VirRAD
The Virtual Radiopharmacy - a Mindful Learning Environment

The potential of virtual reality (VR) has long been recognised in many domains. The advances made by the gaming community have now made VR applicable to a number of fields. The VirRAD project aims to create a readily-accessible virtual environment where the radiopharmacy community can meet to learn, exchange views, and discuss best practice.

This project has three objectives. The first is to develop an instructional design from mindful learning theory. It also wants to create a multi-layered meta-cognitive learner model within the context of an intelligent, virtual reality enhanced, distance learning environment for vocational training. This environment will be embedded within an enriched learning structure that gathers together learners, practitioners and specialists in a knowledge community. They will use radiopharmacy as the target learning and knowledge exchange area.

Understanding radiopharmacist needs
VirRAD will investigate the integration of a personalised, yet social, learning environment with technologies that explore protocols for communications between virtual reality and the facilitation of communities of learners and learner modelling and instructional design. It will also satisfy the real needs of the specialised radiopharmacy community identified through a formal study of their user requirements. This will be translated into the functional specification for the environment.

Part of their environment will address the particular needs of trainee radiopharmacists, a sub-specialisation of nuclear medicine, through providing distance learning material. This will be an intelligent learning environment, with courseware to a syllabus agreed by the European Association of Nuclear Medicine. It will overcome the economic and logistic difficulties in course provision for this specialist community.

The learning environment will incorporate a number of multimedia resources, including a dedicated simulation-based virtual environment in which trainees may gain experience of operating equipment with potentially hazardous radioactive materials. This will be closely coupled with pedagogical assistance based on the theory of mindful learning, personalised through a multilayered meta-cognitive learner model. This environment is accessible to practitioners as well as learners.
Learning to learn
Exchanges amongst members may be textual, or take place within the virtual world, thus adding value to communications. The verified theory of mindful learning will provide a novel development as it is transferred into a rigorous instructional design methodology. Combined with a fully developed multi-layered meta-cognitive model of the learner, it will provide a powerful learning environment capable of developing a learner’s meta-cognitive skills. Acquisition of these skills is associated with learning transferable skills, such as “learning to learn”.

The project will develop formalisms to describe the learner modelling and produce documented methodologies for its novel features. An early prototype will be used for formative evaluation followed by a final demonstrator. This will be produced in a timescale compatible with evaluation of learning effectiveness by the target community of users. They will also evaluate the social and learning benefits of this community.