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UNIVERSITY OF THE PHILIPPINES MANILA
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N-101 Nursing Informatics
First Semester, Academic Year 2023-2024

STUDY GUIDE
MODULE 3: Use of Nursing Informatics in Education
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Introduction

The future of nursing science is closely linked to the application of Nursing Informatics (NI) in nursing education, nursing research, and nursing administration. Nursing education needs to include informatics to prepare students for the real world where the use of ICT has become ubiquitous and how to use data, information and knowledge is necessary to improve human health and the delivery of health care services. This module focuses on the examples of NI applications in nursing education.

Learning Outcomes At the end of Module 3, you should be able to:

1. Discuss the implications of the Fourth Industrial Revolution to education
2. Describe simulation, virtual worlds, artificial intelligence, and games as informatics tools for nursing education

Topics

Overview of technology in education

The First Industrial Revolution used steam power and waterpower to mechanize production. The Second Industrial Revolution used electric power to create industrial mass production. The Third Industrial Revolution used electronics and information technology to automate production. Now, in the Fourth Industrial Revolution, there is further automation of traditional manufacturing and industrial practices using modern smart technology that allows machine to-machine communication and the internet of things without the need for human intervention. As technology gets better, more people are connected through mobile devices with bigger storage capacity and stronger processing power. Technology breakthroughs, such as artificial intelligence, robotics, 3D printing, nanotechnology, biotechnology, and quantum computing have created a different world.

Read more on the challenges and opportunities in the Fourth Industrial Revolution in this World Economic Forum global agenda discussion in 2016.

How is the Fourth Industrial Revolution influencing education?

Education 4.0 is the desired approach to learning that aligns itself with the emerging Fourth Industrial Revolution, which focuses on smart technology, artificial intelligence, and robotics. Preparing students for their future work means aligning teaching and learning with technological advancements. There is a need to teach students not only about new technologies in teaching and learning but also new approaches such as self-directed learning, project based learning, and other models of remote learning. Read more about how the Fourth Industrial Revolution is influencing education (1, 2).



How is the Fourth Industrial Revolution impacting education and skills development in the Philippines?

View [these slides](#) from the Philippine Institute of Development Studies. Get to know more about the potential and perceived impacts of FIRE on the nature of work, the entire labor market, and future skills required for the Philippines' labor force.

Nursing Informatics: Simulation, Virtual Worlds, Games

The use of simulation, virtual worlds, and games are just a few of the informatics tools that have become pervasive in the real world as we enter into the Fourth Industrial Revolution.

Simulation

Watch [this video](#) featuring the foundations of simulation: an overview of five medical education papers that support theoretical understanding and skill guidance for effective facilitation of scenario teaching, skills teaching, and providing feedback.

Some studies have also explored the use of simulation in education. The [NCSBN National Simulation Study in 2014](#) has compared simulation with the traditional clinical placement of students in the undergraduate program.

A meta-analysis on simulation-based nursing education was also done in 2016 to compare effect sizes of simulation-based educational interventions in nursing according to the fidelity level of the simulators.

Virtual Worlds

What is a virtual world? Who are the ones using virtual worlds in education? How does it work? Why is it significant? What are the downsides? Where is it going? What are the implications for teaching and learning? Read this [paper on virtual worlds](#) and find out the answers to these seven questions.

Games

In the same way as virtual worlds, read more on the seven things you should know about the use of games in teaching and learning.

Artificial Intelligence and Education

Artificial intelligence (AI) is projected to disrupt entire industries, with many jobs projected to be replaced by robots or algorithms that automate processes. This has implications for higher education as AI could impact graduate employability and graduate skill development. Read more from the QS Global Employer Survey 2019.

Learning Activities

1. Read the recommended content discussed above and refer to the linked resources.
2. Work with your group in updating and improving your group project. See *project guide*.
3. Participate in the Discussion Forum.

a. Instructions:

- You will now work INDIVIDUALLY, not as a group.
- Select one (1) application DF of NI in Nursing Education and respond to the question, "What are the challenges and potentials for the use of this technology in Nurs-



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ing education?" Feel free to share your personal experience or insights but complement this with a literature reference.

- Respond to at least one (1) post in a different DF.
- Make sure to indicate your reference/s, particularly to your initial post. There is no need to summarize group outputs.
- Feel free to use the materials shared in the Module and use other materials to enhance your forum response/s.

b. Forum Applications:

- i. Simulation
- ii. Virtual worlds and games
- iii. Artificial intelligence

c. Evaluation: Please see the Discussion Forum rubrics

References:

McGonigle, D., & Mastrian, K. G. (2017). *Nursing informatics and the foundation of knowledge*. Burlington, MA: Jones & Bartlett Learning.

Other references are linked in-text.