

How to integrate the Pharmacy Game in your Pharmacy Curriculum?

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The educational concept of the Pharmacy Game

The University of Groningen designed the educational concept of the Pharmacy Game to provide a capstone learning experience for pharmacy students by integrating all prior knowledge and skills to develop pharmaceutical professionalism. This innovative educational concept combines the simulation of the pharmacy practice environment with serious gaming. Teams of students run a simulated community pharmacy for a few weeks. They have to perform activities such as patient counseling, processing of prescriptions, and collaboration with other health professionals. A good team performance means an increase in the number of patients enrolled in their pharmacy. The pharmacy team with the highest number of patients wins the game. Evidence indicates that simulation and gaming increase student motivation and improve learning outcomes (Fens et al., 2020).

Where is the Pharmacy Game played?

This educational concept was established more than twenty years ago in the Netherlands (Werf et al., 2004). All Dutch universities teaching Pharmacy (the University of Groningen, Utrecht University and Leiden University) have adopted the Pharmacy Game in their curriculum. Furthermore, this educational concept is part of two British universities (the University of Nottingham and the University of Bath), a few European universities (Vrije Universiteit Brussel, Belgium, Vilnius University, Lithuania and the University of Oslo, Norway), and Australian university (Griffith University). Many more

are in the phase of introducing this educational concept among their students (e.g., the Faculty of Pharmacy, Ss. Cyril and Methodius University, N. Macedonia).

Pharmacy Game -course characteristics

The Pharmacy Game is taught efficiently on-site and online, using dedicated software for management and administration available online at <https://pharmacygame.education/>. The software is used to prepare and to play the game. It has three access levels, one for the game management team, one for the actors/patients visiting the simulated pharmacies and one for the students. Besides the game software, the location of the simulated pharmacies, pharmacy information system and actors are being arranged for each game.

Although the basic educational concept of the Pharmacy Game remains the same (Werf et al., 2004), many innovations have been introduced over the years. Usually, the Pharmacy Game is a course taught on-site, but the pandemic inspired creative online solutions (Hope et al., 2022). New developments in pharmacy practice are easily integrated into the course, such as the extended role of pharmacists in preventive medicine, the challenges of a pandemic for pharmacists and more awareness of the environment. Furthermore, innovations in student assessments and feedback, such as peer review and coaching, have been implemented recently. Another distinct feature of the course is the opportunity for collaboration with different educational and public organizations, allowing interprofessional education. So far, within the Pharmacy Game, we have established interprofessional collaboration with pharmacy assistants

in training, medical students, midwives, nurses, business school pros graduates, dietetic students, and general practitioners (in training). Collaboration is also established with health authorities, health insurance companies, or other public and private pharmaceutical sector representatives. (Fens et al., 2021)

The Pharmacy Game teaches and assesses a combination of different competences in a safe and controlled setting, close to actual health care practice. The competencies, namely communication, teamwork and collaboration, confidence, competence and pharmaceutical expertise are related to core learning outcomes of the Bachelor's or Master of Pharmacy and are essential for the practice of future pharmacists (Fens et al., 2021).

Step-by-step integration of the Pharmacy Game

Step 1- Defining learning outcomes - The learning outcomes that one teaching group wants to achieve are crucial for starting the integration process of the Pharmacy Game. They determine its position within the Pharmacy Curriculum. In addition to that, they also determine the activities with which students will be further involved, as well as their level of difficulty.

Step 2- Positioning the Pharmacy Game - This educational concept may be implemented in the Bachelor or Master of Pharmacy study, as a standalone course, or integrated into an existing course or professional practice internship. Furthermore, it can be given a form of mandatory or activity of choice. Suitable European Credits (ECs) can be assigned depending on the time invested.

Step 3- Structuring the game - The annual iteration of the game may vary from 1-to 4 times in games lasting from 12 to 36 days. The number of students per game may be between 20-60, divided into pharmacy teams of 5-12 students per team. Decisions about the assessment type (group and/or individual) should also be made (Fens et al., 2021).

Step 4- Building a game management team - The human resources require the dedication of 2-5 staff per game, full-time equivalent (FTE), directly involved in the game management. Their profiles vary from pharmacists, pharmacy assistants, physicians, academic staff, teaching assistants and technical services specialists.

Step 5- Inventorize facilities and equipment - Playing the game on-site requires several rooms to accommodate the different pharmacy teams and the game management. Computers with internet access are needed. When this is not possible, an option for online pharmacies may be considered. Arranging actors for playing the patient cases and pharmacy information system for working on prescriptions are helpful when the learning goals are

communication and pharmaceutical knowledge accordingly.

Step 6- Make your game - The Pharmacy Game can be set up on a personalized online tool available through <https://pharmacygame.education/>. The game management team can create a new game, fill in the activities schedule, add the students and organize the cases and the patients by inviting actors. Once this is set up, the game may begin.

Step 7- Start playing your Pharmacy Game! - Each participant in the game uses their login credentials to access the game. The game management coordinates the activities. Actors play patient cases and assess students' performances. Students make pharmacy profiles, post activities and follow their individual and group progress on a daily basis.

Implications for future developments in the pharmacist's practice education

The dynamic nature of the Pharmacy Game educational concept allows modifications in the game activities to include current public health trends and issues. Those activities may be brought through patient cases or innovative projects that students decide to implement in their pharmacies and consider optimizing medication use and safety, personalized therapies, vaccination in pharmacies, or advanced communication with mentalizing. Exchanging international experiences between universities also helps to sharpen such developments.

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