

The use of Video Analysis in Physics Lessons

Geraldine Brincat
B.Ed. Student



keeping you one step ahead

SECTION 1

WHAT IS VIDEO ANALYSIS?

Video Analysis?

- Video analysis is a technique whereby computer software can calculate and plot graphs of displacement, velocity and acceleration against time according to the object in motion in a digital video (Bryan, 2013).

Video Analysis Software

- Various user-friendly software available
VideoPoint, Measurement in Motion, Physics ToolKit, Vernier's Logger Pro, Data Point
- Software used in this study:
 - **Tracker – Video Analysis and Modeling Tool.**
- Tracker is a **free** Java video analysis software package available from Open Source Physics:
<http://www.cabrillo.edu/~dbrown/tracker>

All You Need Is

- Camera.
- Tripod (for stability).
- Object in motion.
- Laptop.

The Local Scene

- New concept to Malta.
- Locally, no study has been conducted yet.

SECTION 2

THE STUDY

How The Study Was Conducted

- Study with physics teachers and students.
- Two secondary schools from the state sector.
- Two physics teachers from each school.
- Four classes taking physics.

How The Study Was Conducted

- Some students from each class volunteered to participate.
- Video clips were taken and graphs were constructed using the software.

How The Study Was Conducted

- Four single lessons were used to show different clips.
- Initially, the students were asked to predict the graph on a graph paper after watching the video clip only.
- Students then observed and explained the difference between their graphs and the ones obtained from the software.

SECTION 3

PRACTICAL DEMONSTRATION

Why Use Video Analysis?

- Motivating and involving students.
- Apply abstract Physics to their lives.
- Learning taking place outside the classroom.
- Using ICT.
- Instant feedback from students.
- Interactive process.
- Inconsistencies in graphs lead students to realise that situation is not ideal.