

Ramos, J.L., Cattaneo, Alberto, de Jong, Frank, Laitinen, Vaananen, Sirpa & Leijen, Ali (2019) Video-supported collaborative learning: A literature review towards the identification of sound pedagogical models for conceptual thinking and professional. Paper presented at the 6th congress on research in vocational education and training of the Swiss Federal Institute for Vocational Education and Training (SFIVET) Zollikofen, Switzerland.(<https://www.sfivet.swiss/publication/ramos-j-cattaneo-de-jong-f-laitinen-vaananen-s-leijen-2019-march-video-supported>).

Text submitted to the 2019 VET Congress (Vocational and Education Training) .

Abstract

Although for many people video is proven to be central both in private and professional life as a means to communicate, to entertain, and to learn, when it comes to this last function the available and established pedagogical models refer more easily to individual than to collaborative instructional strategies. In order to fill this gap, we conducted a structured literature review to scan how video technologies have been used to support collaborative learning in order to facilitate professional development, as well as which models of collaboration have been successfully established. 474 contributions have been screened, 100 of which were finally included in a detailed review. Results highlight 5 different ways of using video for supporting collaborative learning, as well as 13 underlying pedagogical approaches, the combination of which will give directions for building practice-oriented design principle on the effective implementation of video-supported collaborative learning.

Extended summary

Introduction

One does not need a lot of arguments to proof the centrality of video – in its various forms – in everyday professional and private life. YouTube, Skype, Netflix, Vine, Periscope, TopBuzz Video, are only some items of a long list of differentiated, top applications used all over the world, excluding other social networks – like Whatsapp or Sapchat – that can easily integrate videos too. Video is what youth and adults use to communicate, to entertain, and also to learn.

However, despite notable phenomena like MOOCs recently confirmed the educational potential of using video both in higher education and corporate training, deep understanding on how to properly use videos to support learning is still missing. Adequate pedagogical models and structures to promote learning from and with videos are still lacking and needed (e.g. Krauskopf, Zahn, Hesse, & Pea, 2014), especially when it comes to the collaborative use of video. In fact, the use of video as a means of individual instruction already disposes of some well-established strategies, like for example Demonstration-Based Training (see Grossman, Salas, Pavlas, & Rosen, 2013; Rosen, et al., 2010). To the best of our knowledge, this is not yet the case for video-supported collaborative learning (VSCL), which we define as the use of video technology, tools and platforms in a way that contributes to developing conceptual thinking and problem solving skills, as relevant work-life competences of the knowledge worker. This could be due to the fact that, despite instructional approaches where students learn together (such as knowledge building – e.g. Scardamalia & Bereiter, 2014 – or computer-supported collaborative learning – e.g. Stahl, Koschmann, & Suthers, 2014) also proved to be quite effective for learning, teachers and instructors lack practices and design principles in the collaborative use of modern technology (Zahn, Krauskopf, Hesse, & Pea, 2012).

Therefore, the current contribution presents the results of a literature review aimed at investigating the actual state-of-the-art of VSCL. In particular, it addresses two main research questions:

- How video technologies and tools have been used for supporting collaborative learning in order to facilitate professional development? And:
- What models of collaboration have been established within successful partnerships for educational development?

Methods

A structured literature review procedure was followed, as suggested by Cooper, (2010). Four main inclusion criteria were established, concerning respectively: content, scientific character, language and time limitation. As for the content, the literature review included journal articles, book chapters, books and dissertations that refer to pedagogical models for facilitation of professional development via video-supported collaborative learning in education. All the contributions had to be peer-reviewed, published in English, and published after 2003. The initial search was limited to the following adequate educational databases: ERIC¹; Educational research complete², Psyn dex³, Psychinfo⁴. In March 2018, these databases were entered the following main query: (((video) AND ((Collaborative learning) OR (collaboration)) AND ((professional development) OR (teacher education) OR (teacher training) OR (vocational education) OR (professional education))). This query yielded 474 contributions, which decreased to 363 after discarding duplicates. All the 474 abstracts were then screened for inclusion or exclusion by two coders. In case of disagreement, the item was re-discussed for a final decision. After this step, 100 papers were finally included for the review. Each paper was then analyzed by a group of researchers through a collaboratively defined matrix including the following codes: Topics/Concepts (the main topics or concepts discussed in the paper), participants (by country and sample size), target group (e.g. pre-service teachers, in-service teachers, higher education students), research method (e.g. experimental, quasi-experimental, comparative,...), data collection (the processes and techniques to collect data), used video technology (e.g. online video platforms, interactive video, video annotation tool,...), type of device (the type of hardware used in the educational interventions reported), video modality of usage (e.g. video recording, video content display, video creation and editing, video as communication tool), pedagogical approach (the pedagogical and didactic fundamentals invoked or referred to), answer to the research question (how the results and conclusion can contribute to answering the research questions). The resulting matrix was then used by three researchers to be analyzed in detail recurring to a pre-determined group of theory-driven categories as well as to emergent categories to aggregate similar information and related concepts.

Results

Descriptive quantitative analysis shows that

- most of the studies (58.8%) were conducted in the domain of teacher training and professional development;
- as a consequence, in-service teachers (26%) and teacher students or preservice teachers (17,8%) were the most represented categories as participants;
- most of the studies were conducted in America (35,5%) and Europe (31,6%);
- the majority of the studies involved a small number of participants (38,2% less than 25 and 14,5% between 26 and 50 participants);

¹ <https://eric.ed.gov>

² <https://www.ebsco.com/products/research-databases/education-research-complete>

³ <https://www.psyndex.de/index.php?wahl=PSYINDEX&uwahl=Angebot&lang=EN>

⁴ <https://www.ebsco.com/products/research-databases/psycinfo>

- the research methods were essentially qualitative (71,1%)
- video was used as a data collection tool in 11,1% of the studies analyzed;
- the use of video was mainly for recording/display (49,1%) and for conference systems (8,8%), with a 5,3% of the studies focused on the use of video annotation tools.

Concerning the qualitative analysis performed, a first layer of analysis showed five different ways of using video for supporting collaborative learning: video recordings, video creation, video content display, video as a communication tool and using video in multiple modalities.

A second layer of analysis focused on a deep understanding of how video has been used for supporting collaborative learning, finding what learning designs has been used, through what learning experiences, activities and practices. This second layer identified thirteen pedagogical approaches for facilitating professional development when using video for collaborative learning, which will be presented in detail at the congress.

The models extend the evidence about the collaborative use of video to support learning, which is much more diffused than what it is usually spotlighted, and consign us a knowledge base that will be turned into design learning principles for facilitation of professional development via video-supported collaborative learning.

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