Innovative Teaching Practices In Health Science Education

Using Video- Based Technology As A Tool to Develop And Assess Student Skills

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Objectives

• Review history leading to utilization of video-based technology

• Discuss forms of video-based technology used to generate meaningful engagement in the online forum

• Discuss various uses and benefits of using video-based technology

• Share student perceptions and feedback regarding utilization of video-based technology
Covid 19 generated a major global shift in early 2020. Many sectors of society had to find alternative ways to maintain a sense of normalcy. Education was one of those sectors where instructors and faculty members needed to be creative to deliver information and assess student learning. This unexpected dilemma prompted those in the field of education to find ways to maintain and enhance learning.
Background

- Universities, colleges, and other higher education institutions with hybrid models were better positioned to deal with this problem; online education was and continues to be a part of their curriculum (The Harvard Business Review, 2020)

- The use of videos and other virtual tools has proven positive benefits in classrooms worldwide; one of these tools is the GoReact Videos. (Hager, Fiechtl, and Gunn, 2020)
Two main forms of video-based technology were employed by the University of St. Augustine for Health Sciences Flex faculty during the COVID-19 pandemic to provide meaningful engagement for students. They continue to be utilized today.

**Technology 01**
GoReact Video Technology

**Technology 02**
Virtual Simulation
California State University 2021 reported that GoReact is an interactive platform for feedback, grading, and critiquing video assignments; this is a tool for performance-based skills online.

Students upload, record, or stream videos with a webcam or smartphone into the forum; instructors and other students can give time-coded feedback on student videos.

According to the GoReact website:

“This platform can be helpful in any learning environment that requires an instructor to observe a students' presentation or performance.”
GoReact provides eight creative ways that people/institutions are using their technology:

1. Communication Courses
2. Teacher Education Observations
3. American Sign Language Teaching and Interpreting
4. Clinical Training
5. Visual Communication
6. Performing Arts
7. Sales Training
8. Law Enforcement Training and Lawyer Education
Faculty for the University of St. Augustine for Health Sciences DPT program utilized this technology in a variety of asynchronous ways.

**Formative Feedback**
Students received timely written & verbal feedback from the instructor on video submissions from a remote location.

**Psychomotor Practice**
Students demonstrated a specific technique & instructors provided video & written feedback at the precise moment correction was needed.

**Professional Communication**
Students engaged in activities in which they demonstrated professional communication with colleagues via recorded video.

**Summative Assessment**
Students submitted assignments in which psychomotor skills were assessed according to a graded criteria.
Additional Notes Concerning GoReact Utilization

Communication Enhancement

• Students practice communication via role-playing, developing communication skills to prepare them for the future in their respective professional careers.
• By watching and hearing themselves in the video, they can make the proper changes to improve their interaction with others.

Student Self Reflection

• These are great resources for students to review their performance. Students can compare themselves to other students' performance, provide their constructive time-coded comments, and receive feedback from the instructor.
• The platform website specifies that GoReact Video allows multiple observers to provide feedback, increasing inter-rater reliability. Once the instructor makes the proper suggestions, students can use a particular video to guide themselves to the educator's expectations.
GoReact Summary

The GoReact platform supports its use for students and faculty members to facilitate easy recording and allow for remote observations, feedback, and self-reflection.

The University of Saint Augustine for Health Sciences has embedded assignments in different courses that require students to use the GoReact Videos Platform.
Virtual Simulation

- Virtual Simulation has been studied in nursing education literature and is explained as a computer-generated interaction with a clinical skill in a seemingly physical way (Tolarba, 2021).

- Virtual simulations have been found to have positive effects on learning outcomes in nursing students from a cognitive, skill, and affective domain (Tolarba, 2021).
Virtual Simulation at USAHS

• Students in the Flex DPT program engaged in synchronous virtual interactive sessions with patient actors and real patients to practice skills such as history taking, task analysis, examination and treatment.

• These encounters occurred via forums such as RingCentral when live face to face interactions were not supported.
Student Perceptions of Video-Based Technology

- Students can also develop a sense of control in their learning process when using this technology.
- They can practice different techniques and place themselves in different scenarios to prepare for the clinical experience. Video and live observations reveal the same results for teaching interns (GoReact 2021).
- Students may be more comfortable recording a video from the comfort of their home than being in front of the instructor or their peers who have their eyes on them.
Student Surveys

Two forms of surveys retrospectively reviewed for feedback concerning the utilization of video-based technology:

• End of Course Surveys

• USE questionnaire (Lund, 2001) adapted specifically for video-based technology
End of Course Survey

End of course surveys

• Routine anonymous assessments concerning course experiences

• Qualitative comments reviewed for comments specific to video-based technology

• Open ended questions on survey include:

  • For courses that do not have campus-based learning experiences, do not complete this question. Because of the COVID-19 pandemic crisis, USAHS transitioned all didactic (i.e., non-lab) instruction to a virtual format. Please provide feedback on your learning.
End of course surveys

• Open ended questions on survey continued........
  • What aspects of the online course format contributed most to your learning?
  • Please provide additional comments about the lab.
  • Please identify what you consider to be strengths of the course
  • Please identify area(s) where you think the course could be improved
End of Course Survey Findings

End of Course surveys:

• Limited explicit unsolicited comments specific to video-based technology (VBT) within last 2 years.

• Comments include:

  • The instructors did an exceptional job as facilitating our lab learning in the virtual environment. I feel that their creativity was what made this class not only enjoyable but doable in a virtual setting.

  • The creative ways they engaged us in labs really made it feel as if we were not in a virtual setting.

  • I think the go react videos were also a great tool to have the professor watch us and comment as they watch. They were able to give feedback throughout our submission so it wasn't just a "good job" comment posted at the end.
Adapted USE Questionnaire

USE Questionnaire adapted for Video-Based Technology

• Provided within course for anonymous student feedback specific to use of video-based technology
  • Combination of Likert Scale and open-ended questions.
• Sought to determine students’ perceptions of the use and impact of video-based technology on:
  • the applicability to clinical practice
  • meaningful engagement with course content
  • communication improvement
  • perceived learning in the course
Adapted USE Questionnaire (13 respondents):

- 100% of respondents agree or strongly agree VBT was useful to reinforce course material.
- 92.3% of respondents agree or strongly agree VBT was useful to enhance their learning.
- 92.3% of respondents agree or strongly agree VBT was applicable to future clinical practice.
- 100% of respondents agree or strongly agree VBT was useful to improve communication skills.
Adapted USE Questionnaire cont:

- 92.3% of respondents agree or strongly agree VBT was a helpful tool to improve engagement in the course.
- 92.3% of respondents agree or strongly agree that they would strongly recommend other classes to use VBT.
- 84.6% of respondents agree or strongly agree that VBT increases opportunities to engage in the course in a meaningful way.
- 100% of respondents agree or strongly agree they are satisfied with the utilization of VBT in their course.
Adapted USE Questionnaire: Qualitative Comments

How did the video-based technology enhance your learning?

• Great way to look at performance
• Prepared me for practical exams.
• Allowed feedback from professor (especially for out of town flex students)
• Ability to critique oneself.
• By practicing under pressure
How did the video-based technology enhance your learning?

• I get to workout my kinks before the practical

• It allowed me to review my performance during the video and see areas that I can improve on that I may not notice when I am performing the skill.

• I do want to add that I wish we had more required assignments from this because I think it is an under-utilized tool by students since it is not a requirement.
Adapted USE Questionnaire: Qualitative Comments

How did the video-based technology enhance your learning?

• Most helpful when preparing for practical exams with little to no in-class participation - feedback was the most helpful

• Helped with clarification of a manual technique learned in class in which the student was unable to meet with instructor in person

• Getting feedback from students/professors
Adapted USE Questionnaire: Qualitative Comments

List the most positive aspects of video-based technology.

• Best for receiving feedback when practicing techniques at home.
• It allows our professors to give us feedback when we are distance learning since we are flex students.
• It allows me to connect with my professor at a distance.
• Communication / Professionalism.
Adapted USE Questionnaire: Qualitative Comments

List the most positive aspects of video-based technology.

• Professor feedback

• Good practice for Flex students to have feedback before coming to campus

• Increased practice with feedback
Adapted USE Questionnaire: Qualitative Comments

List the most negative aspects of video-based technology.

- Angles are always difficult but that can be understood with videos
- May not have correct camera or video angle.
- Need easier to use editing tools
- The professors sometimes don’t provide feedback
- Sound quality
- N/A
Conclusions

• Video based technology may be a valuable tool to engage students in a hybrid program in meaningful way.

• Limitations: low survey response rate

• Future studies recommended to assess student perceptions of utilization of video-based technology with larger sample sizes and varying populations in higher education.

