Abstracts Short Communications «Safety»

A new simulation tool for the radiology technician, a simulated based learning project description

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The aim of this study is to evaluate the best simulation based learning strategy (SBL), for first-year students in Medical Electroradiology Manipulator Training Institutes. To date, radiology technicians (i.e. radiographers, or Medical Electroradiology Manipulator) can hardly access to simulation learning during their school hood, which is nevertheless plebiscite in others healthcare professions. Indeed, the French High Health Authority recommends since 2012 that no care could be performed for the first time on a real patient. Nevertheless, in diagnostic radiology, it remains very difficult to purpose another kind of training and more often, students have to test their practical training for the first time during clinical internship. Even if manikins who can replace the patient do exist, they are very expensive and the access to radiological equipment remains very difficult. Therefore, most often the Medical Electroradiology Manipulator Training Institutes use radiological equipment "without X" which have few common characteristics with the real environment.

Students' adherence to teaching then remains difficult and the link between the knowledge of the different teaching units as applied physics, photon-matter interactions, laws of radiological optics, anatomy and radiological semiopathology, very unsure. In fact, the X-ray chain cannot be mimic during the simulated based learning in standardized condition and the student cannot see by himself the result of the positioning he proposed to the simulated-patient during the role-play with another student.

Therefore, this project proposes the creation of a high-fidelity learning environment that would allow detecting with depth cameras (but no X-Ray) the positioning of a role-play patient during a simulation learning. Then, the positioning information captured will be transformed into a 2-dimensional image, equivalent to a standard radiological image, and corresponding to the positioning made by the student. It is therefore postulated that the device thus created would be more efficient than the other available methods because it would allow students to train as much as necessary to the realization of radiological protocols in an environment closer to reality, but without radiation protection issues.

SG4ER: Serious Games for Emergency Rescue

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A Serious Game for the development of professional skills in emergency management

Background:
New ways of living, of organizing society, of healing but also of training are being shaped by the daily presence of digital technology. The Serious Game for Emergency Rescue or "SG4ER" project consists in developing a Serious Game software prototype to support the case scenario of emergencies in the field of early childhood: observation, decision, relevance of information transmitted to the 144. The aim is to raise awareness, motivate and even broaden the teaching options of acute care education with a target audience, bachelor students in health care and early childhood professionals. It fits in a wide way in the field of eHealth but corresponds above all to a reflection on the contribution of the Serious Games in access to information, the improvement of the services of care and the services touching the sphere acute care. This project is therefore fully in line with the international ongoing projects in the field of engineering and health, in line with the policy of the Federal Council which has just published official report about the video games sector in Switzerland, notably by artistic, scientific and economic: "Video games. A field of cultural creation in development "(CF report of 21 March 2018).

Project Description:
Patient care and monitoring can be considerably improved over time with the use of technological health devices .This project has been developed with user-centered methodologies (AGILE, Scrum). The two levels place themselves in a childcare institution The user is driven through four different phases. The first one consists of a contextualization of the level and important data about the center location and access which include: a map of the scene, the street name, the city, the floor and entry code of the building. The user must remember this information and can look it up during his play-through. Once the user is ready, he is put at the beginning of the scene and must explore it to find what the trouble is. He can look through medical files, pick up items and realize various actions to analyze and solve the situation. At one point, the user will have to call the emergency center that will ask him timed questions. The time limit is there to give the emergency feeling usually given by call answerers. In this part, his possible answers depend on his actions in the scene. Finally, the session ends as the player receives, by email for privacy and back-up, his score and advice for further improvement as a feedback. She or he will also be able to retry the level or go back to the level selection. A user's play-through will amount to numerous actions evaluated between correctness and timeliness. Each action will impact the total level time as well as the speed at which the user takes care of the patient. Therefore, all the user's actions during the session, as well as his choices during the call to the emergency services, are analysed by a dedicated scoring module. The output consists of an action score, a time score, a call score and his two best and worst actions.

Outcomes:
Applying his experience in different scenarios, the user gains control of his own skills. Indeed, the goal, under these circumstances, is the completion of a mission associated with the role assigned to it in the scenario. In addition, this resolution process will allow him to develop new skills such as leadership and/or social, communication and interpersonal skills. It is also possible to introduce the pleasure dimension in the situations developed. In this sense, serious play is an experiential learning approach. In the first conclusions, the SG is validated as an original learning tool because it is different from the usual ones. It needs to be improved in terms of navigation ease and graphic quality.

Challenges:
Many potential developments remain. The users considered the game as a real time of learning and reflection allowing a confrontation with the reality of care situations. This experience lets us imagine the development potential of games around any serious health topic, combining pleasure and learning.

Discussion:

This project has demonstrated that it is possible to enrich and increase first-aid education through the introduction of information and communication technologies by developing a low-cost device. Skill acquisition can be challenging, and this educational tool can be identified as a new pedagogical approach and a learning tool. Nevertheless, the scenario must really reflect situations that are rarely encountered to properly train the emergency response and mobilize the user. The prototype will have to be remodelled to improve the readability of possible actions, which will have to gain in precision and variety. It is an exercise that should conclude with indications to develop knowledge and a debriefing with a health professional.

Graduate level medical students' ability to detect and address incidental melanoma in a simulation study

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Background:
Considering the high incidence of skin cancer in Switzerland (Vienneau 2017), detecting moles suspicious of skin cancer is an important competence for Swiss medical graduates. While screening for skin cancer is part of any dermatologists' routine, physicians of all other specialties should still be able to detect secondary, incidental lesions suspicious of cancer and refer patients to a specialist. Little is known about how well graduates are able to detect incidental findings and draw correct conclusions.
This study measures the detection rate of incidental melanoma of Bernese medical students at graduate level during a formative clinical skills simulation exercise utilizing standardized patients.

Methods:
In this observational evaluation study, a full semester of Swiss sixth year medical students (N~240) will undergo formative clinical skills assessment from March to May 2019. One of the cases will present a standardized patient with non-dermatological chief complaints typical for bowel obstruction. Furthermore, this patient will be showing a suspicious skin lesion indicating signs of a melanoma. This suspicious mole will be realized using a silicone-based 3D moulage, i.e. a professional temporary tattoo, true in coloring, shape, visual and tactile information, fixed onto the standardized patient's thorax so it can be discovered during the physical examination. Students are randomly assigned into groups of four, with one of the four taking the physician's role (N~60) and the three peers observing the performance for later feedback. The students performing the case will be evaluated with a checklist containing different levels of response on the suspicious lesion regarding history, examination and their conclusions (adapted from Zorn 2018).

Results:
Results will be available at the conference and indicate either the effectiveness of the dermatology education delivered and prove its effectiveness or disclose possible improvement in dermatology education in the medical master program in Bern.

Conclusion:
Not yet available.