THE PERCEPTION OF LANGUAGE

The European Union funds a unique concept to develop technological tools for clinical practitioners and education professionals, as LanPercept's Pirita Pyykkönen-Klauck explains

LanPercept, a new training network funded by the European Union, uniquely bridges basic and clinical research in order to develop new technical tools and training software to help disabled and elderly people with difficulties in mapping visual information and language. The network has been awarded €4.15m from the Marie Curie Initial Training Network scheme to train 15 new professionals for academic and industrial needs.

Professor Mila Vulchanova from the Norwegian University of Science and Technology (NTNU) has worked for years to build up a network of professionals that can help to create scientifically motivated technological tools for clinical practitioners and education professionals. Now she leads the LanPercept network.

Increasing technological needs in the humanities

Vulchanova's background is in the humanities. She is a professor of English and linguistics and the director of the Language Acquisition and Language Processing Laboratory at NTNU.

She observes that the humanities are moving in the direction of more technology-oriented research: "The times of the so called 'armchair researcher' are long gone and we are increasingly becoming aware of the need for empirically-based experimental research in how humans acquire and process language, which, needless to say, requires collaboration with fields, such as psychology and neuroscience."

While the need for technical facilities is well-understood and funded in nearby fields, such as neuroscience, experimentalists in linguistics have long suffered from the lack of infrastructure funding to build-up well-equipped laboratories for experimental research. Even though some funding schemes have been initiated for this purpose, many European countries still lack dedicated structured funding to advance experimental research in the humanities.

Vulchanova has pioneered in building a modern humanistic laboratory in Norway. She points out that collaboration across fields has been crucial to show the importance of experimental approaches: "Our research over the past decade has been marked by increased international collaboration with teams in other European and Nordic countries which has led to important scientific breakthroughs (for instance, research in the cognitive mechanisms underlying language talent in autistic individuals).

"These results would not have been possible without these collaborations and without the excellent opportunity to conduct experimental research with good laboratory facilities. This research has been the main factor leading to success in building up the current LanPercept network."

Produce results

This kind of collaboration is also a key to the current challenges scientists are facing in the humanities and social sciences. Universities and research institutes are pushed to produce results that can be quickly turned into recognisable results and products. Even though such fast deliverables are not always obvious for researchers carrying out basic research, scientists are nowadays forced to specify potential patents and products for industrial markets when applying for research funding. For networks like LanPercept, which involves professionals from linguistics, psychology and neuroscience, such requirements are possible to accommodate.

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However, creating a concept that is able to produce products and patents without sacrificing basic research is not easy. Firstly, the LanPercept team led by Vulchanova has noticed that language and perception research are typically studied in isolation. So, the initial step was to bring these two traditions into direct discussion and collaboration, in order to develop the needed theoretical basis to understand human language-vision mapping. The second step was to identify the aspects needed in order to advance our understanding of atypical mappings of language and vision. After these steps, it was obvious that new diagnostic tools and training software were needed in order to help clinical practitioners and education professionals.

The last step to finalise the concept of LanPercept was to identify how the clinical research and technological advancements would further benefit basic research. A close collaboration with other scientists and collaborators from the associated industries helped to identify these benefits.

Initial Training Networks is one of the Marie Curie Actions that are targeted for training young professionals to Europe's future

Vulchanova notes: "Typically, we can see why and how basic research can contribute to improve and address clinical research and concerns. However, basic research can also benefit from studies conducted in clinical settings or with clinical populations, and clinical studies bring in a completely new perspective. The evidence we get from clinical populations is extremely valuable and helps research zoom into specific problems or areas which may be specifically highlighted in the case of developmental or acquired deficits. This evidence complements the picture we have from typical populations. The technological tools that will be developed in LanPercept will also open new innovative possibilities in basic research, especially in providing us with better ways of studying the language and perception interface."

Training of young professionals

New technological markets and society are setting hard requirements for young academics. It is not enough that postgraduates in the humanities and social sciences are well-equipped with scientific thinking, problem solving skills, skills in team work and knowledge of their target fields. Instead, more and more technical skills are required.

These requirements are identified in LanPercept. The LanPercept training co-ordinator, Professor Joel Talcott from Aston University in the UK, summarises the training as follows: "From the standpoint of LanPercept, we are training the language researcher of the future, not only through interdisciplinary training in theory and research methodology, but also with the technical skills necessary for working at the cutting-edge of the discipline and with application to the needs of non-academic stakeholders.

"In LanPercept, both students and mentors participate in interdisciplinary training comprising workshops and blended learning with provision of hands-on training in methodologies

ranging from eye movement recording to neuroimaging in collaborative research and placements with our industrial partners."

These training components and collaboration with seven industrial and public sector partners across Europe guarantee that young professionals trained in LanPercept are prepared for the needs not only of academia, but also industry and society at large.

The industrial companies involved in LanPercept also acknowledge many benefits of being part of such a network. For example, Jon Ward, the director of Acuity ETS Ltd., UK sees the collaboration as a possibility for European companies to better communicate with each other as well as with representatives of academia.

He stated: "At Acuity we feel the benefits of being involved with the LanPercept networks are many and varied. By sharing knowledge and resources across a number of commercial and academic partners, from different countries, we feel that we will get a much broader picture of the uses for our technology, how we can integrate with other partners and develop closer partnerships with academia across Europe".

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