

**MULTIMEDIA-SUPPLEMENTED INSTRUCTIONAL UNIT FOR  
LEARNING HOUSEHOLD ELECTRICAL ENERGY  
CONSUMPTION AND CONSERVATION**



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In recent years, several researchers have attempted to apply teaching and learning strategies to promote students' conceptual understanding of energy consumption and conservation. However, students still have a lack of applied knowledge regarding electrical appliances and have sub-optimal conceptual understanding of what the major factors of energy consumption are. This results in less awareness regarding energy conservation. To address this issue, a teaching and learning strategy for promoting students' conceptual understanding on household electric energy consumption and conservation was developed based on engagement and motivation that leads to promoting students' self-awareness of energy conservation. The study was divided into 2 phases. The first phase aimed to study the possible use of the multimedia-based 5E learning cycle model in promoting students' learning about household electrical energy consumption and conservation. Moreover, the results from this phase were employed to improve the multimedia to be appropriate for the classroom and with real life situations in the second phase, the main study. Consequently, the main study developed game-inquiry based learning embedded in a multimedia-supplemented learning unit. When using the developed learning unit, the participating students were encouraged to use electrical appliances for certain durations as a meaningful way of determining energy consumption. The way to teach students to conserve energy is not simple; the developed learning unit was used to encourage them by adjusting for the appropriate duration with each electrical appliance. The main study was conducted with tenth grade students studying a physics course titled Electric Energy Consumption and Conservation in eastern Bhutan. The experimental results showed that the developed learning unit significantly improved the students' learning achievement as well as their awareness of electric energy conservation.

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