The Benefits & Challenges of Learning from ContrastingVideo Cases

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Benefits of Learning from Contrasting Video Cases

The purpose of this study was to examine the effect of analyzing contrasting video cases on pre-service teachers' conceptual understanding of educational psychology concepts and subsequent transfer of that understanding in a new context. Analyzing *contrasting* cases increases the ability of students to discern and differentiate specific features related to certain psychological concepts (Schwartz and Bransford (1998). This well-differentiated knowledge prepares students to learn from a lecture or a book chapter. Gentner, Loewnstein, & Thompson (2003) demonstrated how comparing *similar* examples can facilitate understanding of underlying structures and subsequent transfer to novel problems. However, previous research demonstrating the benefits of contrasting cases and multiple examples have been limited to paper stimuli. We extend this work to video, which is more complex than typical stimuli used in these studies.

Methodology

The study was conducted with 42 preservice teachers in two 2-hour sessions. Twenty participants saw two video cases of teachers using different instructional methods to cover similar content. In one, the teacher used a traditional instructional format (mainly lectures and demonstrations) while the second showed a constructivist classroom (questioning techniques and discussions). The control group (n=22) viewed the traditional video twice. Both groups analyzed the video(s), identified relevant psychological concepts and instructional themes, and designed an alternative instructional plan of the traditional classroom after doing research using an online resource. Finally, all participants saw a novel math video case for which they completed a case analysis.

Results

The learning outcome measures included: a) the number of educational psychology identified correctly in the novel case as compared to the initial case analysis, and b) the quality of lesson redesign. A one-way ANOVA revealed no significant differences on number of concepts identified ($F(1,40) = .89$, $p > .05$) or on relevance of the concepts identified in the transfer task ($F(1,40) = 1.50$, $p > .05$). However, there were significant differences on the quality of explanations of the identified concepts ($F(1,40) = 4.64$, $p < .05$) in favor of the control group, contrary to what we expected. The lesson redesigns coded so far show no significant differences between the groups.

Challenges of Learning from Contrasting Video Cases

Research suggests that analyzing a set of contrasting cases prompts one to make meaningful observations that are contextualized across multiple cases, thereby helping a learner to understand how a concept applies in multiple contexts. This is expected to translate into flexible and fluid use of the concept in novel situations. Why, then, would the control group outperform the treatment group on conceptual understanding given the expected benefits of contrasting cases? Previous studies have used textual stimuli that are static representations whereas video cases present a dynamic situation with many simultaneous actions. In paper formats, one can compare cases simultaneously whereas video cases can only be viewed sequentially. Processing two video cases may present a cognitive overload to the learner making it difficult for them to focus on the minute aspects of both cases. This, coupled with the limited time frame of 4 hours to complete the task, might have made the task too complex. Given the complexity of the video, multiple viewings of one case by the control group may have allowed for deeper analysis whereas only superficial understanding of the two contrasting video cases was possible in that amount of time. These results suggest that learning from contrasting *video* cases is not easy and requires additional cognitive, metacognitive, and social support.

References

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