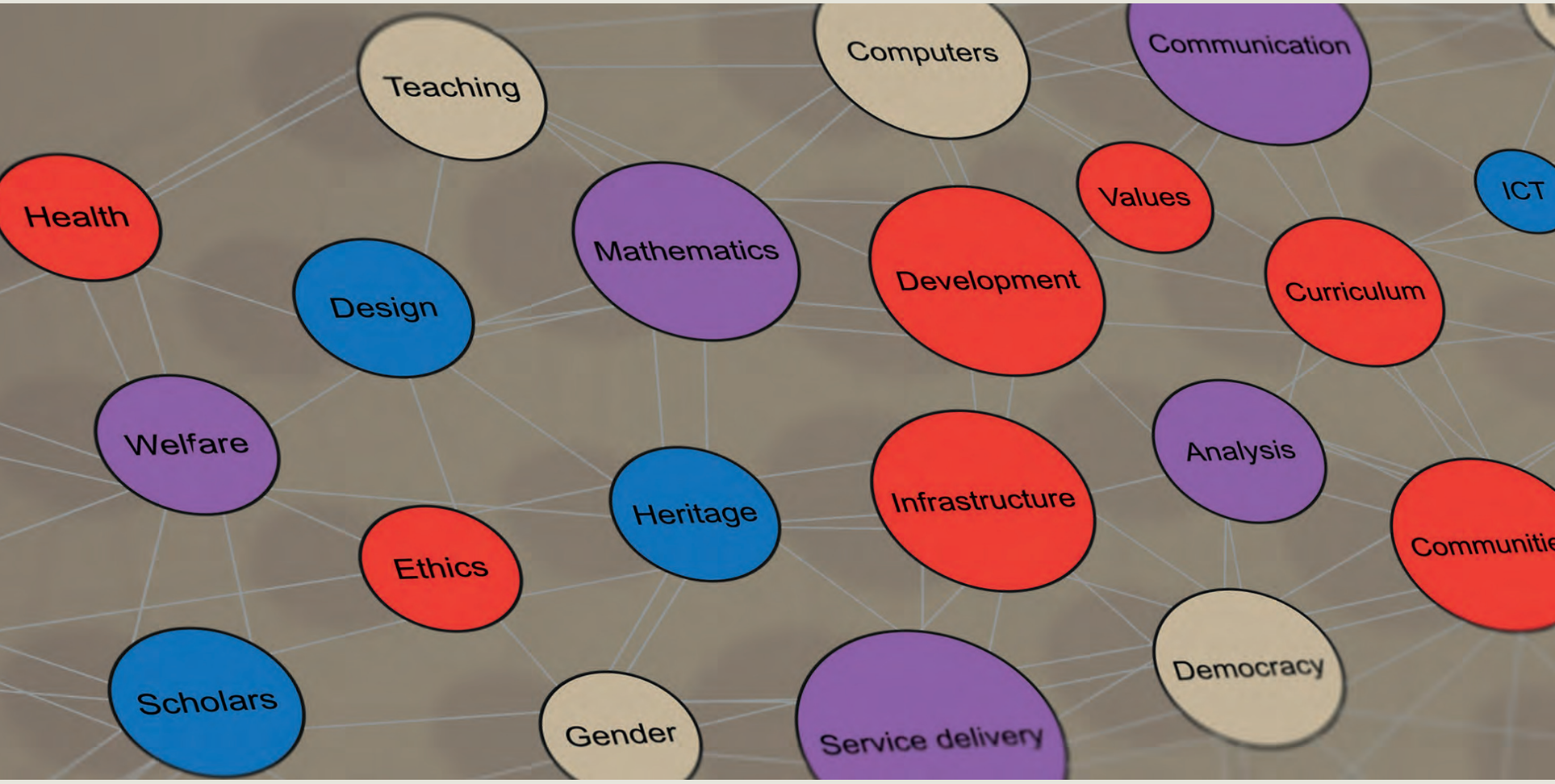
4 JOINT RESEARCH PROJECTS
SOCIAL SCIENCES AND HUMANITIES



Switzerland

Under its new EU research programme, Horizon 2020, the importance of the social sciences and humanities has been formally recognised. Switzerland became fully associated with Horizon 2020 on 1 January 2017. Horizon 2020 has a number of innovative features, one of which is "to work beyond the 'silos' of different disciplines", in the words of EU Commissioner Máire Geoghegan-Quinn. More than €28bn is being allocated to tackle societal challenges, including energy efficiency, climate change, health, ageing, security, privacy issues and digitalisation.

The EU's integrative approach recognises the reciprocity of technological innovation and societal advancement: the more we strive for scientific and technological innovation, the more social innovation is needed. Science and democracy are never completely free of tension, but the social sciences and humanities can help to further mutual understanding on both

sides. These fields are the lynchpin for public engagement with science (Horizon 2020).

In Switzerland, the Academy for the Humanities and the Social Sciences is the umbrella organisation for the humanities and social sciences. It groups approximately 60 scientific societies which represent the broad spectrum of disciplines of the human and social sciences. Its mission is to represent the interests of the human and social sciences, to network the disciplines and to promote new subjects of scientific importance.

The Swiss Foundation for Research in Social Sciences (FORS) provides services to conduct research and to publish and disseminate research findings in the social sciences. FORS publishes a complete inventory of Swiss social research. It is located in the University of Lausanne.

The programme IRIS (Intégration, Régulation et Innovation Sociales) is a research and postgraduate education programme of the University of Lausanne, Geneva and of the EPFL. It represents scientists and researchers in human and social sciences. The Swiss National Science Foundation (SNSF) supports the research in humanities and social sciences (mySCience).

South Africa

South Africa's Human Sciences Research Council (HSRC) is a non-partisan, public-purpose organisation that generates scientific knowledge through its research and analytical work in the social and human sciences. It undertakes and promotes research that is often large-scale, multi-year, and collaborative in nature. It produces high-quality scientific evidence to inform further analysis, debate, advocacy and decision-making by role players in government, the media, academia, and community-based groupings. The HSRC responds to the needs of vulnerable and marginalised groups in society through its research. It develops and makes available data sets underpinning research, policy development and public discussion of developmental issues.

Through its work the HSRC aims to inform policy development and good practice, thereby making a difference to the lives of people in South Africa and in the mother continent (Human Sciences Research Council).

Research in the humanities and social sciences are funded by the NRF through the Human and Social Dynamics funding instrument, a discipline-specific funding instrument that supports basic research in HSS. The objectives of the funding instrument are to contribute to knowledge production in the HSS; support world-class basic research alongside the development of the associated human capacity; and to advance or develop paradigms, theories and/or methodological innovation in the disciplinary fields of HSS (National Research Foundation).

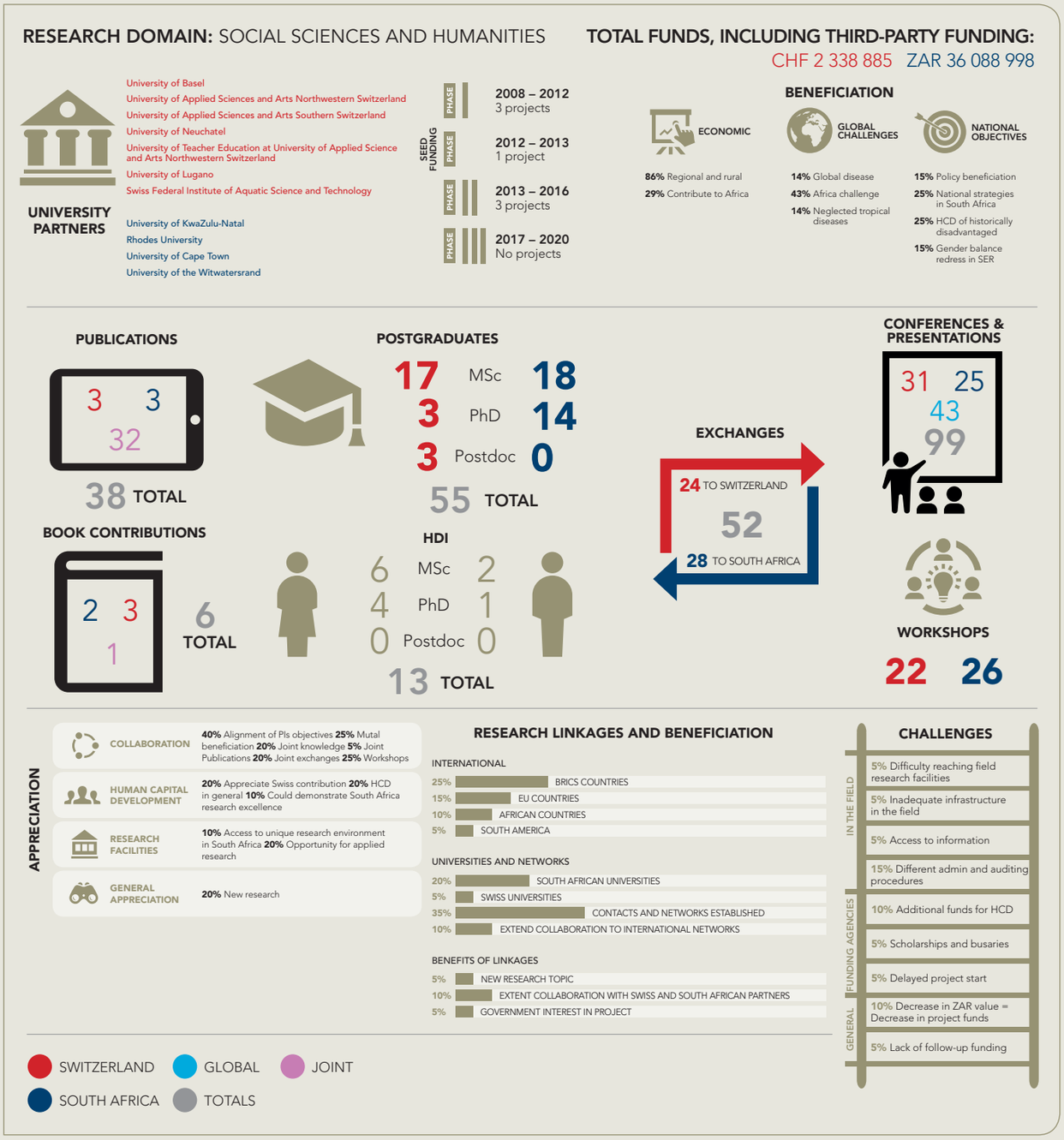
The value of the Social Sciences and Humanities domain lies in the excellent innovation that the projects achieved. Worth mentioning is the project on ethics and regulation of vaccine trials involving humans – an online training platform that is having a global impact. It has now become mandatory for researchers in South Africa to undergo these online training modules for clinical trails to ensure adherence to research ethics.

Three joint projects in the social sciences have focussed on education technology. The VITAL Maths joint research project has established an online training programme for maths in English, German and isiXhosa. This e-learning took ICT to the classroom of primary schools in disadvantaged areas where 120 primary school teachers in the Western Cape were capacitated to understand ICT and how it can be incorporated into the curriculum. The joint research projects on Wikipedia Primary School had a major impact on helping the South African education community create, assess and use Wikipedia content in the classroom.

Focus was placed on governance in the joint research project on organisational capabilities and the governance of utilities. The project investigated, among others, the interplay between policy decisions and competency-building in public utilities.

Joint Research Projects

Outcomes of the Social Sciences and Humanities Domain (7 projects)



Wikipedia Primary School

UNIVERSITY PARTNERS

University of Applied Sciences and Arts of Southern Switzerland
Dr Iolanda Pensa
University of Cape Town
Dr Tobias Schonwetter

The research group involved in the Wikipedia Primary School project aimed to provide the information necessary to complete the cycle of primary education in South Africa on Wikipedia. More specifically, the joint applied research project focused on developing and evaluating a system to assess Wikipedia articles for primary education and to involve a wide network of scholars and expert contributors in the process.

Access to affordable learning materials remains a problem for many learners in South Africa, particularly in previously disadvantaged areas. Providing free information on Wikipedia to complete the cycle of primary education holds the promise of making learning materials more affordable and accessible, thus improving educational opportunities, especially for historically disadvantaged individuals.

Key activities of the project included developing the necessary framework to identify, address and involve key stakeholders (the Wikipedia community, partners, volunteers, scholars and experts in the field of education); selecting relevant articles that respond to curriculum-based questions; and facilitating the production of additional high-quality and assessed articles on Wikipedia linked to primary education.

Even though the researchers conceptualised Wikipedia Primary School to be scalable and international, it was designed to primarily address the needs of African countries. In addition, the content targets around 500 million Wikipedia readers who can access Wikipedia for free on their mobile phones and/or offline in around 30 countries.

The project has contributed to an analysis of the South African primary school curriculum and identification of relevant themes and content. The research team developed a review process and pilot launch and have drafted a pilot issue of the Wikipedia Scientific Journal. They furthermore developed a survey to involve teachers in the process and adequate evaluation criteria and identification of core data for evaluation purposes.

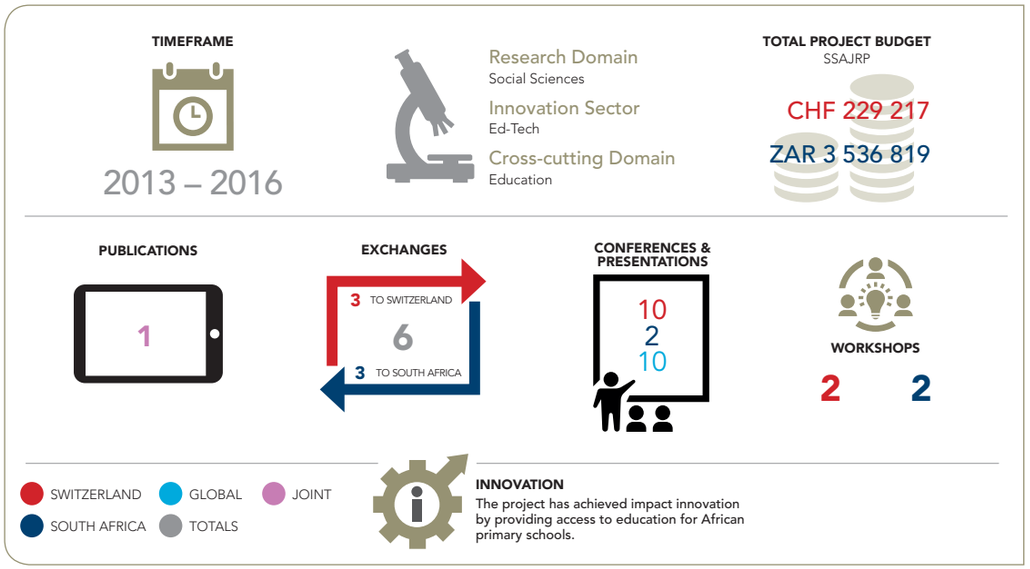
The research team trained South African students and librarians to produce and improve Wikipedia articles (identified through the involvement of South African teachers of two schools – Zimasa Primary and Moshes Primary) during three edit-a-thons, which were held at the Central Library in Cape Town.

Pucciarelli Marta, Giovanni Profeta and Iolanda Pensa.

Academic experts from five continents have provided scientific reviews to improve Wikipedia articles related to the South African primary school curriculum. Additionally, they facilitated content production through participation in and support of Wikimedia community offline and online events to reduce general gaps in African content production.

In addition to the research linkages created among the key participants of this project, the project has benefited from synergies with other networks: WikiAfrica, Kiwix, Kumasha Takes Wiki, Wiki Indaba, Creative Commons in Africa, and the Open African Innovation Research network.

The University of Cape Town in partnership with the Africa Centre held workshops in Cape Town and Johannesburg to discuss the project methodology and expected outcomes with around 15 stakeholders working in the education sector as well as 30 Wikimedia community members. In addition, they organised a series of so-called edit-a-thons to improve articles related to the South African primary school curriculum.



Ethics and regulation of vaccine trials involving humans: on-line training

UNIVERSITY PARTNERS

University of Neuchâtel
Professor Dominique Sprumont
University of KwaZulu-Natal
Professor Douglas Wassenaar

University of Neuchâtel

The project aimed to develop a free, open-access, high-quality, peer-reviewed online certificate-generating training module on the ethics and regulation of vaccine trials in humans.

To achieve this, the research team first conducted a literature and policy review to gather relevant resources. They developed an on-line peer-reviewed training module on the ethics and regulation of vaccine trials with humans before launching the online training module.

Researchers, students, members of research ethics committees and all other interested parties, including the general public, can now access and complete this peer-reviewed module free of charge, and download a certificate on completion.

The on-line training comprises two broad components: e-Learning and e-Resources. The main objective of the Training and Resources in Research Ethics Evaluation (TRREE) platform, including this specific module, is to provide basic training and to build capacity in the ethics of health research involving humans. The aim is for such research to meet the highest standards of research ethics and to promote the welfare of participants. The platform consists of a multilingual web-based training programme that includes reference tools.

Photograph courtesy of Douglas Wassenaar

Professor Douglas Wassenaar

Photograph courtesy of Dominique Sprumont

Professor Dominique Sprumont

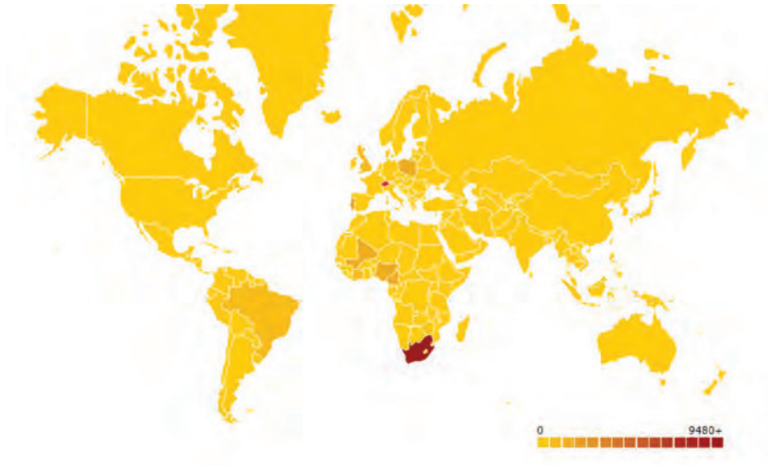


Illustration courtesy of TRREE

TRREE is a growing community. This is an overview of the origin of our participants.

Further, TRREE has obtained recognition for its training modules from the Swiss Medical Association and the Swiss Pharmacist Association. The project team also intended to seek the recognition of national and international bodies involved in continuing education programmes for healthcare professionals in general and those working in HIV prevention trials in particular.

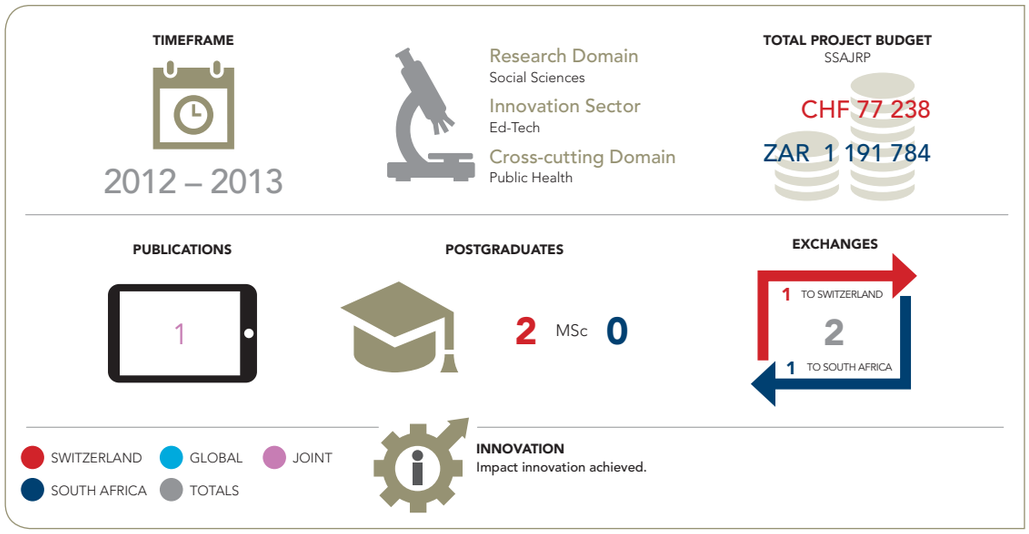
Members of several South African research ethics committees and ethics applicants are required to complete TRREE modules as evidence of basic training in research ethics. As at March 2018, 2 241 persons had completed the NRF/Swiss-funded online module and 1 984 certificates were issued.

The collaboration strengthened an already successful collaboration between the participating laboratories on research ethics, which led to further collaborative work on two more completed TRREE online modules – one on ethical issues in Enrolment of Adolescents in HIV Prevention Research, and a national module specific to South African health research ethics guidance and health law.

The philosophy of TRREE is to remain free with open access. Different TRREE modules have been funded by different funders, including the NRF and the Fogarty International Center of the US National Institutes of Health. In June 2017, TRREE introduced a moderate fee for participants from high-income countries (as per World Bank definitions). The fee is charged only for downloading the GCP module certificate.

As at the end of February 2018, 3 266 South Africans had completed TRREE modules and 2 345 certificates had been downloaded. South Africa has the second-most users of TRREE (8 008) after Switzerland (8 211), with 38 623 worldwide (including 1 665 on TRREE China).

By providing this open-access module on the TRREE platform, many users continue to be trained, and this number could be enhanced if the module, like others, was translated into other languages. TRREE is easily accessible using low-bandwidth internet, which makes training available to under-resourced areas. Professor Sprumont was invited to serve on the International Advisory Board of the South African Research Ethics Training Initiative (SARETI).

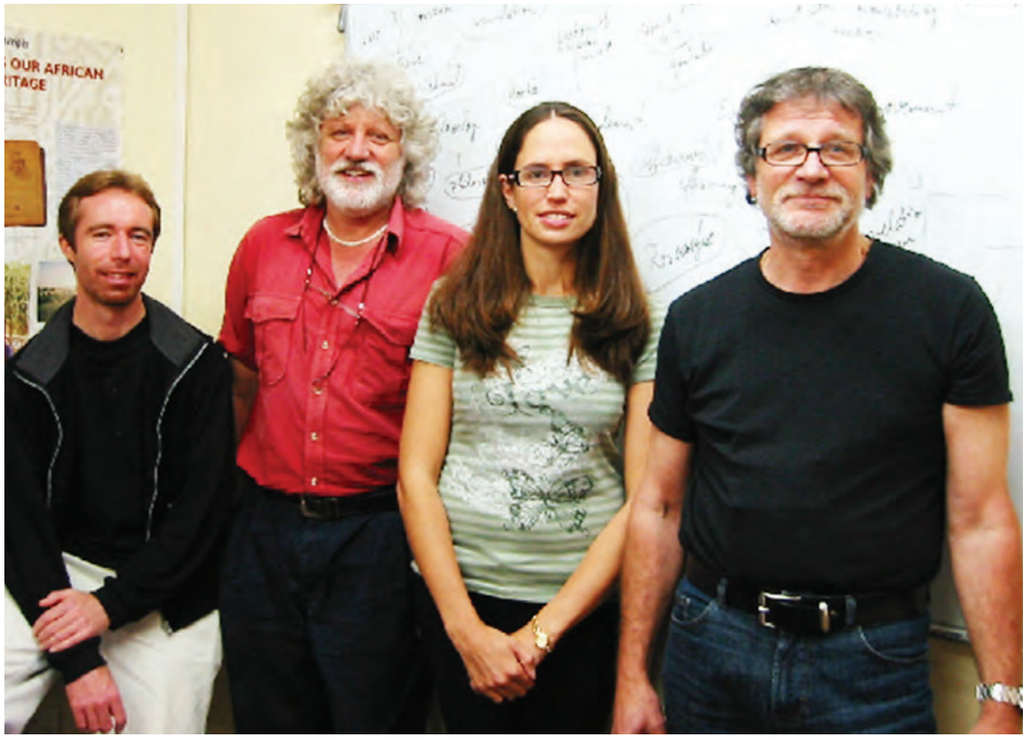


Visual technology for the autonomous learning of Mathematics 2 – learning in context ("VITALmathsLIC")

UNIVERSITY PARTNERS

University of Teacher Education at University of Applied Sciences Northwestern Switzerland
Professor Dr Helmut Linneweber-Lammerskitten
Rhodes University
Professor Dr Marc Schafer

Professor Dr Helmut Linneweber-Lammerskitten



Duncan Samson, Marc Schafer, Caryn McNamara, Helmut Linneweber-Lammerskitten.

Photograph courtesy of Marc Schafer

The VITAL Maths LIC project rests on the foundation of the VITALmaths project, which focused on the development of a bank of online video clips and the opportunities they offered for the mathematics teacher to use them as interesting and appropriate teaching devices and tools. These are used in conjunction with computers and mobile technologies such as tablets and mobile phones. The project had three main objectives: to produce a freely accessible databank of short video clips designed specifically for the autonomous learning of Mathematics; to maintain a dedicated website to house the video clips (http://www.ru.ac.za/VITALmaths); and to establish a research agenda around their use and efficacy.

With the new VITAL Maths LearningInContext project (VITALmathsLIC), the researchers aimed to establish how learning can take place in different learning, communication and contextual spaces. They designed teaching and learning support and scaffolding materials (such as "Arbeitsaufträge", worksheets and manipulatives) to align with the existing and a newly developed bank of video clips. They also created new video clips with a strong focus on language and communication.

Three underlying themes and associated research questions framed the VITALmathsLIC project:

- Enhance learning in a collaborative and social milieu,
- Enhance mathematical learning through encouraging an appropriate mathematical discourse and language,
- Encourage the use of physical manipulatives to enhance learning.

This research project lent itself to using questionnaires and focus-group interviews to explore how the videos encouraged selected learners to use physical manipulatives in conjunction with the videos to investigate mathematical ideas. The data for this project were generated through the use of worksheets and interviews where learners were required to engage with activities that lent themselves to a visual and/or abstract engagement. This engagement was analysed and characterised in terms of the extent to which it incorporated visual reasoning.

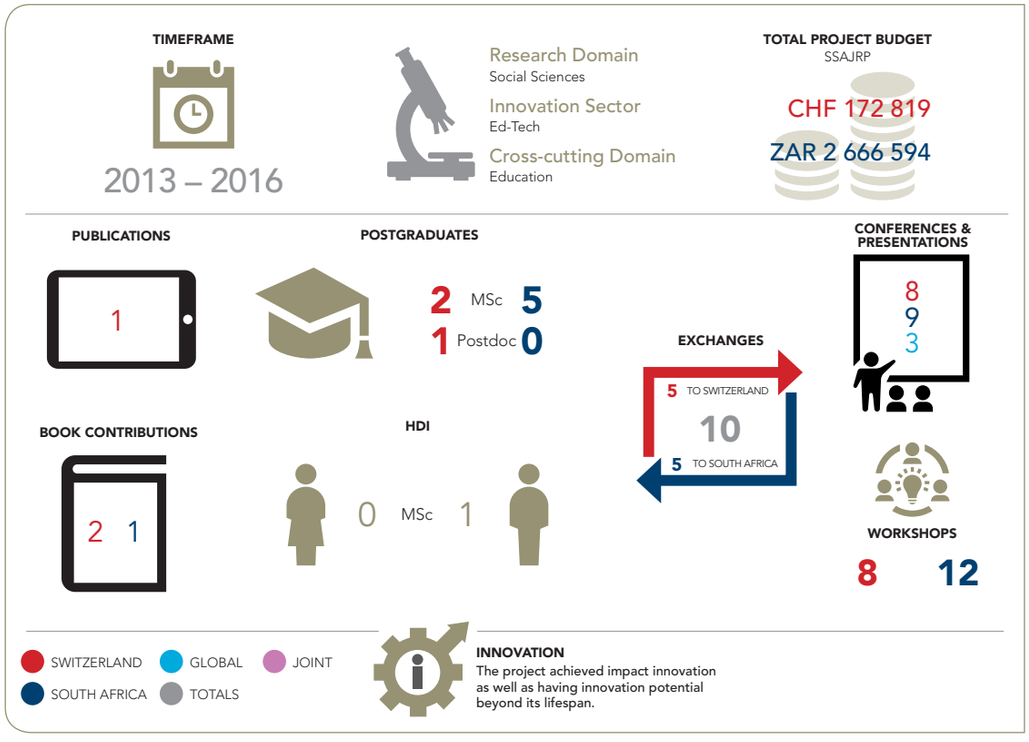
The findings of the research will continuously feed into the refinement of the design of newly developed video material. The resulting databank of videos thus continues to grow on the basis of this research, thereby ensuring sustained relevance. The project is committed to the principle of making educational materials and media available to learners free of charge, and to broadening access to quality material – this includes access in terms of language and culture. The videos are therefore made available in a diversity of languages.

The smooth transition and continuation from the

VITALmaths development tools.

VITALmaths project to the VITALmathsLIC project entailed, among others, the production of more than 50 new video clips (in English, German and isiXhosa), which are all available at www.vitalmaths.com and on YouTube. The new video clips differ from the old ones in that the mathematical situation is embedded in a specific dialogue. The dialogue is presented as on-screen text and models the kind of language that learners could make use of when expressing their own mathematical thoughts in a similar situation. Although the protagonists of the dialogue remain invisible to the viewer, what becomes visible to the viewer are their mathematical thoughts as modelled through language, manipulatives and sketches.

The collaboration that the grant has facilitated went beyond the Swiss and SA grantholders. The work of the VITALmaths project has brought people from all spheres of education together: academics, teachers, pupils, subject advisors, textbook authors, researchers and policymakers. It has also generated many new worthwhile research questions that will hopefully form the foundations of future research agendas and collaborations. The international networking that the grant has facilitated has been remarkable.



Measuring e-learning impact in primary schools in South African disadvantaged areas

UNIVERSITY PARTNERS

University of Lugano
Professor Dr Lorenzo Cantoni
University of Cape Town
Professor Wallace Chigona

University of Lugano

The goal of the MELISSA project (Measuring E-Learning Impact in primary Schools in South African disadvantaged areas) was to study the impact of information and communication technology (ICT) training on primary school teachers in the Western Cape Province, and to provide them with further training. The project trained 120 primary school teachers to understand ICTs and how to incorporate them in their curriculum. An experimental and a control group were incorporated in the project.

The research team believe that the integration of ICTs in education is essential to enhance learning practices and improve the quality of education.

Professor Dr Lorenzo Cantoni

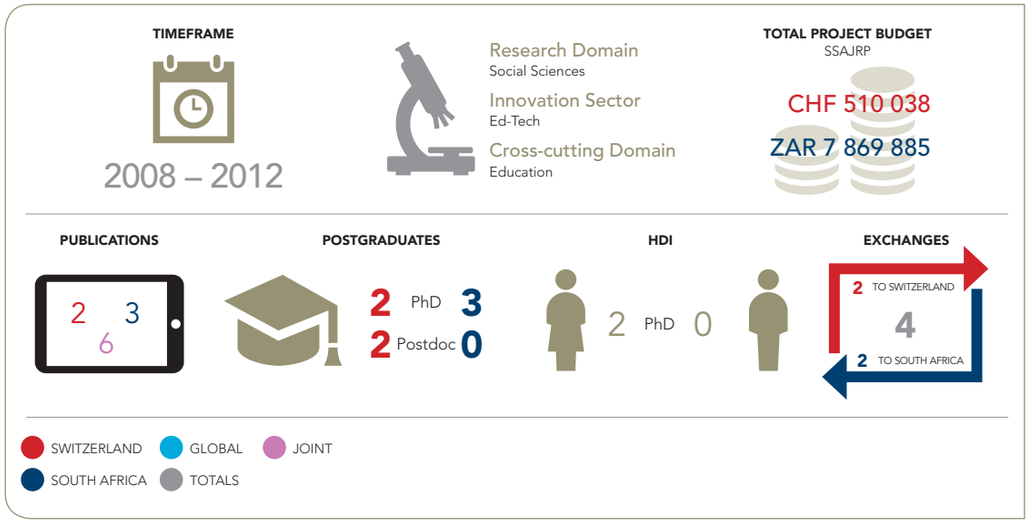
Professor Wallace Chigona

Photograph courtesy of Wallace Chigona

Initially, the lack of infrastructure in developing countries prevented the integration of ICTs in the education sector. However, a number of initiatives in South Africa have made the technologies available to schools and attempts were made to equip educators with the ability to use ICTs in the curriculum. Unfortunately, ICTs are still underutilised, even where the infrastructure is available. The researchers therefore attempted to identify and address factors resulting in the lack of efficient integration of ICT in the current curriculum.

The objective of the project was to help teachers understand the use of computers, their ability to use computers in their work and also their control over the impact of computers. Questionnaires and interviews were used to assess the groups. Teachers were assessed before and after the programme. The researchers then used the results to design effective, efficient and sustainable ICT training interventions, policy guidelines and also to evaluate activities. They further provided a framework for evaluating existing programmes. They believe this will allow for the optimal allocation of available resources.

The MELISSA project has helped school teachers to better understand and integrate ICT within their practices, making wise and sustainable use thereof. By becoming experts in using ICT, they have reduced the digital divide and are sufficiently prepared to introduce and guide their students into the knowledge society. The project design has allowed for a wider impact on practices, and ensures that not only the first cohort of students, but all future classes of trained teachers will benefit from it. In addition, teachers involved in the project will act as models, driving innovation in their respective schools and communities. They will also leverage ICT to ensure continuous building of skills and lifelong learning. The project will impact the concerned research communities, and help design more effective and sustainable intervention in the field, not only in South Africa but also in Switzerland. Improving the integration and use of ICTs in the South African curriculum contribute to effective and efficient growth of teaching abilities as well as improve the quality of education. The learners will benefit directly from this in terms of their performance and capacity building for the future. The outcome of the project was aimed at assisting in the effective design of efficient and suitable training interventions, and provide a framework to evaluate existing programmes.



Organisational capabilities and the governance of utilities

UNIVERSITY PARTNERS

Swiss Federal Institute of Aquatic Science and Technology
Professor Bernhard Truffer
University of Cape Town
Professor Anton Eberhard

Utility services – including electricity, water supply and sanitation – face many challenges, such as market liberalisation, organisational restructuring, massive investment needs and the introduction of new technologies. This project aimed to develop a deeper understanding of the role of competencies and skills in providing adequate utility services and to improve the performance of state-owned enterprises in infrastructure sectors, especially in the water supply, sanitation and electricity sectors.

Sustaining the functionality of infrastructure sectors is essential for poverty reduction, greater equality, accelerated economic development and growth, and for improving social welfare.

South Africa's electricity supply is inadequate as emphasised by the numerous blackouts and electricity distribution failures experienced since 2005. A deteriorating electricity distribution system was one of the causative factors identified. The Department of Environmental Affairs and Tourism further identified the deteriorating water quality and availability as one of the main challenges in South Africa. A survey completed by this Department revealed that 30% of all waste water treatment plants require intervention. Organisational capabilities are a key factor to provide effective and cost-efficient services and supply. Existing literature has addressed some of the challenges facing utility services in South Africa, but the role of organisational capabilities for managing utilities to ensure their long-term viability has not been explored.

Aspects the researchers investigated include how policy decisions influence competency building in public utilities; how utilities acquire and build adequate competencies and skills; and how the accumulation of competencies affects vertical integration and disintegration in infrastructure sectors.

The research team focused on the implications that competencies and skills have on effective public service provision, long-term viability of infrastructure networks and regulatory design. They believe better understanding of the impact of capabilities on the infrastructure sector may allow for the recommendation of adequate regulatory designs to policymakers. Insights from this project

Photograph courtesy of Infrastructure News

Wastewater treatment plant.

Photograph courtesy of Infrastructure News

Eskom power station.

Photograph courtesy of Bernhard Truffer

Professor Bernhard Truffer

Photograph courtesy of Hagen Worch

Professor Hagen Worch

Photograph courtesy of BAnton Eberhard

Professor Anton Eberhard

Photograph courtesy of Mundia Kabinga

Mundia Kabinga

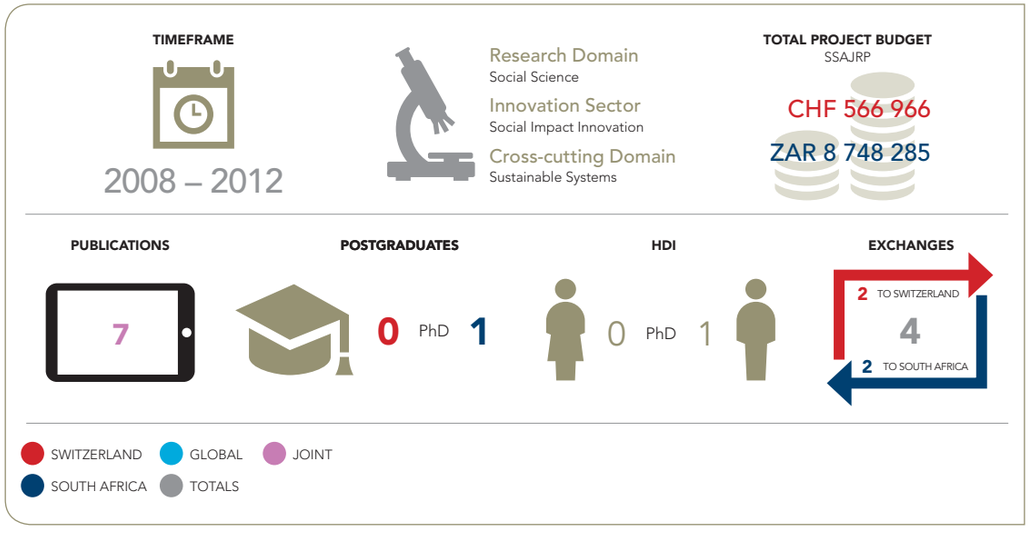
may also help utility managers in infrastructure sectors to develop and implement strategies to build and maintain sustainable organisational capabilities, and therefore improve the quality of public service delivery.

The project provided a set of recommendations to utility managers and policymakers on how to improve the quality of public service delivery. This can facilitate the process of setting up specific interventions for utilities to acquire the skills, technological knowledge and managerial capacities to improve the performance of public services and infrastructure networks. The results of this project were relevant for the improvement of the performance of public services and for securing infrastructure maintenance.

The project team had the advantage of comparing transformations and changes in infrastructure sectors in the Swiss and South African contexts (industrialised and emerging economies). The practical implications of the research are important, because previously there was no profound understanding of the unintended consequences of public and regulatory reforms on the loss and gains of competencies and skills.

Photograph courtesy of Infrastructure News

Hendrina power station.



Safeguarding Democracy and Concepts of Memory and Heritage

UNIVERSITY PARTNERS

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Professor Dr Patrick Harries
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Professor Dr Sheila Meintjes

University of the Witwatersrand

This interdisciplinary project on the main challenges to democracy in South Africa and Switzerland provides an analysis that goes beyond conventional understandings of the consolidation of democracy.

The concepts and practices of democracy are not simply the results of a long process of historical struggle but are constantly challenged by parameters such as memory and heritage in different locales at different times. Democracy manifests are therefore understood and produced in different ways at local, regional and national levels.

In both South Africa and Switzerland, democratic ideas are translated into practice by employing the two distinctive political structures of representative and direct forms of democratic systems. The manipulation of the democratic systems by politicians, institutions, elites and civil society groups in order to impact the political processes, government-society relations quality and the response to political opportunity structures of stakeholder groups, provide a comparative perspective to investigate the quality of politics, the integrity of the different actors engaged and the approval or dissatisfaction levels with political outcomes.

Regardless of the variants governing the political and social settings of the two countries, it was plausible to undertake a comparative study of their democratic praxis and culture development to shed light on the varying facets of democratic politics. The researchers found it interesting that both countries disregard the deficiencies and threats to their democracy and view theirs as a model democracy.

The focal points of studies in this project included contests of memory, civic agency, citizenship and the nation through the prisms of slavery, gender, youth and education, nationalism and populism, the media and communication, and locality. In addition to providing fieldwork study exposure to both South African and Swiss scholars and unravelling political and social dynamics, they engaged in empirical research of specific areas of intersecting case studies, which enhanced perception of schemes used to obtain the desired results from political processes. This enabled them

to draw conclusions on the preliminary modulating factors of economic, social and political democracy.

The team deviated from previous projects, whose fieldwork studies entirely focused on Africa, and focussed on a number of issues and processes when an African gaze was turned to Switzerland and vice versa in order to enhance understanding of how their democratic processes are driven. Questions of the role and its efficacy levels of intellectuals, as well as disregard of their studies by powerbrokers, were addressed.

The project created a stimulating and motivating academic environment for both students and academics, and contributed to the bolstering of the democratic debates in South Africa and Switzerland. The Safeguarding Democracy project will promote the global North and South cooperation by deviating from the usual pattern of academic cooperation of Africa-based investigations. The comparative nature of the project exposes the democratic flaws in both countries.

Contests of Memory and Heritage

The project in Phase II explored the question of how values are negotiated in different social and political contexts and what significance these have for knowledge production, policy development and, above all, for safeguarding democracy.

The case studies were based on South African and Swiss experiences. The view of the researchers is that all scientific and humanities knowledge production requires an enabling environment that only a sustainable democracy can provide. The research is therefore of vital importance to enable the two countries to understand the values that underpin their democracies and the threats that are posed to them by contentions that emerge from conflict in everyday life.

The sub-questions focused on the changes in the meaning of values that had taken place historically in each society. Researchers asked whether there are non-negotiable values, what they are, and how they came about. They also researched in what ways Swiss and South African democracies live up to the democratic values they promote and under what circumstances they do not honour the value that they promote.

Nyonde Ntswana (PhD candidate, History Workshop), Noor Nieftagodien, Sekiba Lekgoathi (Prof and HOD of History) and Sheila Meintjies.