LEARNING TECH-NOLOGY LABORATORY

TNO innovation for life

'HOW DO I INTRODUCE MOBILE LEARNING?' 'CAN I COACH FROM A DISTANCE?' 'HOW DO I PREPARE MY STAFF TO TRAIN WITH A SYSTEM THAT DOES NOT EVEN EXIST YET?' 'WHAT DOES COMPETENCE OR PROBLEM-BASED LEARNING MEAN IN TERMS OF MY ORGANISATION?'

Decades of expertise in training and instruction come together in TNO's Learning Technology laboratory, or the LT-lab. It allows TNO to respond to the growing need among customers to really get to grips with new learning technologies such as e-learning, blended learning, simulation-based gaming and mobile learning.
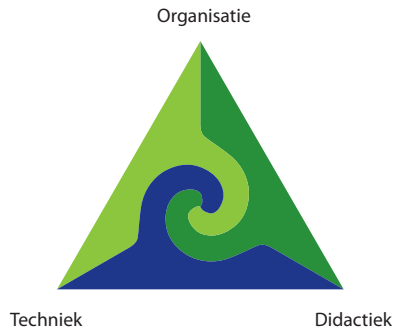
DEMONSTRATING

The LT-lab demonstrates the use of innovative and 'tried and tested' learning concepts and learning technology in all kinds of organisations, from Defence to education and from government to corporate. Not just by doing feasibility studies and pilots, but also by performing real demonstrations. Demonstrators visualise potential solutions so that a customer can immediately see the benefits for his organisation or company.

TESTING

The LT-lab is TNO's expertise centre that serves as an experimental environment for innovative technology in which we test new and existing concepts, methods, software and hardware in the field of learning technology. In different set-ups, both in the LT-lab and on the work floor.

STANDARDISING

The LT-lab assists in the complex process of introducing learning technology by helping organisations translate their organisational, pedagogical and technical arrangements into standards. We do this by utilising the wide-spread TNO expertise in education and training, and extensive learning technology facilities. Moreover, we can lean on our experience with our extensive network within government and industry circles.

Organisatie

Techniek   Didactiek

WHAT DOES THE LT-LAB HAVE TO OFFER?

The LT-lab has a strong focus on collaborating with the market. The expertise we have built up in implementation programmes is used to offer a customised solution to each customer's learning technology question. The LT-lab is not bound to a particular vendor or system, which means that our customers have maximum flexibility when selecting learning technology solutions and hardware.

Our vision embraces the use of organisational, pedagogical and technical innovation. TNO's expansive knowledge and extensive facilities are put to use in the LT-lab in the light of these three dimensions.

GETTING BACK TO THE LABOUR MARKET WITH E-LEARNING?

Not everyone requires the same amount of support when returning to the labour market. The LT-lab built an e-demonstrator for customised learning advice. Answering postulations like 'I feel confident at job interviews' in a non-threatening environment generates a specific

profile, including a suitable learning recommendation, for the employment seeker. This enables him or her to pursue development that will enhance his or her chances of employment. We also developed appealing exercise modules that employment seekers can try out for a relevant problem situation, such as asking questions about a vacancy.

MOBILE LEARNING IN THE LT-LAB

Customised learning using your mobile phone, PDA or laptop. Not only is it possible, it works. The LT-lab developed the Mobile Learning Unit (MLU) which offers technicians simple access to the learning content they need. Advanced mobile equipment enables experts to guide technicians from a distance – from their own workplace or their home. In addition, there are case-based exercises that can be started up at any moment. The MLU is suitable for any educational setting in which students want to learn in a flexible

way. At the time and place of their choosing! The MLU was the result of collaboration between TNO's technicians, educational experts, teachers, policy makers and domain experts. In this way, we make innovative inroads on a technical, pedagogical and organisational level.

JUST-IN-TIME LEARNING

A key development is the design of learning technology that enables one to learn 'just in time': JiT learning. But how does that work in a crisis situation, for instance during a terrorist attack? How much can one still learn at that moment? The LT-lab studies how JiT learning can add to the individual possibilities and needs. We've used JiT learn ing to boost the ability of citizens to cope in disasters and attacks. It is an approach that allows the citizen to select from a range of learning modules that vary in form and content. This may be a checklist or a rapid first-aid course that he or she can study via a mobile phone, the internet or a folder. Hence, the LT-lab not only investigates the technological options and limitations of mobile tools. We integrate the technological knowledge with a sensible approach for using JiT, customised to the needs of the user.

TNO'S EXPERTISE CENTRE THAT SERVES AS AN EXPERIMENTAL ENVIRONMENT FOR INNOVATIVE LEARNING TECHNOLOGY.

BLENDED LEARNING FOR THE AIR FORCE

The Netherlands Royal Air Force was considering the use of distance learning for its F-16 technicians. Together with instructors and staff of the air force, the LT-lab designed a blended learning environment in which paper syllabuses, e-learning modules and F-16 simulation slotted together perfectly. The development of this learning environment is a good example of our 'Rapid Prototyping' expertise. This enabled the air force to rapidly gain a clear overview of the main problems related to distance learning during missions, problems that demand the organisational, technical and didactic aspects to be addressed. We are currently working on actual implementation.

GAMING IN LEARNING PROGRAMMES

One of the most intriguing developments in today's learning technology is the use of games. It stands to reason. Games encourage experience-geared learning. Effective use of games in learning programmes demand knowledge of game technology and the didactics of games. The LT-lab has that knowledge and goes further by asking what aspects must be used in game-based learning, what game concepts appeal to the player to build up his or her knowledge and how the student can be more learning-focused. The LT-lab investigates these and other questions posed by customers. For instance, during the study into the so-called 'transfer of gaming', the question about how to transfer the value of the experience gained in games to the real world. How can we use games to get the highest possible return on what we practise? The LT-lab is working on answers to this.

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TNO

TNO is an independent innovation organisation. TNO connects people and knowledge to create innovations that sustainably boost the competitive strength of industry and the welfare of society.

TNO focuses its efforts on seven themes including Defence, Safety and Security: TNO works on a safe and secure society by creating innovations for people working in defence organisations, the police, emergency services and industry.

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