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Supporting the Development of Students' Interdisciplinary Competence through the Smart Caring Technology Course

Calvin C. Y. LIAO*
College of Nursing, National Taipei University of Nursing and Health Sciences, Taiwan
*CalvinCYLiao@gmail.com

Abstract: In the past, nursing education in schools has long lacked the importance of incorporating information technology literacy and application skills. Therefore, there is little emphasis on the arrangement of relevant information technology courses, and the lack of long-term information literacy training for students, regardless of school care. The teachers and students of education seriously lack the interdisciplinary training experience and opportunities, which makes the connection between school education and industrial site demand. Furthermore, interdisciplinary training and learning is the key to developing students' problem-solving skills and diverse thinking. Hence, the development of "smart caring technology" theme Cross-domain courses have become an urgent task. About 50 different college students are expected to participate. Expected results will have a positive impact and may improve students' learning performance, the ability to apply proposals, and learning motivation.

Keywords: Smart Caring Technology, Interdisciplinary Training Curriculum, Design-based Research

1. Introduction

The global population structure is aging. According to the United Nations (Department of Economic and Social Affairs, Population Division, 2017), the young population of Taiwanese society has been declining over the years; and the elderly population has increased over the years. In this year, Taiwan will officially enter the old age society. Among them, the multiple complex diseases of elderly patients will increase the demand for care and require a large number of caregivers to invest. The lack of care for the nursing staff needs to be supplemented so that the medical education of the school must face medical care. Many new challenges, the school's original education methods are no longer due to new needs, new medical technology is continually developing, to improve medical quality and patient safety, but also to solve the problem of lack of human resources, smart medical care, and wisdom care has become an inevitable development trend.

Furthermore, the development of artificial intelligence and big data technology has brought about a fundamental change in the global health care industry. Smart technology is one of the key roles. Medical sites have begun to try to use various smart technologies to assist. Smart technology has already started to improve health. The care and medical care began to develop, and the traditional care model was being turned from "the care of the bed" to the "intelligent care." Further, the health care service has shifted from the conventional hospital bedside service to the home care of chronic diseases or institutional life services, and the focus has shifted from emergency treatment to health care — development of. And smart technology is the foundation to support change.

In short, because of the small population and aging of the population, the application of smart technology can extend medical care to remote homes or communities to provide remote care or medical care. Therefore, smart technologies have been widely regarded by many advanced countries — one of the important solutions to solving the problem of super senior society. However, in the past, nursing education in schools has long lacked the importance of incorporating information technology literacy and application skills. Therefore, there is little emphasis on the arrangement of relevant technology and technology courses. The long-term lack of information technology literacy training for students, regardless of school nursing education. The teachers and students seriously lack the cross-collar

experience and opportunities to transport technology to care, which makes the connection between school education and industrial site demand (Ong, & Cheong, 2019; Hammons, Fiese, Koester, Garcia, Parker, & Teegarden, 2019). At the same time, with the advancement of smart technology, smart hospitals, smart medical care, and smart care will come true in ten years, and the workplace has a higher expectation for nurses and care models. In the foreseeable future, smart medical care and smart care will inevitably become the new generation of hospitals.

2. Method

2.1 Research Design

This study will attempt to adopt the issue-based model as the new cross-domain curriculum design subject; the course activities will also involve problem-solving, case-based, self-directed, small group discussion, tutor-assisted, self-assessment and elements such as developing the interpersonal skill. Furthermore, as the newly developed "Smart Caring Technology" course is a cross-domain course, many people will misunderstand the training of cross-domain courses in order to make students become generalists who are familiar with more than two majors, or to make students become another professional expert training (Ong, & Cheong, 2019). In fact, in a limited school education time, it is almost impossible for students to be professionals or generalists at the same time. Therefore, this study will use previous researchers (Prasse, & Fafard, 1982) to point out that cross-domain training is not a generalist or specialist training concept. The curriculum design philosophy is to cultivate students' insights and differences ability to collaborate.

2.2 Interdisciplinary Course Design

The interdisciplinary course "Introduction to Smart Caring Technology" helps nursing students to understand, analyze, and improve different smart caring technologies. By grouping students with different professional backgrounds and thinking about various smart caring proposals (Ong, & Cheong, 2019). The goal of caring technology is to reduce a large amount of manpower generated by taking care of chronic diseases and disabled seniors to provide comprehensive or long-term care services, so that medical staff can help the challenges in the workplace through smart technology and effectively use manpower. It also reduces the need for a large number of caregivers.

The first part introduces the current development of smart caring technology, such as wearable devices, Internet of Things, artificial intelligence, big medical data, video technology, medical APP, mixed reality, etc., including various examples of using smart caring technology and related Methods and theories, such as the Wisdom Ward (including the bedside education system with nursing services, interactive TV, international bedside card information system, allowing patients to self-learn their knowledge of education, to watch TV on their own, to reduce care through self-service Personnel workload), nursing station dashboard, mobile physiological measurement system (measurement information can be downloaded through the App), medical treatment station. Or the demented elders are difficult to collect the most basic signs of life in the nursing work because of memory impairments.

In the second part, using the topic-oriented learning model, students need to propose or improve the application of smart caring technology. Through innovative culture and design thinking to solve the problem of health care and aging care. Students need to use the relevant wisdom and care technology, and think about how to use the information technology in the medical care related fields, and have the wisdom to develop a health education environment, such as Physiological health monitoring technology; accompanying robots; disease treatment; Drug administration monitoring; Remoting care; Cloud health care Internet of Things; virtual reality, or other possible related issues.

2.3 Upcoming Work

The study was conducted by about 50 students from a nursing university in the northern region. The main source was students about 21 to 22 years old. Most of the second-tech students obtained the nurse's license at the time of specialization, while the four-grade students began to practice in the hospital. However, there was little contact with information technology (IT), and there was a general

lack of basic knowledge about the application of IT to care. Most students may also lack the confidence and motivation to learn about IT students, and their learning that affects their subsequent exposure to the course activities. Although life in the past may have been exposed to general consumer electronics, the medical-grade products in the workplace have been purchased less. In the subsequent teaching activities, it is still necessary to investigate students' past experience in information technology use. In addition, when students conduct special topics, they use heterogeneous groupings and groups of four to five people, so that students have the opportunity to think, construct and discuss with peer groups of different professional backgrounds, and learn from multiple perspectives and considerations.

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