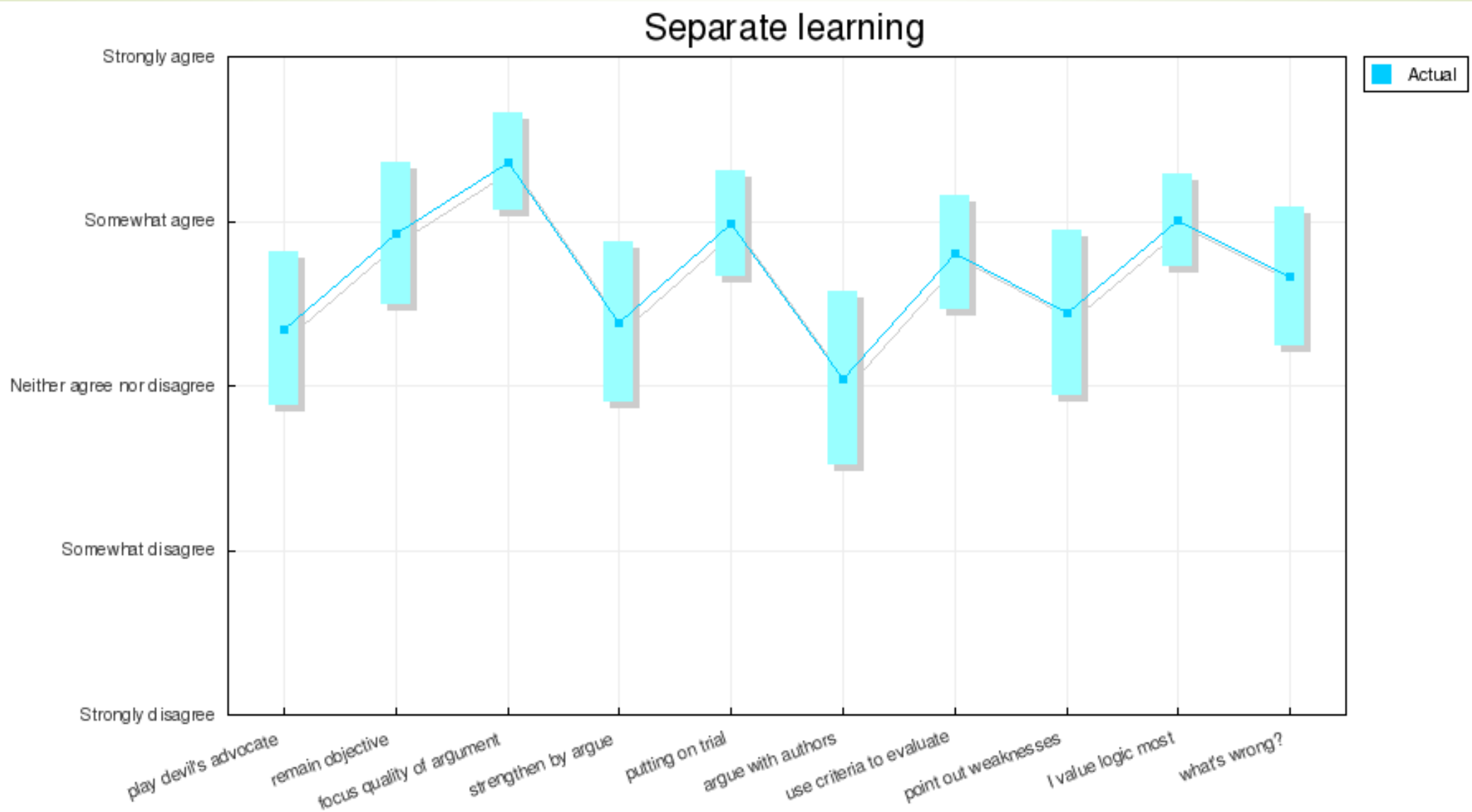
Most of the students' response is at the range of somewhat agree toward connected learning





## Figure 3 – Score ranges in the separate learning

Most of the students' response is at the range of neither agree nor disagree to somewhat agree toward the separated learning.



# Conclusion

## Discussion

- Higher scores in connected knowing means that students value in **actively seeking interactions** with others who are different from themselves.
- Strong separate knowers are critical thinkers; they are able to construct concept maps based on **evidence and logic**.
- Connected knowers are more **cooperative** and will be more willing to help out one another to construct concept maps.

## Implication

- Promote the concept mapping by **intrinsically separated learning** and **extrinsically connected learning**.
- Concept mapping sue to the types of personality that's **introvert or extrovert**.

Thanks:

Connecting ideas by connecting peoples





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