NWU SDL

RESEARCH UNIT



Putting the 'self' in learning



Research Director: Prof Elsa Mentz

Research Expertise

- Self-Directed Learning
- Cooperative Learning
- Computer Science Education
- Technology supported learning
- Cultural Historical Activity Theory
- Assessment

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WHAT IS SELF-DIRECTED LEARNING?

"In its broadest meaning self-directed learning describes a process by which individuals take the initiative, with or without the assistance of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes." (Knowles, 1975:18)

Letter from the Director

Dear Reader

Self-Directed Learning (SDL) research has become increasingly important in education because of the rapidly changing education demands of the 21st century, which require learners to take responsibility for their own learning and to be equipped with lifelong learning skills.

Knowledge is readily available, but our education system does not adhere to the demand for 21st century skills needed in the workplace. Alvin Toffler concluded that "the illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn."

We need learners who can adjust to new situations and who can take responsibility for their own learning for life. Although most higher education institutions acknowledge the fact that new and innovative teaching and learning strategies should be utilised to meet changing education demands, the traditional teacher-centred teaching and learning practice is still the norm in most South African schools and higher education institutions.

The North-West University is the only institution in South Africa with a Research Unit focusing specifically on SDL research in order to advise on ways in which learners can be assisted to take more responsibility for their own learning. Research done in this research entity since 2014 was focused on SDL in the South African and international context. We constantly aim to broaden the body of knowledge on SDL in the world, especially on the African continent.

We welcome postgraduate students, post-doctoral students and any other researchers to contact us.

Yours sincerely

Prof Elsa Mentz

AIMS

In our research we focus on the promotion of Self-Directed Learning (SDL) in all education sectors. We aim to propose strategies for diverse contexts which can contribute to the development of SDL skills. The aim is to broaden the body of scholarship of SDL internationally and on the African continent.

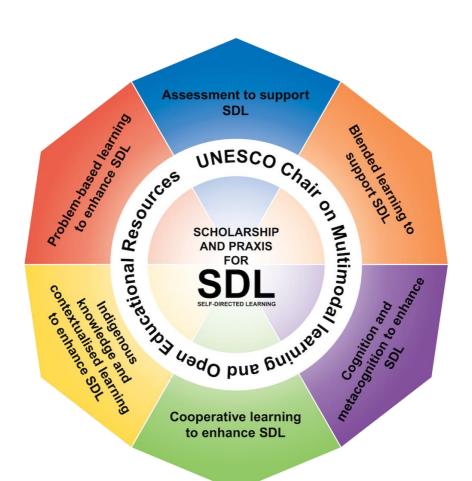
VISION

To promote SDL that will lead to lifelong learning in all education sectors through excellent research

MISSION

- To conduct relevant research on strategies and contexts that contribute to SDL skills.
- To optimise the quality of our research outputs and to disseminate the results thereof locally and internationally.
- To support academic staff to develop relevant knowledge and to gain international recognition.
- To provide quality postgraduate training in order to promote SDL in all education sectors.
- To share our knowledge for purposes of selfdirected learning practices.

SUBAREAS



Current and emerging specialisation in the Research Unit for Self-Directed Learning

		MBER	EXISTING PROGRAMMES / FIELDS OF STUDY																
pa	participation		Accounting/ Entrepreneur- ship for education	Computer Science Education	Communication Technologies (ICTs) for Education	Consumer Studies entrepreneur- ship education	Curriculum Studies	Comparative Education	Early Childhood Education	Educational & Developmental Psychology	Engineering Education	Geography Education	History Education	Language Education	Life Sciences Education	Mathematics Education	Science Education	Technology Education	Educational Robotics
	/ Theory	Assessment to support Self- Directed Learning																	
	Cultural Historical Activity	Blended learning to support Self- Directed Learning																	
	tural Histori	Cooperative learning to enhance Self- Directed Learning																	
EAS	Qual/Quant and Cult	Cognition and metacogniti on to enhance Seif- Directed Learning																	
SUBARE	e.g.	Problem- based learning to enhance Self- Directed Learning																	
เร	s and approaches	Indigenous knowledge and contextualls ed learning to enhance Self- Directed Learning																	
	methodologies	Scholarship and praxis for Self- Directed Learning																	
	Research me	Multimodal Learning and Open Educational Resources																	

Coloured blocks = Current fields; White blocks = Emerging fields; Where do you belong?

Tick your box and join SDL!



Prof Elsa Mentz received the 2020 Malcolm Knowles Memorial Self-Directed Learning Award from the International Society for Self-Directed Learning



Prof Josef De Beer received the esteemed NRF Excellence in science Engagement $$\operatorname{\mathsf{Award}}$$



UNESCO Chair on Multimodal Learning and Open Educational Resources

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Context

The establishment of a Chair on Multimodal Learning and Open Educational Resources (OER) within the Research Unit Self-Directed Learning at the North-West University (NWU) was approved by UNESCO in 2018. The research for this Chair focusses on Open Educational Resources (OER) (peer-reviewed shared online resources that include material, books, videos, lessons and even full courses) and Multimodal Learning (also sometimes described as blended learning where face-to-face and e-learning modalities can be mixed. The purpose of the Chair is to (1) build networks in Southern Africa around OER and multimodal learning, (2) build capacity at the NWU and in Southern Africa, (3) train lecturers in multimodal learning and the creation and use of OER, as well as (4) doing research on OER and multimodal learning.

Identified research themes under the Chair.

- Quality and cultural appropriateness of the application of self-directed multimodal learning – while building on existing expertise at the NWU on indigenous knowledge systems.
- The effective use of mobile devices (such as cell phones and tablets) for self-directed multimodal learning.
- Data mining of learning management systems as well as interactive study guides and relevant metadata.
- Multiliteracies (in terms of language, visual, information and computer literacies) of contact and distance students in a self-directed learning context.
- Individualisation, differentiation and adaptive learning by means of online resources.
- The use, establishment and contribution to open educational resources by lecturers within a self-directed learning context.

Current projects in the Chair:

- Multimodal learning and open educational resources (OER) (Project leader: Prof Jako Olivier)
- Multimodal multiliteracies in support of self-directed learning

(NRF project; Project leader: Prof Jako Olivier)

- A trilingual electronic glossary for multimodal learning (Project leader: Prof Jako Olivier)
- Exploring situated and culturally-appropriate self-directed multimodal learning (Project leader: Prof Jako Olivier)
- Mapping of multimodal self-directed learning and OER at higher educational institutions in Southern Africa (Project leader: Prof Jako Olivier)



United Nations Educational, Scientific and Cultural Organization



UNESCO Chair on Multimodal Learning and Open Educational Resources North-West University, South Africa



UNESCO Chair Executive Committee



SUBAREA INDIGENOUS KNOWLEDGE AND CONTEXTUALISED LEARNING TO ENHANCE SELF-DIRECTED LEARNING

Subarea Leader: Prof Josef de Beer

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Self-directed learning (SDL) research should focus on the individual learner. The question could be asked whether marginalised learners are provided the same opportunities to develop as self-directed learners. This subarea focuses on (often marginalised) indigenous knowledge (IK) holders as well as on learners who experience learning barriers that could inhibit the development of SDL learning skills. The holders of IK were and are often self-directed learners, but can be overlooked in the context of multicultural education. It could therefore provide researchers with insight into SDL by focusing on the nature of IK and its holders. The current science curricula and pedagogical strategies applied by science, technology, engineering and mathematics (STEM) teachers globally focus on understanding the nature of science from Western worldviews, and by doing so, ignore those of indigenous learners in the culturally diverse classroom. This might lead to underperformance by learners. In this subarea, the focus is also on epistemological border-crossing to explore the nature of complex phenomena. Amongst others, the role of arts in the natural sciences is explored, specifically by using puppetry to teach complex phenomena such as IK or ethical issues related to the sciences. This subarea also embarks on research that focuses on teacher agency to overcome systemic barriers in education, such a lack of resources, and how science-on-a-shoestring kits could be used to promote science education. Thirdgeneration Cultural-Historical Activity Theory (CHAT) is used as a research lens.

- The affordances of Indigenous Knowledge for Self-Directed Learning (NRF project; Project leader: Prof Josef de Beer)
- STEM teachers learning from Indigenous Knowledge Systems practitioners (NRF project; Project leader: Prof Josef de Beer)
- Teachers without borders: Creating indigenous knowledge science labs in rural schools [in collaboration with Stanford University]

- (Fuchs Foundation funding; Project leader: Prof Josef de Beer)
- Being a Teacher: case-based pedagogies for professional development (Project leader: Prof Josef de Beer; in collaboration with Florida State University and Pearson)
- Engaging pedagogies to address perennial issues in Science Education in South Africa
 - (NRF project; Project leader: Dr Neal Petersen)



Prof Josef de Beer (NWU), Prof Elsa Mentz (NWU) and Prof Yrjö Engeström (University of Helsinki)



SUBAREA ASSESSMENT TO SUPPORT SELF-DIRECTED LEARNING

Subarea Leader: Dr Anitia Lubbe

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Assessment can be used as a means to build sustainable capacity for self-directed learning (SDL). Assessment to support SDL is deliberately designed to capitalise on the impact of assessment of learning, assessment for learning and assessment as learning. Assessment to support SDL should move from assessment of learning to assessment for learning and assessment as learning to inform teaching and learning. The subarea focuses on the construction of assessment activities that foster SDL capacities. We want to prepare students who are capable of self-evaluation and continuous learning throughout life. Assessment that is self-directed by the learners changes from teacher-initiated to self- and peer-initiated assessment practices. It could be utilised in multiple formats and methods including electronic, performance, portfolio and project-based assessment. The provision of timely feedback should be one of the most important purposes of assessment to support SDL.





SUBAREA BLENDED LEARNING TO SUPPORT SELF-DIRECTED LEARNING

Subarea Leader:
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Blended learning is pervading education, compelling educators to confront existing presuppositions about teaching and learning in education. Leaders of higher education are being challenged to position their institutions to meet the connectivity demands of prospective students as well as their growing expectations and requirements for quality learning experiences. Given the increasing evidence that internet information and communication technologies are transforming societies, there is good reason to believe that this will be the defining transformative innovation for higher education in the 21st century. A blended learning approach provides innovative options to address the varying needs of the next generation within the framework that self-directed learning (SDL) provides.

- Fostering Aspects of Self-Directed Learning through Personalized and Adaptive Instruction Design in Online Learning Environments (SDL-PAID) (Joint research project with Swiss Distance University of Applied Sciences; Project leader: Prof Christo van der Westhuizen)
- Teaching with Self-Directed Learning strategies and technologies in online learning environments
 - (Project leader: Prof Christo van der Westhuizen)
- Personalised, adaptive, and self-directed learning with low-cost eye trackers and facial emotion recognition in technology-based learning scenarios
 - (Project leader: Prof Christo van der Westhuizen)
- Comparative study in application of GIS in Secondary schools and Universities between South Africa and Malawi: Problems and solutions (Project leader: Prof Christo van der Westhuizen)
- Multimodal multiliteracies in support of self-directed learning (NRF project; Project leader: Prof Jako Olivier)
- A trilingual electronic glossary for multimodal learning (Project leader: Prof Jako Olivier)

- Exploring an adaptive system using cooperative learning and Socratic questioning to enhance Self-Directed Learning in Mathematics (Maths clases) (Joint research project with Swiss Distance University of Applied Sciences; SDL funded project; Project leaders: Drs Roxanne Bailey and Dorothy Laubscher)
- A technology-based adaptive learning system that facilitates metacognitive regulation to promote self-directed learning (Joint research project with Swiss Distance University of Applied Sciences; SDL funded project; Project leader: Dr Divan Jagals)



Prof Johan Botha, Prof Elsa Mentz, Prof Lioyd Conley (Dean), Ms Nicole Kalbamatter & Prof Per Bergamin (our visitors from the Swiss Distance University of Applied Sciences, Switzerland) & Prof Christo Van der Westhuizen.







SUBAREA COGNITION AND METACOGNITION TO FNHANCE SELE-DIRECTED LEARNING

Subarea Leader:

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Cognitive strategies are the basic mental strategies we use, for example, thinking, learning, recalling information from memory, making inferences, interpreting and comprehending text, or solving problems. Metacognition acts upon cognition, and regulates the process and product of cognition and performance, and is used to understand the cognitive strategies when one solves problems or executes a task. Metacognition is aligned with learning to learn, and can be differentiated from cognition by the action of awareness and self-regulated processes. Self-regulated learning is understood as learning and motivational processes that underlie students' assumptions of personal responsibility to learn. The tendency to think about a task – producing a metacognitive conceptualisation of the task – and to use metacognitive knowledge and self-regulation is called reflection. Cognitive strategies help an individual achieve a particular cognitive goal, and metacognitive strategies are used to ensure that the goal has been reached. Cognitive and metacognitive strategies may overlap in the same strategy, for example, one can use self-questioning while studying as a means to obtain content knowledge, and as a way of monitoring progress and understanding what and how you are studying as a result of receiving feedback from other cognitive strategies. Constructs and strategies (goal setting) developed elsewhere and desirable study habits are adopted to help students learn more effectively. Therefore, effective reasoning depends on the concurrent development of both cognitive and metacognitive knowledge and skills. This subarea conducts research on cognition and metacognition with the specific aim to promote self-directed learning (SDL).

- Cultural and contextual influence on the development of self-regulated learning to enhance self-directed learning.
 - (Project leader: Prof Bernadette Geduld)
- Application of Metacognition in Holistic Education: Towards a Self-transcendence Philosophy of Self-directed learning (Project leader: Dr Divan Jagals)
- A technology based adaptive learning system that facilitates metacognitive regulation to promote self-directed learning
 - (Joint research project with Swiss Distance University of Applied Sciences; SDL funded project; Project leader: Dr Divan Jagals)





Our 3rd International SDL Conference 2019 at Muldersdrift



SUBAREA COOPERATIVE LEARNING TO ENHANCE SELE-DIRECTED LEARNING

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Cooperative learning is a well-planned, purposeful teaching-learning strategy where learners work together in small groups, in a harmonious manner, to realise their full potential and to assist their peers in the group to also reach their full potential in learning. It is a student-centred, active-learning approach that uses structured situations in which the group members interact in a non-competitive manner to accomplish a common goal. For cooperative learning to be effective and successful, the following basic elements have to be incorporated into each cooperative learning activity: positive interdependence, individual accountability, promotive face-to-face interaction, appropriate social skills, and group processing. In the process of working together students can develop skills that concur with the competencies of a self-directed learner. In this subarea we focus on expanding cooperative learning research that specifically sets out to enhance Self-Directed Learning (SDL).

- Technology-supported cooperative learning to enhance Self-Directed Learning (NRF project; Project leader: Prof Elsa Mentz)
- Promoting Self-Directed Learning in the Computer Science Education classroom using technology-supported cooperative learning (SoTL project; Project leader: Dr Roxanne Bailey)
- Cooperative Learning: A strategy for SDL in blended-distance learning environments (SoTL project; Project leader: Dr Chantelle Bosch)
- Establishing critically reflective communities of practice across teaching and learning contexts: A strategy for enhancing teacher development (Project leader: Dr Corné Kruger)

Prestige Lecture: Prof Karl Wirth, Extraordinary Professor for SDL





PROBLEM-BASED LEARNING TO ENHANCE SELF-DIRECTED LEARNING

SUBAREA

Subarea Leader: Prof Marietjie Havenga

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Problem-based learning (PBL) is a teaching-learning strategy that provides students with an in-depth investigation of real-world problems. The point of departure is an ill-structured real-world problem with no obvious solution. PBL is a student-centred active strategy and is facilitated by the lecturer or teacher. PBL can be organised around the solution of real-world problems, development of projects or addressing of cases. PBL is mainly applied in teams where all members are responsible for solving a problem or developing a project. It requires critical, innovative and reflective thinking as well as individual accountability, interpersonal skills and collective ownership. Working in teams may provide opportunities for the development of various skills which enhance independent and responsible learning. A particular focus in this subarea is on case-based teaching within pre-service teacher education, and how this could address the so-called theory-practice divide, and provide student teachers with a more nuanced understanding of the teaching profession.

- Enhancing engineering students' self-directed learning through problem-based learning
 - (NRF project; Project leader: Prof Marietjie Havenga)
- Programming of robots in problem-based contexts to enhance students' self-directed learning
 - (Project leader: Prof Marietjie Havenga)
- Geography teachers' self-directed learning abilities, their involvement in self-directed professional development activities and the implementation of active teaching and learning strategies
 - (Project leader: Prof Aubrey Golightly)
- Solving real-world problems in problem-based contexts to enhance mathematics students' self-directed learning skills (Project: Dr Tertia Jordaan)





SUBAREA SCHOLARSHIP AND PRAXIS FOR SELF-DIRECTED LEARNING

Subarea Leader: Prof Charlene du Toit-Brits

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In this subarea, our research builds on the theories underpinning self-directed learning (SDL) in all education sectors. We focus on how SDL can be conceptualised within curriculum transformation, development, design, and implementation. Curriculum transformation within the context of SDL implies a process of learning that creates a deep change in learning behaviour, attitude and practice of an independent individual within a challenging environment, for the development of SDL skills. The ways in which the curriculum domains of development, design and implementation can support SDL should be further researched. Our research aims to inform the 21st century workplace and learning environment in order to enhance lifelong SDL. Without a thorough knowledge of theories and praxis of SDL, it is not possible to inform scholarship on SDL within the unique South African landscape.

Current projects in this subarea:

 South African black students' voices on the conceptualisation of Self-Directed Learning

(Project leader: Prof Charlene du Toit-Brits)

 Cultural and contextual influences on the development of self-directed and selfregulated learning

(Project leader: Prof Bernadette Geduld)

 Strengthening Consumer Studies through benchmarking the curricula of selected African countries

(Project leader: Dr Adri Du Toit)

 Scholarship of Teaching and Learning project: Problem-based learning to enhance 21st century skills of Consumer Studies student teachers in preparation for practical lesson

(Project leader: Dr Adri Du Toit)



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Prof	Daniel	Burgos	Universidad Internacional de La Rioja, Spain	Daniel.burgos@unir.net			





Expertise of SDL Researchers

Prof	Josef	De Beer	Teacher Education; Science Education; Indigenous Knowledge Systems; Ethnobotany; Cultural Historical Activity Theory
Prof	Washington	Dudu	Teacher Education; Science Education; Scientific Inquiry; Nature of Scientific Inquiry; Indigenous Knowledge Systems; Pedagogical Content Knowledge
Prof	Charlene	Du Toit-Brits	SDL within ODL and Teacher Education; Self-directed contextualised learning; Self-directed preparedness of individuals; Self-directed learning Theory. Conceptualised SDL within curriculum transformation, -development, -design, and – implementation; Comparative Education.
Prof	Bernadette	Geduld	Open Distance Learning; Self-regulated Learning; Learning Theories
Prof	Aubrey	Golightly	Geography Education; Problem-based Learning; Self-Directed Learning; Active Learning; Self-directed professional development
Prof	Marietjie	Havenga	Problem-based Learning: Self-directed learning; Computer Science Education; Engineering Education; Robotics in Education
Prof	Elsa	Mentz	Self-directed learning; Cooperative Learning; Computer Science Education; Technology supported learning; Cultural Historical Activity Theory; Assessment
Prof	Emmanuel	Mgqwashu	Teaching and learning support, ; Self-directed learning
Prof	Jako	Olivier	Multimodal learning and Open Educational Resources (OER); Blended Learning; Multiliteracies; Computer-assisted Language Learning; Macrosociolinguistics
Prof	Neal	Petersen	Life Sciences Education; Cooperative Learning; Qualitative Researcher
Prof	Marthie	Van der Walt	Metacognition; Reflection; Lesson Study; Mathematics Education; Study Orientation in Mathematics; Research; Contextualised Mathematics; Pedagogy of play
Prof	Christo	Van der Westhuizen	ICT's in Geography Education; Geo-spatial technologies Education; Blended Learning environments and technology applications to foster Self-directed learning.
Dr	Roxanne	Bailey	Cooperative Learning; Self-directed learning; Computer Science Education
Dr	Gerrie	Benade	Mechanical Technology; Civil Technology; Technical Drawings; Self- Directed Learning; Problem-based Learning
Dr	Susan	Bester	History (Curriculum/Education); Land Claims; Multimedia usage in History Education
Dr	Henry	Blignaut	Contextualised learning (Diversity Studies), Curriculum Development, Curriculum as Praxis, Self-directed learning, 21st century skills
Dr	Chantelle	Bosch	Cooperative Learning; Blended Learning; Assessment
Dr	Byron	Bunt	Cognitive Education; Critical Thinking; Creative Thinking
Dr	Adri	Du Toit	Curriculum Studies; Consumer Studies Education; Entrepreneurship Education; Project-based learning; Teacher Education
Dr	Divan	Jagals	Facilitating metacognition to understand SDL through engagement with epistemological, cultural and technological tools
Dr	Tertia	Jordaan	Mathematics Education; Problem-solving and Problem-based Learning; Self directed learning
Dr	Albert	Kemp	Engineering Graphics and Design; 2D/3D CAD; 3D Printing/Scanning

Dr	Magda	Kloppers	Mathematics Education, Critical thinking dispositions, Cognition, Self- directed learning
Dr	Donnavan	Kruger	Ethnozoology; Quantitative Research Methods; Self-directed learning
			Grade R Education; Foundation Phase Mathematics; Work-integrated
Dr	Corné	Kruger	Learning; SDL: Metacognition; Reflection (Reflective Journals);
			Curriculum Development
Dr	Dorothy	Laubscher	Mathematics Education; Self-Directed Learning; Blended Learning;
	Dorothy		Cooperative Learning
Dr	Elsie	Lubbe	Self-directed learning; Keyboarding (Touch-typing)
			Assessment, Implementation of Cooperative Learning; Implementation
Dr	Anitia	Lubbe	of Cooperative Base Groups; Using Cooperative Learning to enhance
			SDL; Self-Directed Learning
<u>Dr</u>	Marry	Mdakane	Self-directed learning; Indigenous Knowledge; Open Distance Learning
Dr	Pentecost	Nkhoma	Mathematics Education; Learner-centeredness in poor social contexts
Dr	Maryna	Reyneke	Assessment; English Medium of Instruction; Language Learning; Self-
		· · · · · · · · · · · · · · · · · · ·	directed learning
			Metacognitive teaching and learning strategies for self-directed
Dr	Annalie	Roux	learning in mathematics teacher education; Conceptual learning of
			pre-service mathematics teachers; Mathematical thinking and problem
			solving
Dr	Kgomotsego	Samuel	SDL Subarea(s): Indigenous Knowledge and Contextualised Learning to
			enhance SDL Afrikans varieties, Afrikans Mathadalagu, Afrikans Children and
Dr	Ronel	Van Oort	Afrikaans varieties; Afrikaans Methodology; Afrikaans Children and Youth Literature; Self-directed learning.
Dr	Doon	Van Tonder	
Dr	Deon	vali rondei	Education management, Self-directed learning. Computer Science education, cooperative learning to enhance deeper
Dr	Sukie	Van Zyl	self-directed learning
Dr	Marisa	Verster	Curriculum Studies; Self-directed learning, Self-directed learning
	IVIGITISG	Verster	Reading motivation of learners; Teaching and Learning: Senior and FET
Dr	Elize	Vos	phases; Children and youth literature; Assessment; Self-directed
			learning
_	. "		Communities of Practice; Life Sciences Education; Indigenous
Dr	Lounell	White	Knowledge
Mrs	Marike	Anandale	Assessment to support SDL
			Statistical Data Analysis; Time series Analysis and Forecasting;
Mr	Martin	Chanza	Econometric Modelling; Data mining and Machine Learning, Financial
			Risk Management; Self-directed learning.
			Educational & Developmental Psychology; Archetypal Psychological
Mr	Christo	Els	Type Dynamics; Development and Standardization of Psychometric
IVII	CITISTO	LIS	Web-based Applications for Education; Information Communication
			Technologies (ICTs) for Education; Self-directed learning
Ms	Yolanda	Fourie	Scholarship and Praxis for SDL
Ms	Nozi	Kgati	Curriculum studies; Self-directed learning
Ms	Christelle	Kruger	Economics-; Business studies- and Accounting Education; Self-directed learning
Mr	Sfiso	Mahlaba	Mathematics Education; Cognition and Metacognition to enhance SDL; cooperative learning; problem solving; Self-directed learning.
Mr	Steve	Maletso	SDL Subarea(s): Indigenous Knowledge and Contextualised Learning to Enhance SDL
Mrs	Neo	Maroja	Work integrated learning, Cooperative learning; Self-directed learning
19113	1100	iviai Oja	Work integrated learning, cooperative learning, Jen unceted learning

Ms	Therese	Mitchell	Cognition and Metacognition to enhance SDL, Accounting, Education
1013	THETESE	wiitchen	Sciences
Mr	Sysman	Motloung	Cognition and Metacognition to enhance SDL, Political philosophy,
IVII	Systilati	Motiourig	Hydro-politics, African politics, Social movements
Ms	Frika	Dotaiotor	Metacognition; Pedagogy of play; Puppetry; Teacher professional
IVIS	ETIKd	Potgieter	development; Mathematics education.
Mr	Mohsin	Sayed	Indigenous Knowledge and Contextualised Learning to enhance SDL
Mr	Judicial	Sebatana	Science Education; Problem Based Learning to enhance Self-directed
IVII	Judiciai	Senarana	learning.
Mr	Tswakae (TK)	Sebotsa	Physics Laboratory Work; Physics Simulations; Teaching and Learning;
IVII	iswakae (ik)	Senorsa	Self-directed learning.
Mr	Benjamin	Seleke	Curriculum and didactic: Curriculum Studies and GET Technology
IVII	benjamin	Seleke	Education; Self-directed learning.
Mr	Toto	Tshona	Mathematics Education; Self-directed learning.
Mr	Pieter	Van der Berg	Problem Based Learning; Self-directed learning.
N.4 m	Nicologo	Van	Assessment to suppose Colf diseased learning
Mr	Nicolaas	Deventer	Assessment to support Self-directed learning.

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Prof Lynda Baloche (West Chester University), one of the SDL keynote speakers at the $3^{\rm rd}$ International SDL Conference 2019

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	Videos
Becoming a SUPER TEACHER Overview	https://www.youtube.com/watch?v=jKc_hiPOBRA
Becoming a Super Teacher 2017 Daniël Naudé	https://youtu.be/WuVbriuTvYo
Becoming a Super Teacher 2017 Full overview	https://youtu.be/vhXDWdd4F14
Becoming a Super Teacher 2017 Lehlohonolo Maine	https://youtu.be/3Vm31PefdRE
Becoming a Super Teacher 2017 Tshegofatso Lekgae	https://youtu.be/trj72Z3u1rg
NWU Indigenous Knowledge Intervention	https://www.youtube.com/watch?v=bkX3zbPssks
NWU Faculty of Education - Calvinia Intervention 2018	https://www.youtube.com/watch?v=lqt3cUVJ3Zk
NWU Indigenous Knowledge Intervention Calvinia 2017 Full overview	https://youtu.be/01qezHXsJSs
NWU SDL Puppetry in Education	https://youtu.be/mYNGchS-C10
NWU SNTO - Student Teacher Excursion 2016 Achterbergh Full overview	https://www.youtube.com/watch?v=GC4aZPEjAzI
NWU SNTO - Student Teacher Excursion 2016 Achterbergh Short Overview	https://youtu.be/WBJU2InTS60
Self-Directed Learning Research Focus Area	https://www.youtube.com/watch?v=OXkBtq239IY
Tshimologo! A new season in Maths and Science Education	https://www.youtube.com/watch?v=1kK0VIHw1Tw
UNESCO Chair on Multimodal Learning & Open Educational Resources	https://www.youtube.com/watch?v=_wzJAuyas

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