

# National Taiwan Normal University Finds Visualizers Beneficial to Classrooms in Research Study

Teachers at National Taiwan Normal University (NTNU) have reported that visualizers effectively reduce the time needed to prepare lessons, diversify lesson plans and teaching methods, and clarify and enrich their teaching material. As for the students, they felt that visualizers increased motivation to learn and classroom discussion.

## Background

- Researchers Yuen-Kuang “Cliff” Liao, Yen-Chao Wang, Yun-Ju Chen, Yi-Hui Liu, Wei-Ya Lung from National Taiwan Normal University (NTNU).
- Teachers Yi-Chun Chen, Yung-Sen Chen, Yi-Pu Liu, Yu Shiue from three separate primary schools across the Taipei area.
- Four separate classes consisting of 124 students.

## Objectives

Find the answers to the following questions:

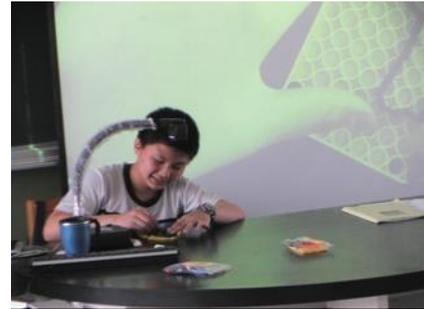
- How does using a visualizer in a classroom affect the instruction of primary school teachers?
- How does a visualizer affect the learning of primary school students?
- What are the attitudes and opinions primary school teachers may have toward using a visualizer as a teaching aid?
- What are the attitudes and opinions primary school students have toward having a visualizer as a learning aid?
- Which disciplines at the primary school level would benefit most from using a visualizer?
- When using a visualizer as a teaching aid, what are some of the teaching strategies for achieving better learning results?



## Results

What the teachers said:

- Reduced lesson preparation time.
- Diversified teaching methods.
- Enriched teaching material.



What the students said:

- Increased motivation to learn.
- More willing to participate in class and share work and ideas with each other.
- Created more classroom discussion.



What the numbers say:

- **83.3%** of the students agreed that visualizers helped them learn more.
- **78.6%** of the students pointed out that visualizers improved their learning attitudes.
- **79.2%** felt that using a visualizer as a teaching aid was more effective compared to a classroom without one.
- **83.5%** were satisfied with the overall advantage a visualizer brought to the classroom.



## Conclusions

- Visualizers are highly suitable for math, science, the arts and humanities.
- Visualizers are good for ‘student-centered’ teaching.
- It’s better to use a visualizer with small groups of students to share ideas and work.



## Reflections

- “It is easy and convenient to use, not like most high-end technology. It helps teachers create a variety of ways to teach, and students can also clearly understand the content.”
- “I could easily understand what the teacher lectured because I could see the graphics. There was more discussion in class.”

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