



DukeHealth



# Videoconferencing Pedagogy in Health Professions Students During COVID-19:

## Implications for Digital Equity and Inclusion

### *Presenters*

Jennie **De Gagne**, PhD, DNP, RN, NPD-BC, CNE, ANEF, FAAN

Paula **Koppel**, PhD, RN, GNP-BC, AHN-BC, NBC-HWC

Emily **Wang**, BSN, RN

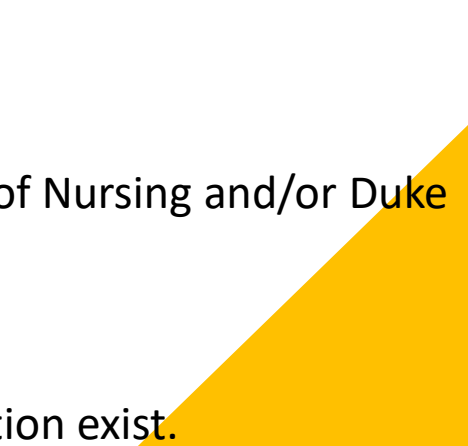
Sharron “Shari” **Rushton**, DNP, MS, RN, CCM, CNE

### Session Date & Time

September 30, 2023, 4:30 PM – 5:15 PM



# Disclosure Statement

- This project was supported by the 2020–2022 Duke Learning Innovation's "Carry the Innovation Forward" grant in Durham, North Carolina, USA.
  - The presenters are employees of the Duke University School of Nursing and/or Duke Health, located in Durham, North Carolina, USA.
  - No real or perceived vested interests related to this presentation exist.
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# Acknowledgement

The presenters wish to acknowledge the following team members who contributed to the project but could not attend the summit:

- Leila Ledbetter
  - Sandra Yamane
  - Eunhee Lee
  - Kimberly Manturuk
  - Dukyoo Jung
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# Session Objectives:

At the end of the session, the participant will be able to describe:

three ways to adapt traditional face-to face lectures for a course using videoconferencing pedagogy (VCP)

how technical difficulties may prohibit the goal of creating an equitable, inclusive, and accessible learning space

how to use universal design learning principles when developing courses that use VCP

# Presentation Outline



VCP during COVID-19 and research gaps



Description of research questions and systematic review methodology



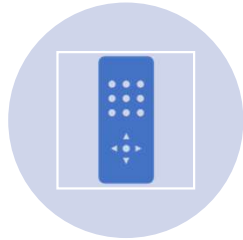
Key findings from the systematic review



Implications for nurse educators



## Background



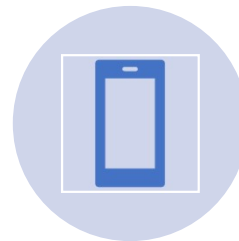
Push to adopt remote pedagogy quickly in response to COVID-19



VCP common replacement for face-to-face lectures<sup>1</sup>

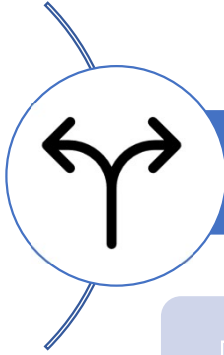


Lack of training/resources made transition chaotic<sup>2</sup>



Digital inequality compounded the challenges for some students and educators<sup>3</sup>

<sup>1</sup>Correia et al., 2020; <sup>2</sup>SUNY Online, 2021; <sup>3</sup>Correia, 2020



## Digital Divide



Digital divide: gap between who benefit from digital accessibility and those who do not<sup>4</sup>

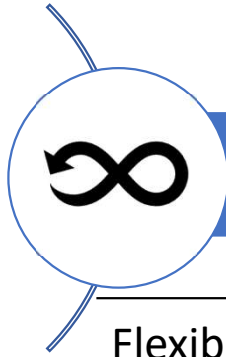


Some students rely on technology (computers, Wi-Fi) on campus and no longer had access during COVID<sup>4</sup>



Unequal access to technology and resources needed during COVID created disparities in student experience<sup>5-7</sup>

<sup>4</sup> McKenzie, 2021; <sup>5</sup>Gonzalez-Betancor et al., 2021; <sup>6</sup>Stamler & Upvall, 2021; <sup>7</sup>Pacansky-Brock et al., 2020



## Inclusive Pedagogy

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Flexible, accessible, and sustainable learning for all students<sup>8</sup>

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Humanizing learning experience with commitment to inclusivity, diversity, and accessibility<sup>9</sup>

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Universal Design for Learning (UDL) regulations are not enough

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Assumptions built into digital technologies can exacerbate educational inequalities, social injustice, culturally marginalized practices<sup>9</sup>

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Culturally responsive and humanizing strategies are also needed to facilitate instructor-student relationships in online teaching<sup>7,9,10</sup>

<sup>8</sup>Cotan et al., 2021; <sup>9</sup>Mehta & Aguilera, 2020; <sup>10</sup>Iturbe-LaGrave et al., 2021





## Videoconferencing as a Teaching Tool

VCP can eliminate geographic boundaries and improve learning outcomes<sup>11</sup>

VCP can accommodate different learning styles<sup>12</sup>

Challenges suggest need for guidelines in relation to:

Cultural context<sup>1</sup>

Mitigating inequities<sup>9</sup>

Promoting self-determined learning<sup>9</sup>

<sup>11</sup>McGonigle & Mastrian, 2021; <sup>12</sup>Hebda et al., 2019; <sup>1</sup>Correia et al., 2020; <sup>9</sup>Mehta & Aguilera, 2020



## Reflective Pause



What challenges did you experience when transitioning to VCP during COVID-19?



How did this new learning environment impact your students?



Did some students have more challenges than others?



## Evidence Synthesis

***What happened  
during COVID-19  
in health  
professions  
education?***

DE GRUYTER

Int. J. Nurs. Educ. Scholarsh. 2022; 20(1): 20220068

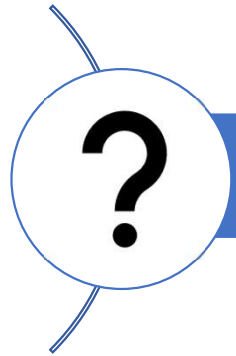
### Literature Review

Jennie C. De Gagne, Paula D. Koppel, Emily J. Wang, Sharron Rushton, Leila Ledbetter, Sandra S. Yamane, Eunhee Lee, Kimberly Manturuk and Dukyoo Jung\*

## **A systematic review of videoconferencing in health professions education: the digital divide revisited in the COVID-19 era**

<https://doi.org/10.1515/ijnes-2022-0068>

Received June 26, 2022; accepted November 18, 2022; published online January 5, 2023



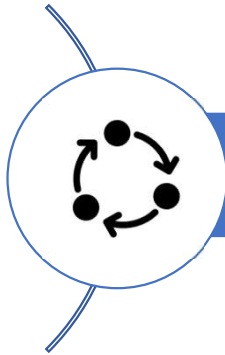
## Review Questions



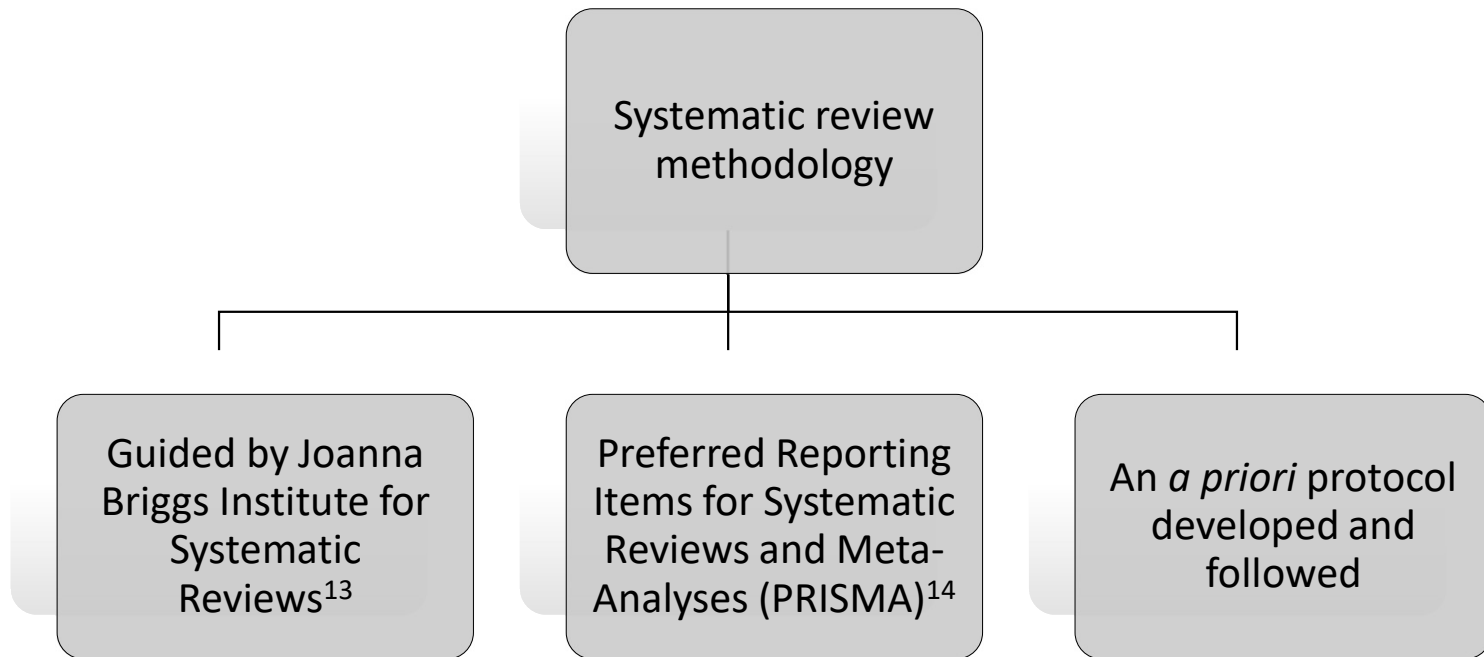
What were the outcomes of VCP during the COVID-19 pandemic?



What were the facilitators and barriers to VCP and its implications for practice?



## Methodology



<sup>13</sup>Aromataris & Munn, 2020; <sup>14</sup>Page et al., 2021



## Search Strategy



Search strategy used keywords/subject headings representing videoconferencing, education, and digital divide



5 data bases searched: PubMed, CINAHL, ERIC, Education Full Text, and Embase



Initial search conducted: March 16, 2021



Search updated: June 3, 2021 & March 30, 2022



Reference and citation tracking: April 2022



## Eligibility Criteria



**Only** pre-licensure health professions students



Evaluation of videoconferencing in place of face-to-face lecture due to COVID-19



Outcomes from course evaluations using any of Kirkpatrick's (2016) four levels of evaluation



Any data-based study conducted in academic setting since the onset of COVID-19



## Evidence Selection

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**Covidence** used to manage the review process

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Study selection and review carried out independently by two authors

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Conflicts resolved by third author







## Extraction & Synthesis

- Data summarized in tabular form capturing:
  - Study characteristics
  - Videoconferencing platform information
  - Barriers and facilitators to VCP
- Pedagogical outcomes assessed according to Kirkpatrick's (2016) four levels of evaluation
- Methodological quality assessment performed using *Medical Education Research Study Quality Instrument* (MERSQI)<sup>15</sup>

<sup>15</sup>Cook & Reed, 2015



# Results



Final studies included after selection process



Study quality, MERSQI scores



Highlights of study characteristics



Key findings



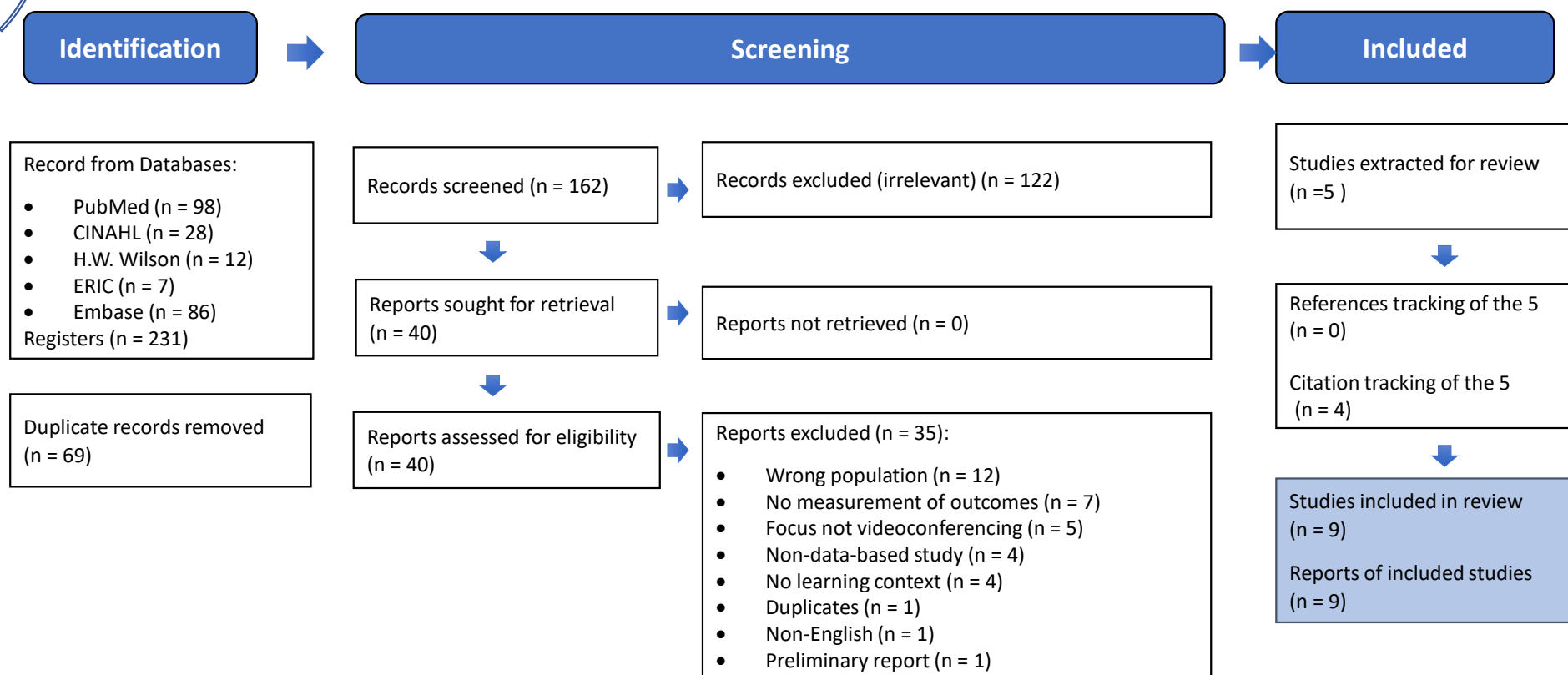
Kirkpatrick's outcome evaluation



Facilitators and barriers



## Selection Flow Chart



Flowchart: Page et al. (2021)



## Study Characteristics

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Methodological quality: MERSQI scores 7-13.5 out of 18

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Studies from around the world

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Zoom most frequently used platform (n = 4)

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Participants in all studies were medical students

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Content taught using VCP: basic medicine (histology, pathology, histopathology)

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Activities using VCP: lectures, discussions, low-fidelity simulations

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Resources: photographic images, videos, games

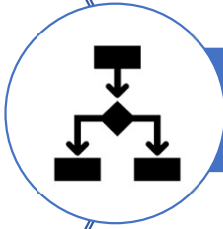
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Evaluative data: student evaluation of courses and instructor evaluation of student performance



## Key Findings

- VCP generally evaluated positively, however compared with face-to-face, students described dissatisfaction with:
  - ✓ excess workloads
  - ✓ technical difficulties
  - ✓ low motivation
- Students appreciated:
  - ✓ unlimited access to lectures
  - ✓ flexibility in study time/place
- Perceived stress higher for students:
  - ✓ attending classes outside of their home country
  - ✓ with poor or average internet connections



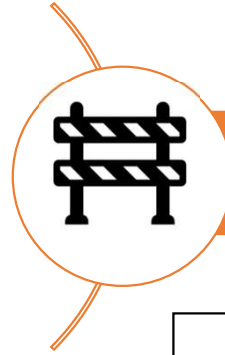
## Outcome Evaluation

- Learning outcomes were generally considered adequate with some studies finding no significant differences between VCP and face-to-face education
- Studies only focused on lower levels of outcomes (Kirkpatrick's Level 1 and 2)



## Facilitators

- Learning platforms (Zoom, Microsoft Teams) had most capacity to facilitated activities like face-to-face education
- Flexible learning environment and active learning strategies contributed to positive experience for students and educators
- Breakout sessions were useful when small and short (less than 15-20 minutes)



## Barriers

- Technical issues
- Lack of human interaction
- Limitations on some skills training



## Reflective Pause



How do the findings from this systematic review align with your experience?



What findings surprised you?







## Implications

- Students have mixed perceptions of VCP, but all students valued the flexibility and unlimited access to course materials
- VCP is unique - educators need to invest in professional development to teach effectively
- Opportunities for interaction, feedback, and active engagement:<sup>16,17</sup>
  - ✓ Keeps students motivated
  - ✓ Reduces stress
  - ✓ May influence satisfaction and course effectiveness even when there are technical challenges
- Studies are needed to explore if VCP outcomes translate into behavioral practices that meet professional standards

<sup>16</sup>Almarzooq et al., 2020; <sup>17</sup>Fatani, 2020



## Implications

### ***Universal Design for Learning (UDL)***

- Framework developed by CAST (<https://udlguidelines.cast.org>)
- Guides design of learning to meet needs of students
- Based on brain science, evidence-based practice
- Leverages digital technology
- Assumes barriers are in environment not students
- Plans on student variability in all lessons
- Goal is to help all students become “expert learners”

Provide multiple means of  
**Engagement** →

Affective Networks  
The "WHY" of learning



Provide multiple means of  
**Representation** →

Recognition Networks  
The "WHAT" of learning



Provide multiple means of  
**Action & Expression** →

Strategic Networks  
The "HOW" of learning

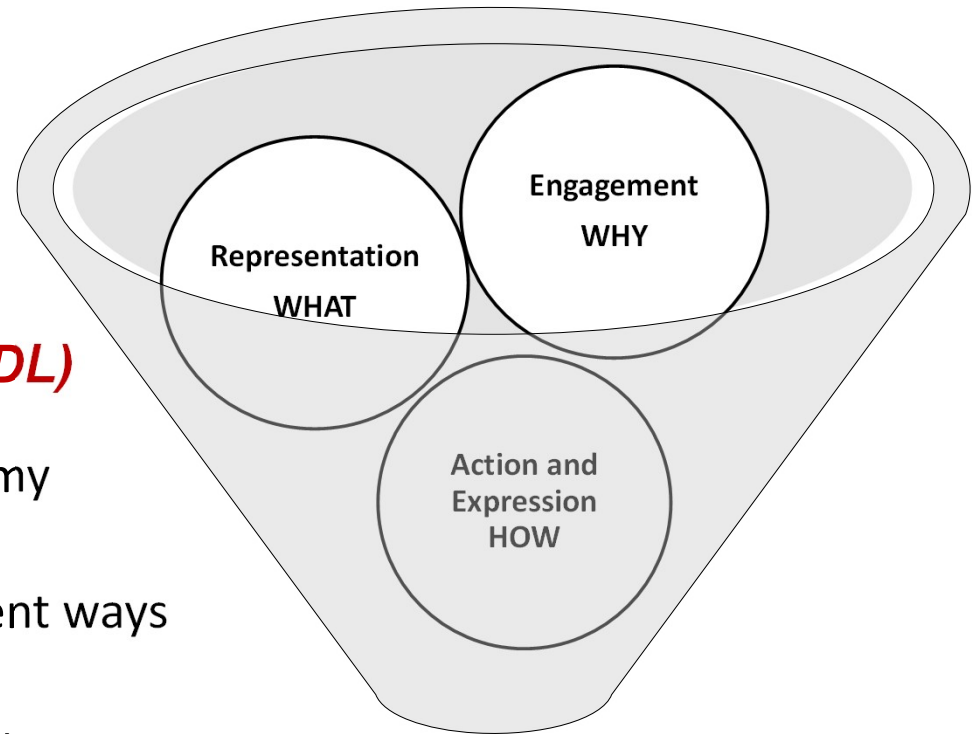




## Implications

### *Universal Design for Learning (UDL)*

- How can I **engage all, not just some** of my students?
- How can I present information in different ways for **different learner preferences**?
- How can I offer students different ways to **show what they know**?



***Expert Learners***

Expert Learners who are...

**Purposeful & Motivated**

**Resourceful & Knowledgeable**

**Strategic & Goal-Directed**

<https://udlguidelines.cast.org>



## Reflective Pause



How could you use the UDL guidelines to enhance your VCP?



What other professional development opportunities could enhance your VCP?



## Implications

To ensure equitable learning using VCP necessities we assess all Five A's<sup>18</sup> of access during course evaluation



<sup>18</sup>Sieck et al., 2021



## Reflective Pause



In addition to internet connectivity, what other questions are important to explore to ensure every student has equal access to learning when VCP is used?



## Review Limitations

- Small number of studies, all pertaining to medical students limits generalizability to other health disciplines
- Inability to include studies published in non-English could decrease applicability and increase publication bias
- Sociocultural factors likely affect non-Western students experience of VCP, implications should be applied cautiously



## Key Take Aways

- Future of videoconferencing as a teaching tool hold promise but also challenges
- Designing inclusive VCP curricula is needed to ensure all students have equal opportunities to learn
- Future research is needed to explore educators' attitudes and competencies about the use UDL guidelines and other strategies to ensure equitable, inclusive and accessible learning spaces relative to VCP



# Videoconferencing Pedagogy in Health Professions Students During COVID-19: Implications for Digital Equity and Inclusion



SCAN ME

***Your questions and comments  
are welcomed!***

De Gagne, J., Koppel, P., Wang, E., Rushton, S., Ledbetter, L., Yamane, S., Lee, E., Manturuk, K. & Jung, D. (2023). A systematic review of videoconferencing in health professions education: the digital divide revisited in the COVID-19 era. *International Journal of Nursing Education Scholarship*, 20(1), 20220068. <https://doi.org/10.1515/ijnes-2022-0068>