

# Analysis of Breast Cancer Open Access Learning Platform using Fink's Taxonomy of Significant Learning

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## ABSTRACT

In today's digitalized world, little is done to implement multidisciplinary breast cancer curricula through online learning platforms. More is needed to analyze these platforms pedagogically. Breast cancer education among healthcare professionals requires multidisciplinary collaboration. Using an open-access learning environment gives students and healthcare professionals opportunities to improve and deepen their knowledge about breast cancer care and therapy using evidence-based knowledge. This article aims to analyze the massive open online course (MOOC) platform of interprofessional cooperation in the breast cancer therapeutic phase (ICBCTP) using Fink's taxonomy of significant learning: foundational knowledge, application, integration, human dimension, caring, and learning how to learn. This research analysis will also discuss the phases of the curriculum development of the learning platform and the corresponding modules, themes, and sub-themes in an attempt to help learners achieve the competencies required by the field of expertise. Fink's taxonomy of significant learning provides a theoretical framework for developing the learning platform through human connections and interactions with learners from various professional and educational backgrounds.

**Keywords:** Breast Cancer; Cancer Education; Nursing; Nursing Education; Professional Development; Multidisciplinary Team; Interprofessional Approach; Breast Health.

## INTRODUCTION

Clinical nursing skills are considered one of the nurses' most important core competencies. Skills, knowledge, and competencies in medical-surgical nursing are vital in shaping the standards of nursing education in Europe. Understanding cancer, especially breast cancer, requires interprofessional cooperation across social and healthcare services. However, there are a limited number of academic programs designed explicitly for cancer nursing practice, which implies inadequacies in developing, implementing, and evaluating

education programs.<sup>6</sup> In 34 European Nations, only 55% have specialist breast cancer units with access to multidisciplinary treatment, which is inadequately dispersed throughout each country with varying accreditation standards<sup>5</sup>.

In patients with advanced breast cancer, nurses play an essential role in providing insight into the patient's experiences in various therapeutic and medical circumstances. As frontline healthcare professionals, nurses are in a position to coordinate with an oncologist specializing in breast cancer to understand the

patient's adverse effects of the treatment to provide proper interventions to the patient's needs. Patients discuss their fears, worries, and anxieties with nurses, especially on how to improve their relationships with the surrounding environment<sup>15</sup>.

The participation of nursing experts with experience in the medical-surgical nursing curriculum is to ensure that breast cancer education in nursing is represented. The platform aims to create continuing professional development accessible publicly to healthcare professionals involved in breast cancer patients in the therapeutic phase. Furthermore, the intended significant impact is to improve and harmonize the educational quality of breast cancer at a multidisciplinary level that can be used by healthcare organizations and higher education institutions to educate healthcare professionals. Studying from the platform at an individual level allows nurses or nursing students to understand the work of each participating healthcare professional of a patient under the breast cancer therapeutic phase. In some developing countries, nurses' knowledge about breast cancer risk factors and early detection methods is considered limited<sup>1,2,13</sup>.

The inclusion of breast cancer concepts in the nursing curriculum can be achieved with collaboration between higher education providers and healthcare institutions. Little is done to implement breast cancer curricula at a multidisciplinary level using online learning platforms in the digitalized world. However, more is needed to analyze these platforms pedagogically.

This article aims to analyze the massive open online course (MOOC) platform of interprofessional cooperation in the breast cancer therapeutic phase (ICBCTP) using Fink's taxonomy of significant learning: foundational knowledge, application, integration, human dimension, caring, and learning how to learn<sup>8</sup>. Furthermore, this will discuss the construction process of the online learning environment by describing the steps for creating the materials based on evidence-based practice.

## DISCUSSION

Fink's taxonomy of significant learning (Figure 1) has been used in analyzing e-learning environments and curricula in nursing, medical, and pharmacy education curriculums<sup>4, 10, 11, 13</sup>. It is a theoretical framework that can be used for developing course objectives as well as a foundation for assessing student learning<sup>8</sup>. This framework is used to understand better the learning modules of the breast cancer open-access learning platform and how students can be assessed using the list of taxonomies.

### Foundational knowledge

The self-paced online learning platform of the ICBCTP utilizes the current evidence-based practice knowledge as a foundation to create the information and ideas necessary for learners to learn<sup>8</sup>. As the platform uses scientific and medical terminologies, students must understand the basic knowledge of breast cancer, including the human anatomy of the breast, stages of breast cancer, signs and symptoms, and pathophysiology. Without a proper understanding of the essential concepts of breast cancer, it would be challenging to advance the knowledge in understanding the role of other healthcare professionals involved in the patient's care. In one study, nurses were found to have a high understanding of the signs and symptoms of breast cancer but had inadequate knowledge of the disease's risk factors<sup>3</sup>. Breast cancer screening was also uncommon among them<sup>3</sup>.

### Application

In the healthcare field, healthcare professionals must use critical thinking skills and analysis<sup>4</sup> in the plan of care to ensure that patient's individual needs are properly attended to. In this category, students are advised to engage in new actions that would activate their intellectual, physical, and social learnings to develop specific skills and manage complex activities<sup>8</sup>. As this is a self-paced online learning platform, monitoring the nurses' and nursing students' development of new skills can be

done by obliging them to put into writing what they are thinking<sup>11</sup>. In this case, as the website does not have course administrators, nurses or nursing students participating in the course can be assigned by the nurse manager or tutor teachers by creating a group using workspace collaboration or messaging application controlled by the healthcare organization or higher education provider to have a chat room or group discussion for their project works.<sup>11</sup> In addition, the platform can also add a learning diary application that stores the student's personal learning, which can be visible for others to see and comment on.

### Integration

The principles of constructivism are considered the foundation of e-learning by utilizing previous knowledge in the learning environment<sup>11, 12</sup>. It is implicated that nurses who are active students and, at the same time, active workers in the clinical field learn more because of the learned experiences brought. Students are also encouraged to share their experiences on the e-learning platform<sup>11</sup>. The platform provides a series of case examples and perspectives from healthcare professionals in nursing, radiographers, pathologists, and

biomedical laboratory scientists so learners without experience in breast cancer nursing can get the essential points on how a healthcare team works in breast cancer treatment.

### Human Dimension

As the ICBCPTP platform can be accessed worldwide, learners from across geographical locations communicate, analyze, and synthesize utilizing asynchronous and synchronous communication methods. Virtual learners utilize their computers to work in a shared learning space to achieve a common learning goal based on the goals of the modules<sup>12</sup> by solving conflicts brought by previous knowledge, knowledge gaps, and new ideas<sup>4</sup> in breast cancer patients under the therapeutic phase. To obtain information, students work together with other virtual learners to understand the themes of each module concerning breast cancer that is specific to their field of expertise.

Interested nurses and nursing students are tasked to create a profile by registering into the system so that learning progress can be followed. Learners are encouraged to change their profile photo, profile cover, and professional background or studies related to their specific field of expertise. Based on this taxonomy, it is encouraged to create a profile by registering into the system so that learning progress can be followed. Learners are encouraged to change their profile photo, profile cover, and professional background or studies related to their specific field of expertise<sup>11</sup>.

### Caring

The motivation to study is an important factor in the success of learning online. Students must care about studying the subject<sup>11</sup>. Learning online requires good time management, intrinsic motivation, and determination<sup>9</sup>. Learners must show interest in studying breast cancer not online, specific to their field, but also in understanding the perspectives of other healthcare professionals.



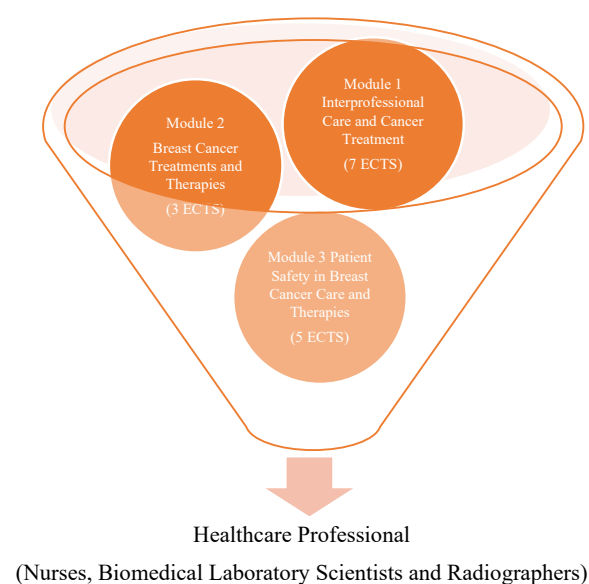
**Fig. 1: Fink's Taxonomy of Significant Learning on the application of Breast Cancer Education using E-Learning Platform**

Nursing is a profession that collaborates with a multidisciplinary team to treat breast cancer patients.

Educators and nurse managers can require nursing students and staff members to do reflective journals<sup>11</sup> to stimulate the caring attitude of the learners concerning breast cancer due to the complexity of the topics. Online learning provides simpler opportunities for students to do self-reflection<sup>8</sup> and record their private reflections on their personal computers or with the aid of a plug-in tool.

### Learning how to Learn

Using an e-learning platform can be frustrating due to technical difficulties. Troubleshooters or IT specialists should be available<sup>11</sup> for learners who have difficulties accessing the platform. As this requires registration to create a learner's profile, an IT administrator is designated to solve technical problems. Educators and partner healthcare organizations are given administration rights to access the website in case materials need to be updated. Project coordinators' contact information is also readily made available for clarification.



**Fig. 2: Modules and Corresponding Contents Leading to Advanced Knowledge in Breast Cancer for Healthcare Professionals**

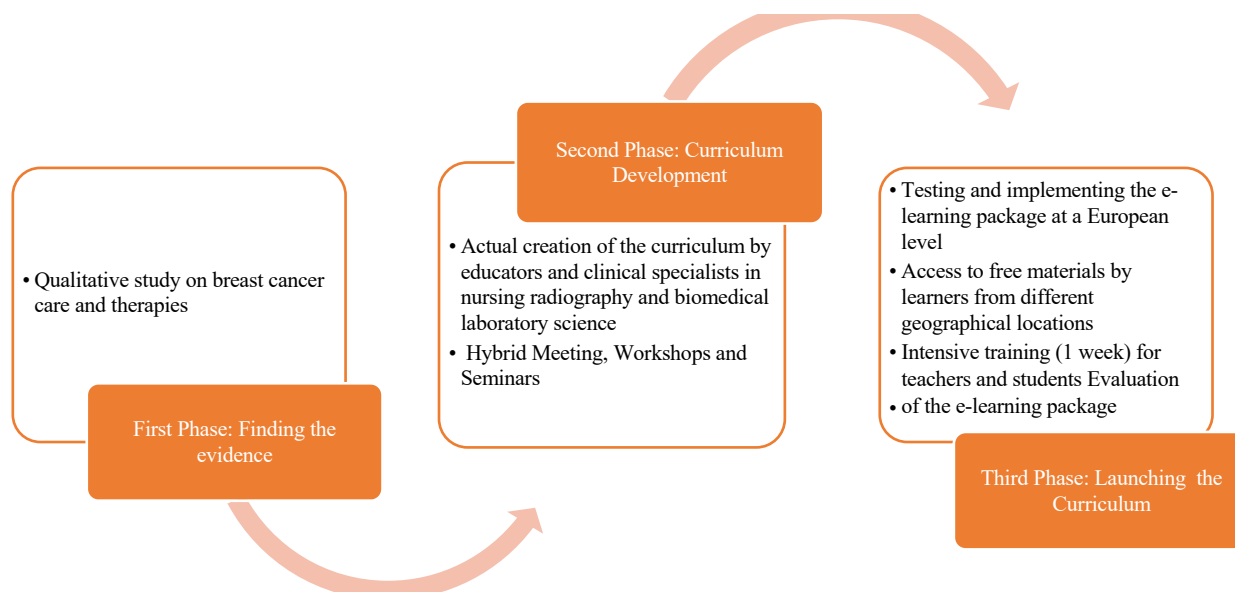
### Developing the Massive Open Online Course (MOOC) platform

The platform consists of three main modules with the corresponding sub-topics in a multidisciplinary approach, including nurses, radiographers, and biomedical scientists<sup>7</sup>. The materials are based on evidence-based practice and are collated with corresponding feedback from participating university partners, healthcare organizations, and outside experts. Constant meetings, discussions, brainstorming, and seminars are conducted to plan the curriculum accordingly to create a learning package applicable to the target group of healthcare professionals, including nurses.

The first phase in drafting the curriculum is to ensure that current evidence-based data exist to support the creation of the platform<sup>7</sup>. This was done by conducting an integrative literature review, observational study, and qualitative questionnaire study to generate new research knowledge in tackling breast cancer in the therapeutic phase in an inter professional approach. While the generation of new research data is simultaneously conducted, healthcare professionals in their field of expertise create learning tools and materials by using evidence-based materials.

The second phase is the creation of curriculum<sup>7</sup> based on the help of educators and clinical specialists in nursing, radiography, and biomedical laboratory science. Each participating organization has dividends of tasks based on the education and experience profile of the specialists. Constant meetings (virtual, face-to-face, and hybrid), brainstorming, seminars, and workshops are performed to develop materials shown on the platform. The platform uses recorded lectures, presentation tools, and plug-in tools to discuss the related themes of each module.

The last phase is testing and implementing the e-learning package at a European level<sup>7</sup>. Selected students preliminarily test the platform by taking short quizzes and giving feedback using the questionnaires after



**Fig. 3: Phases of Curriculum Development in Online Breast Cancer Education**

each theme. Evidence-based materials are also linked in each theme to further their understanding of the topic. Members of the participating organizations continuously deliberate the improvements of the e-learning platform with the help of a steering committee. Training for educators and students is provided in navigating and guiding students on how to use the platform, which is made available for global use.

## CONCLUSION

The breast cancer open-access learning platform provides opportunities for learners, not only nursing students and nurses but especially allied health professionals such as radiographers, radiotherapists, and biomedical laboratory scientists to understand breast cancer treatment on a multidisciplinary level. Open-access materials can reach students from different geographical locations without hardships and barriers. Fink's taxonomy on significant learning provides a theoretical framework on how the learning platform can be developed using human connections and interactions with learners of different professional and educational backgrounds. With the help of evidence-based knowledge, a curriculum is developed that gives free access to healthcare education- an advantage for learners in low-and-middle-income countries.

**Conflict of Interest:** The author declares no conflict of interest.

**Ethical Clearance:** The research does not require ethical clearance.

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