Partner Presentation Form

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Type of organisation:

SME	☐	School	☐	University	☑	Public Authority	☐
Training	☐	No Profit	☐	NGO	☐		

Other (Specify)

Fields of action:

SMEs	☐	Youth	☐	Universities	☑	Public Authorities	☐
Equal opportunities	☐	Schools	☐	Unemployed	☐		

Other (Specify)

Description of the organisation

The North-West University (NWU) is a prominent academic institution located in South Africa, with campuses spread across the Gauteng and North-West province. Established in 2004 through the merger of three universities, namely Potchefstroom University for Christian Higher Education, the University of North-West, and the Vaal Triangle Technikon, the NWU has since evolved into a dynamic and comprehensive institution dedicated to academic excellence, research, and community engagement. The NWU has three campuses located in Potchefstroom, Mahikeng and Vanderbijlpark, offering a diverse and inclusive learning environment. The university is committed to providing high-quality education that is globally competitive while rooted in the rich cultural and historical context of South Africa. The NWU's vision is to be a research-intensive university that contributes meaningfully to society through innovative teaching, impactful research, and a commitment to social responsibility.

One of the distinguishing features of the NWU is its emphasis on a student-centred approach to learning. The institution is known for fostering a supportive and inclusive atmosphere that encourages student success and personal development. The academic programs cover a wide array of disciplines, including the humanities, natural sciences, engineering, health sciences, education, and business. This diversity allows students to pursue their passions and interests, contributing to a well-rounded and holistic education. The NWU places a strong emphasis on research and innovation, with a focus on addressing real-world challenges. The university is home to numerous research centres and institutes that conduct groundbreaking research across various fields. Faculty members are actively engaged in research, contributing to the advancement of knowledge and addressing societal issues. Students, too, are encouraged to participate in research activities, providing them with valuable hands-on experience and exposure to the latest developments in their respective fields.

In addition to academic and research excellence, the NWU is deeply committed to community engagement and social responsibility. The institution recognises its role in contributing positively to the communities it serves and actively seeks opportunities to make a meaningful impact. This commitment is reflected in various community outreach programs, partnerships with local organisations, and initiatives aimed at addressing social challenges. The NWU also places a strong emphasis on internationalisation, fostering global perspectives among its students and faculty. The university has established partnerships with numerous international institutions, facilitating student and staff exchanges, collaborative research projects, and other initiatives that promote cross-cultural understanding.

Furthermore, the North-West University is dedicated to creating a sustainable and environmentally conscious campus. Through various initiatives, the institution strives to minimise its ecological footprint and promote environmentally friendly practices. The NWU is a vibrant and dynamic institution that stands as a beacon of academic excellence, research innovation, and social responsibility in South Africa. With its commitment to student success, impactful research, and community engagement, the NWU continues to play a pivotal role in shaping the future of individuals and society at large.

Experience of the organization in previous European projects

Project for higher education student and staff mobility between Programme Countries and Partner Countries (2015 – 2017) and (2018 – 2021)

Master of Urban Climate and Sustainability (2017 – 2022)

Experience and Expertise of the organization in the project's subject area

The project aligns well with the initiatives and interventions carried out at the NWU, complementing and building upon the institution's extensive work in the areas of OERs and SDL. NWU's emphasis on the use and adaptation of OERs as a cost-effective investment in quality teaching and learning is integrated into the project. The recognition of OERs as a valuable resource for eliminating barriers to education resonates with

the project's aim to establish a sustainable environment for the creation, adaptation, and sharing of self-directed OERs in STEM fields. By drawing upon NWU's expertise in OER development across various disciplines, the project can benefit from existing knowledge and experiences, ensuring a robust and contextually relevant approach to OER integration in STEM teacher education.

The project aligns well with NWU's research on promoting SDL in blended and multimodal learning environments. Studies at NWU have demonstrated the potential of different strategies to enhance learners' SDL, motivation, personal communication, and social skills. The proposed project, with its focus on cultivating SDL skills among STEM education lecturers and teacher-students, directly builds upon NWU's foundational work in this area. By incorporating proven strategies and methodologies, the project aims to amplify the impact of SDL in STEM teacher education.

NWU's research endeavours in the creation of OERs across diverse fields provide a rich foundation for the project's objectives. The experiences documented, ranging from language development to journalism and music, showcase the versatility and effectiveness of OERs. The project extends this trajectory by specifically focusing on STEM fields, tailoring the creation and adaptation of OERs to the unique demands and requirements of STEM teacher education. This targeted approach ensures the relevance and applicability of OERs in fostering SDL skills among STEM education lecturers and students.

Contributions that can be provided to the project

The NWU offers a valuable contribution to the project through its established Research Unit for Self-Directed Learning, based in the Faculty of Education. Guided by a vision to promote SDL through excellent research, the Research Unit focuses on advancing SDL across all education sectors, with specific emphasis on strategies responsive to the demands of the 21st century and the Fourth Industrial Revolution. NWU further enhances its contribution through the UNESCO Chair in Multimodal Learning and OER, which focuses strengthening institutional and regional capacity, and conducting research on OER and multimodal pedagogies. In addition, NWU brings to the project a team of experts in STEM education from the Faculty of Education, who play an active role in the Ted-SOEP project. This combined expertise in SDL, OER, and STEM education uniquely positions NWU to contribute meaningfully to the project’s goals of innovation, inclusion, and sustainability in teacher education.

Reasons for involvement in the project

The project holds the potential to make a transformative impact on the NWU's long-term development. The establishment of a sustainable environment for the creation, adaptation, and sharing of self-directed OERs in STEM fields aligns with NWU's commitment to quality research and knowledge dissemination. The project enables NWU lecturers and students to actively contribute to the creation of OERs, positioning the institution as a hub for the generation of educational resources in STEM. This not only enhances NWU's visibility and reputation but also contributes to the global knowledge commons. Cultivating self-directed learning skills among STEM lecturers and students at NWU is a strategic move towards fostering a culture of lifelong learning within the institution. Moreover, assisting in adapting NWU's approaches to include and enhance OERs and self-directed OEPs in STEM teacher education directly aligns with the institution's modernisation and development strategies. By integrating these practices, NWU stays at the forefront of educational advancements, ensuring relevance and responsiveness to the evolving needs of students and the broader educational landscape.

Contact Person’s Experience and Expertise

Dorothy Laubscher is an associate professor in the Research Unit Self-Directed Learning, in the Faculty of Education at the North-West University. She holds the UNESCO Chair on Multimodal Learning and Open Educational Resources at the North-West University. She has been working in the field of mathematics teacher education for the past 16 years and has experience in teaching various mathematics education modules. Her research interests include mathematics education, technology-enhanced learning, self-directed learning, open educational resources, and blended and multimodal learning environments to foster

self-directed learning. She is involved in various projects that explore open educational practices, technology-supported learning and multimodal learning to promote self-directed learning, and has edited two academic books. She acts as supervisor for post-graduate students and has published on national and international level.

Annalie Roux is a Senior lecturer in the School for Mathematics, Science and Technology Education, North-West University, South Africa. Roux holds a PhD in Mathematics Education obtained from the North-West University, Potchefstroom. Roux's research interest is in the field of metacognition (as enabler for self-directed leaning) and mathematics teacher education. Roux was the subject group leader for the subject group Mathematics education for eight years. Roux has published articles in peer-reviewed journals, and chapters in academic books. She has presented papers at several national and international conferences and has successfully supervised various Masters and PhD students. She is involved in a number of projects, where aspects of self-directed learning are explored, specifically in the area of mathematics teacher education.

Gordon Sekano is a Senior Lecturer in the Mathematics Education lecturer at the Faculty of Education, North-West University. He is an emerging researcher and has been working in the field of teacher education for the past 10 years. He is also an executive committee member of UNESCO Chair on Multimodal Learning and Open Educational Resources. His research interests are in 21st-century skills and teaching, pedagogical content knowledge, problem-based learning (and teaching), self-directed learning, teacher preparations and teacher professional development in mathematics education.

Moleboheng Ramulumo is a Senior Lecturer at North-West University (Self-Directed Learning Research Unit) and a passionate advocate for innovation in early childhood education. She holds a BSc in Plant Pathology, an Honours degree in Microbiology, and an MSc in Life Science Education (cum laude). Inspired by her two sons, Wavhudi and Rivhavhudi, whose early speech delays sparked her interest in educational technology, Moleboheng pursued a PhD in early STEM education. Her research explores how artificial intelligence (AI) can enhance self-directed learning and climate change understanding in young learners, with a strong emphasis on inclusivity and the integration of indigenous knowledge systems into STEM curricula. One of her flagship projects, *Renewable Rangers*, is a digital educational game for children aged 4 to 6 that promotes renewable energy awareness through engaging, culturally responsive content in South African languages. The game is thoughtfully designed to be inclusive of children with disabilities, offering adaptations for hearing and visual impairments. Moleboheng is committed to making early science and math education more accessible, meaningful, and empowering for all children.

Sukie van Zyl holds a doctoral degree in Computer Science Education and is an active member of the Research Unit for Self-Directed Learning. Her research focuses on advancing deeper self-directed learning, cooperative learning, and the integration of coding and robotics in education. As part of her commitment to academic excellence, Sukie has contributed to publications at both national and international levels. She is currently a Senior Lecturer and Deputy Director of the School of Science, Mathematics and Technology Education at the North-West University's Faculty of Education at the Potchefstroom Campus in South Africa. In her role, she is dedicated to teacher training in Computer Science Education. Additionally, she supervises postgraduate students, imparting her expertise and guidance to the next generation of scholars.

Judicial Sebatana is a lecturer at the North-West University, where he teachers Chemistry Education and supervises postgraduate studies. He is also a researcher in the Research Unit Self-Directed Learning and executive member of UNESCO Chair on Multimodal Learning and Open Educational Resources at the same institution. His research interests include 21st century skills in teaching and learning, Problem-Based Learning, Inquiry-Based Learning, Blended Learning, Pedagogical Content Knowledge and Teacher Professional Development. Judicial holds a PhD, MEd and BEd in Physical Sciences Education from the North-West University and a BSc Honours in Physical Sciences Education from the University of the Witwatersrand. Judicial is a member of various organizations such as Golden Key International Honour Society, and Southern African Association for Research in Mathematics, Science and Technology Education (SAARMSTE).

Donnavan Kruger is a Senior Lecturer in the Natural Science Education subject group at the Faculty of Education and a published member of the Research Unit for Self-directed Learning. His research interests include how self-directed learning can be enhanced, promoted and supported within Life Sciences (Biology) education, using pedagogical approaches in inquiry-based learning, contextualised education, and technology enhanced learning. Donnavan was awarded a research fellowship in 2020 under the guidance of the UNESCO Chair for Personalised and Adaptive Distance Education at the Swiss University of Applied

Sciences (FFHS) to investigate how inquiry-based learning can be implemented in an adaptive online platform. He is also interested in how the integration of open AI Tutors can be effectively utilised to enhance open textbooks to support self-directed learning. One of his most recent research endeavours aims to explore how ethnozoology can be utilised within contextualising science education to make science learning more cognitively accessible to learners. He has published nationally and internationally and supervised several postgraduate students.

Chantelle Bosch is an NRF-rated researcher and Associate Professor in the School of Mathematics, Science and Technology. She is the subject group leader for Computer Science Education and is responsible for teaching undergraduate computer programming, as well as BEd Honours modules in the discipline. Her research interests include blended learning, cooperative learning, self-directed learning, open educational resources (OER), and the integration of artificial intelligence (AI) in education, with a particular focus on designing blended learning environments that enhance self-directed learning. She serves as an executive member of the UNESCO Chair on Multimodal Learning and OER and is the sub-area leader for Blended Learning within the Self-Directed Learning Research Unit.

Neal Petersen holds a PhD and is an associate professor of Life Sciences Education in the School of Mathematics, Science and Technology in the Faculty of Education, North-West University, Potchefstroom, South Africa. Petersen is a member of the Research Unit Self-Directed Learning at the same faculty. His main research focus is engaging pedagogies and contextualised learning, including indigenous knowledge in science education, first-year students' experience during WIL educational excursions, cooperative learning and teacher professional development in science education. He was the principal investigator of a project on using engaging pedagogies in science education, including the infusion of arts in science, technology, engineering and mathematics education moving towards science, technology, engineering, the arts and mathematics (STEAM) education. He has published on national and international levels, and he also supervised postgraduate students to completion and is currently supervising more postgraduate students.