Feedback on video skill: A concept analysis
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Abstract: Increasing rates of mental health concerns are seen among youth in post-secondary institutions, particularly those enrolled in clinical-based health programs such as nursing. Nursing students are required to demonstrate skill competence for successful completion of nursing programs. Recent studies show that when students and faculty are engaged in video and audio recording of their own skills or co-creating video skills, many positive outcomes emerge, including a positive influence on their mental health. However, these videos skills are often overlooked by faculty. We explore the concept of “feedback on video skills” and its pedagogical and ethical implications for health and allied health practitioners within the context of flexible learning environments. Walker and Avant’s (2011) concept analysis methodology was used. We identified the quantitative attributes and characteristics of “feedback on video skills” and presented sample cases to illustrate the concept further and guide the design and application of an online feedback video toolbox resource. Feedback is an important dimension of video skill teaching and learning. While faculty (expert) feedback on clinical skills is paramount in nursing education, other forms of feedback can be as valuable. This concept analysis method highlighted quantitative elements of feedback but left gaps in our understanding of the social relations and ethical considerations involved in using video-recorded feedback as a pedagogical tool. We suggest to further consider the use of video-recorded feedback through the lens of socio-technical affordances.

Keywords: feedback on video; concept analysis; smartphone video; flexible teaching, scenario development

Resumen: Jóvenes estudiantes de educación superior experimentan cada vez un mayor número de problemas relacionados con su salud mental, especialmente aquellos matriculados en carreras clínicas como la de enfermería. Estudiantes de enfermería requieren demostrar su destreza para completar de manera exitosa sus programas de estudio. Estudios recientes muestran que cuando los estudiantes y profesores usan videos de voz e imagen para...
grabar sus propias habilidades o cuando crean juntos videos de sus aptitudes, esto conlleva a muchos resultados positivos, especialmente en lo que concierne a su salud mental. Sin embargo, estos videos no son tomados en consideración por parte los profesores. En este artículo nosotros exploramos el concepto de “retroalimentación y comentarios sobre videos de habilidades”, y las implicaciones pedagógicas y éticas para los profesionales de la salud, dentro del contexto de ambientes de aprendizaje flexibles. Aplicamos el método de análisis de concepto usado por Walker y Avant (2011). Identificamos los atributos cuantitativos y características del concepto de “retroalimentación y comentarios sobre videos de habilidades”, y presentamos casos para ilustrar el concepto en detalle y guiar el diseño y aplicación de una herramienta en línea sobre retroalimentación de video. La retroalimentación es una dimensión importante a considerar en el proceso de enseñanza-aprendizaje de los videos sobre habilidades. Si bien la retroalimentación que los profesores proveen a los estudiantes sobre su desempeño y habilidades clínicas es fundamental en enfermería, otras formas de evaluación son también importantes. El método de análisis de concepto subraya elementos cuantitativos de retroalimentación pero deja lagunas en nuestro entendimiento sobre las relaciones sociales y consideraciones éticas relevantes en el uso de retroalimentación sobre video como una herramienta pedagógica. Sugerimos considerar el uso de retroalimentación de video grabada a través del marco de sus propiedades socio-técnicas.

**Introduction and background**

Youth report an increase in performance anxiety when learning skills in health professional programs (e.g., nursing; physiotherapy; occupational therapy) (McNett, 2012). Skills refer to practice-based skills when body performance is required as well as communication skills. The increased number of health professional students, hospital restructuring, and patient privacy concerns have contributed to the limited placements in hospitals (Mastel-Smith, Post & Lake, 2015). This challenge then requires more flexible teaching of practice-based skills beyond the classroom and lab walls (Katz, 2013). Video and audio technology for practice-based skills (e.g., memory aid, note-taking tools; remediation) has increased (McCutcheon, O’Halloran, & Lohan, 2018). Generally, youth are comfortable using the video recording features on their smartphones, yet feedback on clinical video skills and its implications are not well understood (Burgess & Mellis, 2015; Fidalgo & Thormann, 2017). When a student records themselves or is recorded by others for an evaluation, they can use the video to observe and reflect on how they relate to self, others, and the environment. Research on skill learning shows that feedback is not always given to students or sometimes feedback is too complex for student to make use of (Anderson, 2012). Our aim is to explore what we know about video feedback on youth’ practice-based video skills.

**Methods**

Walker and Avant’s (2011) 8-step concept analysis methodology explore the question what we know about the concept “feedback on video skills”. Concept analysis methodology can shed light on the ethical, practical, and educational attributes of a concept and develop model, borderline, and contrary cases to guide the development of an educational video skill resources. See Figure 1 for visual representations of concept analysis steps. Steps 1 and 2 focused on deciding on a concept and Justifying the Purpose. With increased availability and usage of video technology-based exploring the processes used for giving and receiving feedback when videos are used is important. Step 3 identify the use of the concepts. We used dictionaries and literature in the field of health and allied health (e.g., nursing, psychology, medicine, physiotherapy; occupational health) and information technology (See Table 1 for databases and keywords). A final yield of 21 articles were extracted. In nursing the term feedback and debriefing can be used interchangeably (Voyer & Hatala, 2015). Video recording feedback can be used to debrief a self-recorded skill performance (e.g., administration of injections (Hulsman & Vloodt, 2015) or to seek peers to provide feedback (Nesbitt et al. 2015). Thus, who provides the feedback, when, where and how it is provided are important factors to consider when providing feedback on video skills.
Step 4 identify the key attributes of the concept. We found the literature review frequently yielded concepts about feedback on video skills that included diversity of feedback terms such as time, form and place of feedback.

These made students feel more satisfied and performed better, and faculty reported decreased workload. Additionally, students were better able to self-reflect and express feelings and challenges beyond the technical aspect of the skill. Thus, the diversity of feedback facilitated relationships between student’s faculty and environment of learning. In the following section, we present the findings from our literature review.

Table 1. Databases and Keywords

<table>
<thead>
<tr>
<th>Databases</th>
<th>Search Terms combinations</th>
<th>Results</th>
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<tbody>
<tr>
<td>CINAHL, Nursing and Allied Health Source (Proquest), Medline (PubMed); ScienceDirect; NCBI and Scholars Portal Journals.</td>
<td>skill feedback ;“video feedback”, “clinical debriefing”; “skill video recording”, “smartphone video”, “nursing”, “practical skill feedback”, “formative skill assessment”, “health and allied health students”, and “education”</td>
<td>21</td>
</tr>
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Findings

A. Relating: students’ skills and faculty feedback timing

Faculty feedback on students’ skills is an iterative process (Veloski et al., 2006). Yet timing of feedback was discussed 60% more frequently. Kneebone et al. (2002) conducted a qualitative study with medical students (2nd and 3rd year; n = 51) who recorded their urinary catheterization and wound closure skills. The students reviewed their skills videos and then received faculty feedback within five minutes. Students found this immediate feedback valuable. Similarly, Sainsbury et al. (2016) compared the skills of 3rd year medical students (n = 68) who received (a) immediate; (b) delayed feedback and (c) immediate and recorded feedback when performing laryngoscopy and tracheal intubation skills. The immediate and recorded faculty feedback led to significantly (p = .05) higher success rates (56%) compared to the other two groups (Sainsbury et al., 2016).

Alternatively, Noordman, van der Weijden and van Dulmen (2014) studied nurses (n = 20), who were video recorded while conducting patient care on two separate occasions (1-2 months apart). Half of the nurses received video feedback on their communication, competence, and motivational interviewing skills after the first patient encounter. Nurses in the control group (n = 10) only received video feedback at the last patient encounter. Noordman et al.(2014) found that delayed faculty feedback allowed nurses to reflect, and thus improve their performance compared to the group that only received feedback at the first patient encounter.
Labrusse et al., (2016) recorded first-year midwifery students’ (n = 51) clinical and communication skills and found a significant difference (p = .034) between the students who received immediate compared to delayed faculty feedback. The delayed group feedback (DGFB) occurred during a 2.5-hour session detailing the strengths, weaknesses, and competencies noted; while the immediate individual feedback (IIFB) occurred over 15 minutes and highlighted only three main competencies. Although the time difference between immediate and delayed feedback was not specified, they reported a significant difference in students’ satisfaction, where students in the IIFB group were more satisfied with the way that faculty gave feedback (p < .001) and the length of time in dedicated to students during the feedback session (p = .0003) in comparison to DGFB. Additionally, students felt the IIFB was more constructive than the DGFB (p < .001). Thus, immediate faculty feedback was perceived by students as more valuable, however, delayed feedback was as valuable if no other feedback was provided (Labrusse et al., 2016).

B. Relating: students’ skills and forms of faculty feedback

Diverse forms of feedback were also commonly (66%) discussed. With an increase in class size, diverse learners, and limited resources, faculty recording feedback (delayed; asynchronized) on students’ video or face-to-face skills have rendered positive relational outcomes. Naik et al. (2018) compared the effects of personalized narrated (voiceover) expert video feedback with no feedback on medical surgery trainees’ suturing skills (n = 56). The feedback group video recorded subcuticular wound closure skills three times at three-week intervals and submitted it via the online system for evaluation by an experienced staff surgeon. The surgeon provided personalized feedback using voiceover superimposed on the trainee’s video. The video with feedback was returned for review prior to an assessment activity – suturing simulation. In contrast, the control group did not video record their suturing skills and did not receive any feedback prior to the suturing simulation (Naik et al., 2018). A higher completion rate in all 4 skills in the surgeon-annotated personalized feedback group than the no-feedback group (82% vs 30%, p < .0001) was reported. Additionally, the feedback group completed the skills five times faster (p < .0001) and their suture quality was higher than the no-feedback group (p < .0001). Furthermore, the video feedback group improved significantly in checklist scores (mean difference = 2.0 of 11 points) and time to complete subcuticular skills (109 seconds) when compared to their first submitted video (Naik et al., 2018).

Several authors highlighted student satisfaction as a key outcome of video or audio recorded personalized feedback. Ice, Curtis, Phillips and Wells (2007) reported that students’ satisfaction with audio-recorded feedback was extremely high compared to students receiving written feedback only. The students felt the instructor cared more and were three times more likely to apply feedback when it was audio-recorded. Similarly, Myung et al. (2010) studied 3rd year medical students across three years (n = 499: with n1 = 169, n2 = 182, and n3 = 148 students in 2006, 2007, 2008 respectively) who video-recorded their history-taking and physical examination skills. Myung et al. (2010) reported that when student–simulated person (SP) encounters were recorded on DVD and students could review their performances with faculty (length of 30-60 minutes), approximately 10 minutes after student skill performance; the students rated the learning experience as satisfactory (87% of students across the three years).

In addition, students value faculty video feedback on written assignments in online courses (Harrison, Molyneux, Blackwell, & Wass, 2015; Ice et al., 2007; Moore & Filling, 2012; Ruesseler et al., 2017; Wood et al., 2011). In an online graduate course, Wood et al. (2011) surveyed nursing students (n = 50) (30 accelerated Bachelor of Nursing, and 20 Master of Science in Nursing) to study the impact of audio feedback on students’ writing skills compared to written feedback received in other courses. Most students (70%) understood the instructor’s feedback more clearly with audio feedback. Students considered audio feedback more personal than written comments (80%), felt more involved (67%), motivated in the course (60%), and felt they retained the content better (50%) (Wood et al., 2011).
Finally, students improved in performance skills after video feedback. Ruesseler et al. (2017) compared two groups of 4th year medical students (n = 125) on their history-taking skills of a surgical patient (group 1: oral feedback and group 2: faculty video-assisted feedback) before completing two objective structured clinical examinations (OSCEs). A significant difference in the performance of the skills (p < .001) by group 2 (video-assisted feedback) compared to group 1 (Ruesseler et al., 2017). Similarly, Truskowski and VanderMolen (2017) compared occupational therapy students (n = 57) performing range of motion and manual muscle testing skills receiving traditional (face-to-face/didactic) feedback with students receiving video-annotated delayed feedback. The video-annotated delayed feedback group showed significant difference in students’ skill performance when compared to the traditional feedback group. Students improved their positioning of patients (t = 2.314, df = 36, p < .026), use of proper body mechanics (t = 2.284, df = 36, p < .028), proper hand placement (t = 2.660, df = 36, p < .012), and completing transfers safely (t = 3.522, df = 28.565, p < .001). However, no significant difference was found between the groups for providing clear direction to the patient (t = 0.862, df = 36, p < .394) or for proper equipment setup (t = 0.181, df = 36, p < .858) (Truskowski & Vander Molen, 2017). When Harrison et al. (2015) surveyed 3rd-year medical students (n = 92) who received audio feedback on their clinical skills in an OSCE. The students felt that the audio feedback was useful (90%), promoted better understanding of their strengths (83%), and areas of weakness (84%), changed the way they performed a skill (68%) and would guide future assessments (72%) (Harrison et al., 2015).

C. Relating to self and others in time and place

Some authors compared students receiving synchronous text-based faculty feedback and video communication feedback. They reported that the latter highlighted social presence and fostered better relationships with students, even in large classes (Henderson & Phillips, 2015; Moore & Filling, 2012; Seckman, 2018). In Seckman’s (2018) quasi-experimental study of nursing students (n = 100; 37 undergraduates; 63 graduates), higher mean scores overall for teaching, social, and cognitive presence in online communities were seen in the synchronized interactive video feedback group compared to the text-based group. Seckman (2018) also reported a significant difference in the community of inquiry questionnaire (measuring students’ social and cognitive presence) where students in the synchronized interactive video feedback group performed better (r = 0.788, p < .01). Similarly, in an online dental hygiene course, Molnar and Kearney (2017) also measured social and cognitive presence in (n = 15) undergraduate dental hygiene students. They were divided into two groups that alternated between asynchronous and synchronous video discussions. The synchronous discussions yielded more messages (260) in comparison with the asynchronous discussions (117). Molnar and Kearney (2017) concluded that the synchronous discussions achieved a higher level of cognitive presence (p = .005) and fostered better relationships between and among students and faculty when compared to the asynchronous discussions.

While recorded and/or synchronized faculty feedback supported students in feeling connected, incorporating peer feedback had the same effect and further decreased faculty feedback workload (Henderson & Phillips, 2015; Vaughn et al., 2016). Vaughn et al. (2016) compared surgical intern students’ (n = 12) peer feedback with faculty (n = 12) feedback in an experimental study. Students used video cameras or smartphones to record themselves performing knot-tying and suturing skills at home. The participants’ skills were assessed at 3 periods: at baseline, during and at the end of the curriculum which was delivered over a 12-week period. Both peers and faculty received de-identified videos which were then rated using a global score of 0 to 10 and a standardized checklist. There was no significant (p = .057) difference between peer and faculty rating yet both demonstrated increase performance over the course of the semester. Vaughn et al. (2016) suggested that the practice of reviewing and analyzing another’s performance can improve one’s own performance and relationships between peers.

Feedback and reflection are interconnected and important aspects of experiential learning. When nursing and medical students (n = 30) could self-reflect on their cardiopulmonary resuscitation skills using online video and written feedback there was a significant difference in performance (F = 4.644, p < .001) and students were more
aware of the different roles of the team (Bowden et al., 2012). In their self-reflection, students often focused more on the negative aspects of their video skills performance compared with peer feedback (Hulsman & Vloodt, 2015). Hulsman and Vloodt, (2015) and Kneebone et al. (2002) highlighted that self-reflection facilitated an awareness of one’s feelings. Nesbitt et al. (2015) conducted a randomized control trial with medical students (n = 32) who recorded their suturing skills. Students were randomized to three feedback groups: group 1 received traditional and general feedback using a 20-minute PowerPoint presentation; group 2 received a 20-minute unsupervised video-enhanced feedback (students reviewed their video performance together with an expert teaching video) and group 3 received 20-minutes of individualized video feedback (students reviewed their video performance with an expert tutor). Nesbitt et al. (2015) concluded that although all three feedback groups improved students’ overall procedural score (comprised of both a task-specific checklist and a global rating score), the improvement in the overall procedural score of students in group 3 (p = .001) was significant after a didactic lecture. Most of the studies reviewed did not discuss what constituted student reflections. When students reviewed videos of their skill performance what emotions or thoughts were evoked? Feedback on students’ video skills should include an opportunity for them to express the relational and emotional aspects they experienced while performing the skills. The literature review did not indicate an ideal feedback method, yet using various forms of feedback for students on their video skills resulted in increased student satisfaction and improved performance (Harrison et al., 2015; Ice et al., 2007; Labrusse et al., 2016; Myung et al., 2010; Ruesseler et al., 2017; Truskowski & VanderMolen, 2017).

Most of the video skills recording studies were quantitative design and were done in a simulation lab (See Table 2). Students who recorded skills at home used their smartphone cameras (Vaughn et al., 2016), while some used recording technology from the school (Hulsman & Vloodt, 2015; Naik et al., 2018; Vaughn et al., 2016). When tasking youth with video assignments, it is essential that instructors consider access to and level of comfort using technology and providing clear and focused instructions (Pitts, 2015). Few studies explored

| Table 2. Description of Studies |
|-----------------------------|-----------------------------|
| Majority (52%) | Most (40%) recorded  |
| quantitative design | video skill in a  |
| simulation lab |

Forbes et al., 2016; Molnar & Kearney, 2017; Naik et al., 2018; Nesbitt et al., 2015; Noordman et al., 2014; Ruesseler et al., 2017; Sainsbury et al., 2016; Seckman, 2018; Truskowski & VanderMolen, 2017; Vaughn et al., 2016.

Bowden et al., 2012; Forbes et al., 2016; Hulsman & Vloodt, 2015; Kneebone et al., 2002; Myung et al., 2010; Nesbitt et al., 2015; Noordman et al., 2014; Ruesseler et al., 2017; Truskowski & VanderMolen, 2017).

**Scenarios development**

Walker and vant (2011) suggest to create cases that incorporate these attributes. In Steps 4 and 5 of their analysis they suggest to construct the model, borderline, and contrary Cases. A model case includes defining attributes of feedback on video skills. Julie is a senior nursing clinical instructor assigned to teach a
A contrary case is an example, which does not illustrate the concept clearly and does not contain any of the defining attributes. Lorish is a nursing clinical instructor. One of Lorish’s students has failed the medication calculation skill twice. In lieu of a test, Lorish asked the student to record himself performing the skill and to email him the skills video for marking.

In step 7, Walker and Avant (2011) proposed that antecedents are the events that precede the occurrence of the concept. Three antecedents of feedback on video skills were identified: 1) a student and faculty must be present (virtually or face-to-face), 2) a clear communication of expectations of clinical skills must be included, and 3) understanding of participants’ digital characteristics (e.g., comfort and access to video recording technology) and availability of ongoing technical support. When students are asked to create skill videos a reward (feedback, mark) for motivation should be included. Finally, feedback on video skills will foster better relationships between and among students and faculty; improve skill competence; increase satisfaction in the learning experience; support safe and ethical practitioners and improve interest in using videos for learning and receiving feedback.

The last stages of the concept analysis method (Step 8) include establishing an empirical referent. Empirical referents measure the presence or absence of the defining attributes (e.g., diversity of feedback) (Walker & Avant, 2019). We propose that to provide diverse feedback on video skills students must be provided with timely technical and ethical support across places.

Given the subjective nature of some aspects of feedback on skills videos and constraints on time and place of courses, not all attributes of diverse feedback can be quantitatively measured. Exploring participants’ experiences of receiving diverse feedback on skills videos through interview probes leads to a better understanding of the relational aspects of the feedback from others, and the complexity of privacy and comfort while viewing and scrutinizing self-performing a skill in space and time. Quantitative measures can be used to study things like the number of errors in a skill performance checklist or participants’ demographic persona information (gender; age; ethnicity; geographical location). More qualitative data may be used to include changes students experienced in their skill performance, stress level
performing skills; satisfaction levels; and changes in ability to identify ethical concerns across time and place.

Conclusion

Concept analysis was used to explore what we know about feedback on skills videos. While the use of videos to support learning can offer a cost-effective and innovative alternative to conventional methods (Taslibeyaz, Aydemir & Karaman, 2017) the diversity of feedback is a key. Students and faculty need ongoing technical and ethical support. The model case scenario illustrates the value of such support. The results of this analysis are currently being used to inform the development of an online resource tool to guide faculty in creating meaningful video assignments for students and delivering effective and valuable feedback to enhance inclusion in nursing practice education. Research dedicated to the exploration of video feedback, is almost entirely quantitative in nature. While quantitative methods are useful they leave gaps in our understanding of the social relations, emotional and ethical considerations involved in using video-recorded feedback as a pedagogical tool. We suggest to consider the use of video-recorded feedback through the lens of socio-technical affordances. Originally coined by James Gibson (1977), affordances refer to the relationship between people and/or and the environment around them. The general premise is that the environment holds certain physical properties that suggest an assortment of actions for people who perceive them as such. General questions raised by this conceptual framework would be What actions do students/teachers perceive are available to them when they receive/give video feedback? What actions do they take? The answers to these questions will address the gaps in our knowledge about using video-recorded feedback as a pedagogical tool and support student’s mental health during high stake clinical exams.

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References


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