

**CURRICULUM VITAE:  
PROF PJ ANKIEWICZ**



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**1. PERSONAL DETAILS**

**Surname:** Ankiewicz  
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## **2. PRE-TERTIARY EDUCATION**

### **2.1 Schools**

Primary School: Grootvlei Primary School (1966 - 1972)

High School: Balfour High School (1973 - 1977)

### **2.2 Leadership positions and achievements at High School:**

Head Boy, 1977

Hostel prefect, 1977

Participation in Rapportryers debating competition: Final round for Transvaal schools and semi-final round for South African Schools, 1976

1976-1977: Winner of Rapportryers Shield for debate

Std 8, 9 and 10: Academic colours

Colours for debate, 1976

Colours for general achievement, 1977

Editor of School Newspaper

Chairman of SCA branch, 1977

## **3. TERTIARY EDUCATION**

### **3.1 Universities**

Potchefstroom University for Christian Higher Education (PU for CHE): 1978 - 1990

### **3.2 Courses, leadership and achievements**

1979: Award for outstanding performance in Mathematics II by the Mathematics Department, PU for CHE

Chairman: Faculty Committee for Natural Sciences (subcommittee of the student council)

1980: Chairman: Faculty Committee for Natural Sciences

1981: B.Sc., with distinctions in Mathematics III and Physics III

Obtained academic colours

Deputy chairman of the Academic Council

Chairman of Faculty Committee (sub-committee of Academic Council)

Convenor of commission regarding interhouse competitions in academic achievement at the PU for CHE

Part-time research assistant: Mathematics Department

1982: Higher Education Diploma HED (post graduate) with distinction

Demonstrator for Physics practical: Physics Department

1983: Responsible for Physical Science Practicals for HED (Diploma) students

1984: M.Sc. (Physics) cum laude

1988: B.Ed. Hons. (Curriculum Studies and Subject Didactics as areas of specialisation)

1989: Teacher member of research committee at PU for CHE on effective demonstrations in Physical Science

1990: D.Ed. with thesis titled: "The influence of training on the communicator style of student teachers of Physical Science"

2002: Certificate in Qualitative Research from the University of Georgia (USA)

## **4. WORK EXPERIENCE**

### **4.1 Positions**

1984-1985: Physical Sciences teacher at the Potchefstroom Technical High School while completing National Service  
Completed NSM junior leaders course with distinction: Infantry School, Oudtshoorn  
Staff officer at the Directorate Infantry: Army Headquarters, Pretoria  
Chairman of Year of the Youth Committee: Army Headquarters Unit

1986-1987: Physical Sciences teacher at the Potchefstroom Technical High School

1988-1990: Head of Department: Physical Sciences at Potchefstroom Gymnasium

1990-1993: Deputy Director responsible for designing national pre-tertiary policy for Natural Sciences and Technology Education for the Department of National Education

1993-1999: Senior Lecturer in the Department of Curriculum Studies at the Rand Afrikaans University (RAU)

1999-2001: Associate Professor in the Department of Curriculum Studies at the Rand Afrikaans University (RAU)

2002-2004: Professor in technology education in the Department of Curriculum Studies at the Rand Afrikaans University (RAU)

2005- 2011: Professor in technology education in the Department of Mathematics, Science, Technology and Computer Education at the University of Johannesburg (UJ)

2012- 2017: Head of Department of, and Professor in technology education in the Department of Science and Technology Education at the University of Johannesburg (UJ)

2018- ....: Professor in technology education in the Department of Science and Technology Education at the University of Johannesburg (UJ)

### **4.2 Highlights during appointment as teacher and head of department (1986-1990)**

Matriculation results 1988: Higher Grade (HG): 17 distinctions, average 67,66%, TED average: 58,81%; Standard Grade (SG): 7 distinctions, average 66,53%, TED average:

51,28%. The chief superintendent of Natural Sciences announced these results as outstanding.

Matriculation results 1990: HG: 15 distinctions, 16 B-symbols out of a possible 63 candidates, average: 68,94%, TED average: 58,78%; SG: 6 distinctions, average: 66,90%, TED average: 51,40%

Chief marker for Physical Science, paper 1, Higher Grade, 1989-1990

Project leader of various GEC-Expo projects which were awarded medals, include:

- 1986: Project ("Energy-content of Torch Batteries") in conjunction with EVEREADY SA crowned with a gold medal (in total 5 gold, 6 silver and 6 bronze medals)
- 1987: Project ("Optical Fibre") in conjunction with ATC (Brits) and awarded the best project on the exhibition. Eight pupils awarded gold medals and a special award from the South African Optical Association (in total 8 gold and 4 silver medals)
- 1988: Potchefstroom Gymnasium is awarded the best achiever at the national exhibition (4 gold, 5 silver and 9 bronze medals)
- 1989: A project ("Kirlian Photography") of one of the pupils of Potchefstroom Gymnasium was awarded a gold medal at the International Expo in Brest, France
- 1989: 1 gold, 4 silver and 6 bronze medals at the national exhibition

Deputy chairman of the Western Transvaal Expo Committee

Judge at the National GEC-Expo for Young Scientists

Organiser of various study tours and information sessions:

- 1987: Study tour in conjunction with Kynoch Fertiliser to Rhodes University, UPE and the Abedare Optical Fibre factory with pupils with a special interest in Physical Science
- 1987: 2 tours to the Optical Fibre Plant (ATC) in Brits
- 1987: An information visit ("What does modern physics look like?") for 40 std 9 and 10 pupils to the Physics Department at the PU for CHE
- 1988: A tour to the Astro-physics experiment of the PU for CHE for the top 10 Physical Science pupils of every high school in Potchefstroom
- 1988: Chemistry demonstration evening for 400 pupils in conjunction with the PU for CHE and the South African Chemical Institute
- 1988: 4 pupils attend the launching of the Foundation for Research Development (FRD) at the CSIR
- 1988: 18 pupils attend a meeting for the advancement of Chemical Engineering organised by the South African Chemical Institute at Sasolburg.
- 1990: Study tour in conjunction with Kynoch Fertilizer for gifted std 10 pupils of Physical Science

The only teacher member of a study group at the PU for CHE to do research on what the ideal demonstration in the school laboratory should look like

Coach of the winners of the final round of the Nasou/Rapportryers debating competition, Bloemfontein, 1989

Commander of cadet detachment

School fair organiser

Chairman of Prospectus Committee

Founder and teacher chairman of SCA branch at Potchefstroom Gymnasium

Leader of decentralised courses for teachers of Physical Science: 1992

1990: One of the ten finalists in the Technotron competition for the most inspiring and innovative teachers of Afrikaans, Physical Science and Mathematics in the RSA

#### **4.3 Responsibilities at the Department of National Education (1990-1993)**

Involved in development of the following policy documents:

- Education Renewal Strategy (ERS)
- A Curriculum Model for education in South Africa (CUMSA)

Represented the Department of National Education at a Technology seminar offered at the Cape Technikon

Visited the Natal Education Department to investigate a pilot project on Technology Education

Represented the Department of National Education on the Planning Committee for Technology Education at Phuting School

Secretariat of the Core Syllabus committee for Technology

Secretariat of the Core Syllabus committee for Natural Sciences

Member of the Inter-departmental Committee for Distance Education, a sub-committee of the Heads of Education Department Committee (CHED)

#### **4.4. Experience at Randse Afrikaanse Universiteit (RAU) (1993-2004) and University of Johannesburg (UJ) (2005 - ....)**

##### **4.4.1 Curricular activities**

Responsible for the following courses:

- Teaching Studies A for undergraduate students: 1994-1995, 1997
- Teaching Studies B (Technology Education) for undergraduate students: 1996
- Teaching Studies for Nursing students (first semester): 1995-1997
- Teaching Studies for B.Ed. Hons. students: 1996-1997
- Technology Education for B.Ed. Hons. students: 1998
- Subject Didactics: Physical Science: 1993-1999
- Subject Didactics: General Science: 1993-1999
- Subject Didactics: Physical Science for B.Ed. Hons. students: 1994
- M.Ed. Coursework (Creative Thinking and Technological Development), developed by myself: 1995-2005
- M.Ed. Dissertation (Technology Education): 2006- ...
- Coordinator for the B.Ed. Hons.: Technology Education: 1998 -2016
- B.Ed. (Hons) Technology Education A (TEA1007): 1998-2008
- B.Ed. (Hons) The Knowledge of Technology (TKT0017): 2008-2017
- B.Ed. (Hons) Technology Education C (TEC2007): 1999-2008
- B.Ed. (Hons) Instructional Methodology of Technology Education (IMT0027): 2008-2018
- B.Ed. (Hons) Research Project (NPT2007): 2004-2009

- Programme coordinator for the Advanced Certificate in Education: Technology Education: 1999-2012
- ACE: Principles, Methods and Techniques of Technology Education (20PTT01): 1999-2012
- ACE: Instructional Methodology (20MTE02): 2000-2012
- B.Ed. (Senior Phase) Learning Area Methodology (LAA1A10): 2004-2007
- B.Ed. (Senior Phase) Learning Area Methodology (LMG2A10): 2004-2007
- B.Ed. (Senior Phase) Learning Area Methodology (LMG3B20): 2005-2007
- B.Ed. (Senior Phase) Learning Area Methodology (LMG4A10): 2006-2007
- B.Ed. (Senior Phase) Learning Area Methodology (LMG4B20): 2006-2007
- B.Ed. (Senior Phase) Learning Area Methodology (LMG0A10): 2008-2014
- B.Ed. (Senior Phase) Learning Area Methodology (LMG0B10): 2008-2014
- B.Ed. (Senior Phase) Learning Area Methodology (LMG2A): 2012-2013
- B.Ed. (Senior Phase) Learning Area Methodology (LMG3B): 2012-2014
- B.Ed. (Senior Phase) Introduction to the School Curriculum (ISC1A10): 2011-2013
- B.Ed. (Senior Phase) Learning Area Methodology (LMG4A): 2014-2015
- B.Ed. (Senior Phase) Learning Area Methodology (LMG4B): 2014-2015
- B.Ed. (Senior Phase and FET) Teaching Methodology and Practicum (MFSPTA2): 2014
- B.Ed. (Senior Phase and FET) Teaching Methodology and Practicum (MFSPTB2): 2014
- B.Ed. (Senior Phase and FET) Teaching Methodology and Practicum (MFSPTA3): 2015-...
- B.Ed. (Senior Phase and FET) Teaching Methodology and Practicum (MFSPTB3): 2015-...
- B.Ed. (Senior Phase and FET) Teaching Studies 1A (TST10A1): 2013-2017

#### **4.4.2 Extra-curricular activities**

Involved at RAU INSET: An in-service training program for Physical Science teachers in marginalized communities: 1993-1998

Involved in RAU-LYCEUM: An in-service training program for a Further Diploma in Education: 1994-1995

Member of the Workgroup for Community Development: Faculty of Engineering: 1995-1996

Member of DINKNET: 1995

Member of the RAU-ESCOM committee for community development: 1995

Member of the RAU marketing committee: 1995

Member of the Teaching committee: 1995-...

Coordinator of the year-end function of the Faculty: 1996

Coordinator of establishing the RAU Centre for Technology Education (RAUTEC): 1996-1998

Head of RAUTEC: 1999-2005

Head of TechnEd: 2006-

Member of the Education journal management committee: 1996 -1997



Member of the Strategic committee (undergraduate): 1997-2005

Chairperson Teaching committee: 1998-2005

Member of the RAU task team: Expanding Science, Engineering and Technology (SET): 2000-2005

Member of the Core task team and sounding board committee: 2001-2005

Member of the Management Committee of the RAU Centre for the Advancement of the Education of Mathematics, Science, Engineering and Technology: 2002-2005

Member of the Committee for Commercialisation of the RAU Intellectual Property: 2003-2005

Member of the Merger Committee of the Faculty of Education and Nursing: 2004

Member of the Committee for Continuous Professional Development of Teachers of the Faculty of Education: 2004 - 2009

Member of the B.Ed. (Hons) Committee of the Faculty of Education: 2004- 2013

Member of the Research Committee of the Faculty of Education and Nursing: 2004

Member of the Ethics Committee of the Faculty of Education: 2005-2006

Member of the Higher Degrees Committee of the Faculty of Education: 2006-2017

Member of the Remuneration Committee of the Faculty of Education: 2010-2012

Member of the CPTD Committee of the Faculty of Education: 2010-2014

Member of the Promotions Committee of the Faculty of Education: 2011-...

Head of the Department of Science and Technology Education: 2012-2017

Member of the Executive Committee of the Faculty of Education: 2012-2014

Member of the Financial Committee of the Faculty of Education: 2012-2017

Member of the Timetable Committee of the Faculty of Education: 2012-2017

Member of the IPET Committee of the Faculty of Education: 2012

Member of the UJ Timetable Committee: 2012-2017

Member of the Faculty of Education Leadership and Management Committee: 2015-2017

Member of the Faculty of Education Teaching and Learning Committee: 2013-2017

Member of the Faculty of Education Strategic Committee: 2013-2017

Member of the Faculty of Education First Year Experience Committee: 2013-2017

Member of the BEd APK Pipeline Focus Group (2<sup>nd</sup> and 3<sup>rd</sup> Year): 2013

Member of the BEd APK Pipeline Focus Group (3<sup>rd</sup> and 4<sup>th</sup> year): 2014

Member of the BEd Senior Phase and FET Focus Group (new programme) first and second years (SFFG) 2014

Member of the BEd APK Pipeline Focus Group (4<sup>th</sup> year): 2015

Member of the BEd APK Focus Group: 2015-...

Member of the PGCE/ADT Focus Group: 2015-...

#### 4.4.3 External examiner/assessor

##### 4.4.3.1 Undergraduate courses

External moderator for:

University of Pretoria: PHED Subject Didactics: General Science: 1997-1998

University of Pretoria: PHED Subject Didactics: Physical Science: 1997-1998

##### 4.4.3.2 Postgraduate students

Total number of postgraduate student assessments:

- Masters' studies: 18
- Doctoral studies: 13

<i>Student's name</i>	<i>Research essay</i>	<i>Minor dissertation</i>	<i>Dissertation</i>	<i>Thesis</i>	<i>Name of institution</i>
HE van Staden, 1994			x		PU for CHE
K Sirestarajah, 1995			x		UNISA
HA Pretorius, 1997		x			PU for CHE
BS Baadjies, 1997			x		US
E Haasbroek, 1998		x			PU for CHE
E Haasbroek, 1999		x			PU for CHE
KTA Iornengen, 1999			x		PU for CHE
AD Abdool, 2000		x			PU for CHE
BH Challens, 2000		x			PU for CHE
R Kemp, 2000			x		PU for CHE
S van den Heever, 2001			x		UNISA
SA Shilote, 2001				x	PU for CHE
E Mentz, 2001				x	PU for CHE
AMM Lephalletse, 2001			x		PU for CHE
AJ Klinck, 2001			x		UOFS
AMM Lephalletse, 2002			x		PU for CHE
C Livingston, 2002			x		PU for CHE
ECS Thomen, 2002				x	Rhodes
SA Shilote, 2002				x	PU for CHE
GA Chapman, 2002				x	Durban-Westville
GA Chapman, 2003				x	Durban-Westville
ML Molefe, 2003				x	UCT
Thokazani Sibonelo Leo Ziqubu, 2006			x		U KZN
Thokazani Sibonelo Leo Ziqubu, 2007			x		U KZN
SS Seome, 2011		x			NWU (Mafikeng Campus)
JW Kamau, 2011				x	UP
JW Kamau, 2011				x	UP
JW Kamau, 2012 - reassessment				x	UP
A Ferreira, 2017				x	NWU (Potchefstroom Campus)
A Ferreira, 2018 – reassessment				x	NWU (Potchefstroom Campus)
J Svenningsson 2018 – 90% seminar				x	Linköping University (LU), Sweden
		(6)	(12)	(13)	

#### 4.4.3.3 Articles reviewed for publication

Total number of articles reviewed:

- International: 74
- National: 11

## 5. COMMITTEES, PROFESSIONAL AND SUBJECT ASSOCIATIONS

### 5.1 International

Founding member of the World Council of Associations for Technology Education (WOCATE): 1992-...

Member of the Pupils' Attitudes Towards Technology (PATT), PATT Foundation (The Netherlands): 1995-...

Member of Epsilon Pi Tau (International honorary body for technological professions): 1996-...

Member of the International Technology Education Association (ITEA): 1996-...

Member of the Council on Technology Teacher Education (CTTE): 1996-...

Member of the Southern African Association for Research in Mathematics and Science Education (SAARMSE): 1992-...

Member of an international Technology Education focus group of the International Technology Education Association's for All Americans Project to evaluate the standards for Technology Education in Grade K-12 in the USA, 1997-...

Member of the Editorial Board and Africa representative of the International Journal of Technology and Design Education: 2000-...

Member of an internal research team (consisting of 13 colleagues) at the **Department Subject Didactics: Technology Education** of the **University of Dortmund, Germany** to develop teaching strategies for enhancing required competencies for virtual businesses (in cooperation with the German Federal Department of Education and Research): 2001-...

Member of the Editorial Board of International Technology Education Studies: 2005-...

Member of the Review Board for the 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> Biennial International Technology Education Research Conference (TERC), hosted by the Griffith Institute for Educational Research, in Australia: 2010; 2012 and 2014

Invited international member of the Delphi Study on Research needs for technology education, initiated by Prof. John M Ritz (Old Dominion University) and Prof. Gene Martin (Texas State University): 2011-2012

### 5.2 National

Executive Member of the Unit for Advancement of Physical Science (EBONS) at the PU for CHE: 1991-...

Member of the Education Association of South Africa (EASA): 1993-...

Member of the Executive, Accreditation and Evaluation Committees of the TECHNOLOGY 2005 project (Heads of Education Departments Committee [HEDCOM]-project): 1996-1998

CUP representative on the TECHNOLOGY 2005 committee: 1996

Secretary of the EASA interest group: Theory and Practice of Teaching: 1996-1997

Member of the SA Association of Teachers of Physical Science: 1986-1993

Member of the FRD forum: Science and Technology Centres: 1996

Member of the FRD forum: Co-operation in Interactive Distance Education for Higher Education: 1996

Member of the AS&TS Science Centre Committee: 1996

Member of the VIA AFRIKA forum for Technology Education: 1996

Member of the Coordinating committee for the *PATT International Conference on Technology Education for Development in South Africa*, 15 - 16 October 1996

Member of Evaluation committee for the PROTEC Technology Education curriculum: 1996

Member of the Advisory committee for Teacher Education: Technikon Pretoria: 1997-2000

Peer evaluator for the NRF to grade the research output of a colleague: 1997, 2000, 2017 and 2018

Evaluator for the NRF to evaluate the research output of a Technikon: 2001

Member of the Joint Project committee of the Gauteng Department of Education for the in-service training of 17 000 Grade 9 teachers: 2001:

Member of the NRF Advisory Panel for Science, Technology and Mathematics Education (STME): 2005- ...

Member of the Cement and Concrete Institute's (C&CI) Education Advisory Committee: 2005-2010

Member of an internal review panel for the Master's and Honours programme of the Department of Economics and Econometrics at UJ: 20 – 21 November 2006

Member of the Council on Higher Education's (CHE) Higher Education Quality Committee (HEQC) for the national review of the ACE Mathematics programme at Cape Peninsula University of Technology: 16-20 April 2007

Member of the Board of the South African Qualifications Authority (SAQA) representing the Suid-Afrikaanse Onderwysersunie: 2007-2010

Member of the South African Comprehensive Assessment Institute (SACAI) Academic Advisory Committee: 2014-2018

## 6. INTERNATIONAL STUDY VISITS

- 1991: Study tour to England, Scotland, Germany and Belgium to investigate Technology Education on pre-tertiary level
- 1992: Study tour to Israel and Canada to investigate models for distance education
- 1993: Visit to the Open University, UK to investigate distance education.
- 1993: Study visit to the Netherlands to investigate Technology Education and distance education
- 1996: Visit to the University of Missouri, Columbia to investigate Technology Education
- 1997: Visit to Flensburg University, Germany to investigate centres for Technology Education
- 2003: Two-weeks study course in STS (Science, Technology and Society) by die Technical University Eindhoven (The Netherlands) under the supervision of Prof. MJ de Vries, 26 May – 6 June 2003
- 2011: Invitation by Prof. Ante Uglešić, PhD, the Vice Chancellor of the University of Zadar, Croatia to establish a Memorandum of Understanding regarding collaboration between UJ and the University of Zadar (9-13 May 2011)
- 2014: Visit to the University of Finland in September 2014 to investigate high school science education and teacher education.
- 2014: Visit to the National Institute of Education (NIE) at Nanyang Technological University (NTU) in Singapore during November 2104 regarding possible joint research, and joint academic programme offerings and post-graduate student exchanges.
- 2018: Visit to the Technology and Science Education Research Unit (TESER), in the Department of Social and Welfare Studies at the Linköping University (LU) in Norrköping, Sweden from 4 – 15 June 2018 regarding collaborative research on the philosophy of technology (specifically STEM education), attitudes studies and indigenous knowledge (IK).
- 2019: Visit by invitation to the Technology and Science Education Research Unit (TESER), in the Department of Social and Welfare Studies at the Artesis Plantijn University of Applied Sciences in Antwerpen, Belgium from 24 until 29 April 2019 regarding the conceptualisation and drafting of a research funding proposal for designing language supportive STEM lessons through a blended course for Senior Phase teachers in a school district in Gauteng.

## 7. NATIONAL CONFERENCES, WORKSHOPS AND SEMINARS

### 7.1 Papers presented

1. South African Institute for Physics (SAIP), University of Pretoria, July 1983: Ankiewicz, PJ 1983: *Stapsgewyse en skokgolfgeassosieerde veranderinge in die langtermynmodulasie van kosmiese strale*, Conference proceedings: July 1983.
2. SA Association of Teachers of Physical Science, Bloemfontein, 5-9 July 1993:

- Ankiewicz, PJ 1993: *The place of technology in the curriculum model for pre-tertiary education*, Conference proceedings, 1993:1-10.
3. *Southern African Association for Research in Mathematics and Science Education (SAARMSE)*, Durban, 27-30 January 1994:  
Ankiewicz, PJ 1994: *Technology Education in South African schools*, Conference proceedings, 1994.
  4. *AS & TS Discussion Forum to Accelerate Development*, University of Pretoria, Pretoria, 10-11 August 1995:  
Liebenberg, L & Ankiewicz, PJ 1995: *A programme for the promotion of technological awareness and literacy at pre-tertiary and tertiary levels*, Conference proceedings: 1995:7.1-7.4.
  5. ISIS Seminar, Stellenbosch, 16-17 October 1995:  
Ankiewicz, PJ 1995: *Technology as a school subject: Curriculum Development for Technology Education*.
  6. Transvaal Teachers Association (Transvaalse Onderwysersvereniging - TO) – Interest group for Teacher Training, RAU, 16 September 1995:  
Ankiewicz, PJ 1995: *From hand-skill subjects to Technology Education (Vanaf handvaardigheidsvakke tot Tegnologie-onderwys)*.
  7. Seminar: *Technology as a school subject*, University of Stellenbosch, Stellenbosch, 16-17 October 1995:  
Ankiewicz, PJ 1995: *Curriculum development for Technology Education*.
  8. Technology Education seminar: RAU Faculty of Engineering, 23-25 April 1997:  
Ankiewicz, PJ 1997: *The RAU Centre for Technology Education: A joint project of the Faculty of Education and Nursing and the Faculty of Engineering to promote and support Technology Education in South Africa*.
  9. Technology Education seminar: Gauteng Department of Education, Sunwoodpark High, Boksburg, 26 March 1998 and Dellville Primary, Germiston, 18 June 1998:  
Ankiewicz, PJ 1997: *The RAU Centre for Technology Education: A joint project of the Faculty of Education and Nursing and the Faculty of Engineering to promote and support Technology Education in South Africa*.
  10. Technology Education seminar: Gauteng Department of Education, Laerskool Die Arend, Brakpan, 13 August 1998:  
Ankiewicz, PJ 1997: *Technological literacy via the school curriculum (Tegnologie-geletterdheid via die skoolkurrikulum)*.
  11. Technology Education seminar for Grey College's staff, Bloemfontein: RAU, 17 June 1998:  
Ankiewicz, PJ 1998: *Technology Education: An overview (Tegnologie-onderwys: 'n Oorsig)*.
  12. Technology Education seminar for Grey College's staff, Bloemfontein: Bloemfontein, 27 August 1998:  
Ankiewicz, PJ 1998: *Technology Education: A Process approach (Tegnologie-onderwys: 'n Prosesbenadering)*.
  13. Technology Education seminar for the Principals of independent state schools: Grey College, Bloemfontein, 28 August 1998:  
Ankiewicz, PJ 1998: *Technology Education: A Process approach (Tegnologie-onderwys: 'n Prosesbenadering)*.

14. Symposium for Woodwork teachers: Greenside High, Johannesburg, 6 March 1999:  
Ankiewicz, PJ 1999: *Technology Education: A process approach*.
15. Workshop for facilitators of Gauteng Department of Education: RAUTEC, Johannesburg, 10 June 1999:  
Ankiewicz, PJ 1999: *The technological process*.
16. Workshop for English speaking principals and teachers: RAUTEC, Johannesburg, 17 June 1999:  
Ankiewicz, PJ 1999: *The technological process*.
17. Workshop for Afrikaans speaking principals and teachers: RAUTEC, Johannesburg, 18 June 1999:  
Ankiewicz, PJ 1999: *Die tegnologiese proses*.
18. Parent meeting: Laerskool Tuine, Pretoria, 24 August 2000:  
Ankiewicz, PJ 2000: *The rationale for Technology Education (Die rasional van Tegnologie-onderwys)*.
19. Workshop for technology teachers: Laerskool Tuine, Pretoria, 13 September 2000:  
Ankiewicz, PJ 2000: Basic principles of Technology Education for innovative teachers (Basiese beginsels van Tegnologie-onderwys vir innoverende onderwysers).
20. National conference for technology teachers: Durban, 30 September – 1 October 2002:  
Ankiewicz, PJ & De Swardt, AE 2002: *Aspects to be taken into account when compiling learning programmes to support effective facilitation of Technology Education, Conference proceedings, 2002:76-81*.
21. National Food Service Managers Symposium: Pretoria, 23 October 2002:  
De Swardt, AE & Ankiewicz, PJ 2002: *Critical and creative thinking as a prerequisite for innovation*.
22. *Teacher In-Service Programme (TISP)*: GET and FET engineering workshop, CPUT, Cape Town, 26-28 February 2009:  
Ankiewicz, P; De Swardt, E; Engelbrecht, W & Van As, F 2009: *Technology education at UJ*.
23. *The Teacher Education Conference*: UP, Pretoria, 17-19 September 2012:  
De Beer, JJJ & Ankiewicz, PJ: 2012: *Building on a solid foundation: A reflection on interventions in a first year module in the B.Ed programme of the Faculty of Education, University of Johannesburg*.

## 7.2 National conferences attended without presenting papers

1. SA Association of Teachers of Physical Science, Rhodes University, Grahamstown, July 1987
2. SA Association of Teachers of Physical Science, Pretoria Technikon, Pretoria, July 1989
3. SA Association of Teachers of Physical Science, University of Cape Town, Cape Town, July 1991

4. *Southern African Association for Research in Mathematics and Science Education (SAARMSE)*, Rhodes University, Grahamstown, 28-31 January 1993
5. Technology Education seminar (offered by the Department of Education and Culture), Bellville, 1993
6. Education Association of South Africa (EASA), Stellenbosch, January 1994
7. Education Association of South Africa (EASA), RAU, January 1995
8. Education Association of South Africa (EASA), Potchefstroom University for CHE, January 1996
9. Education Association of South Africa (EASA), UNISA, January 1998
10. Foundation for Research Development (FRD) Forum: *Science and Technology Centres*, Mtunzini, KwaZulu, 16-18 February 1995
11. Foundation for Research Development (FRD) Forum: *Co-operation in Interactive Distance Education for Higher Education*, Pretoria, 21 April 1995
12. Seminar: *Stellenbosch University Science, Technology, Engineering Programme (SUNSTEP)*, ORT STEP, Midrand, 31 January 1997
13. Seminar: *Australian South Africa Institutional Links Programme*, Pretoria Technikon, 26 May 1997
14. Workshop on FET technology education at the University of KwaZulu Natal in Durban on 28 and 29 January 2005.
15. High-level seminar: *European-South African Science and Technology Advancement Programme (ESASTAP)*, CSIR, Pretoria, 6 December 2005

### **7.3 National conferences, seminars and workshop organised**

1. Workshop: *Teacher training for Technology Education*, RAU, 25-26 January 1996
2. JISTEC '96 Follow-up meeting, for the Deputy Minister of Education, RAU, 5 February 1996
3. Workshop: *Evaluation of the TECHNOLOGY 2005 project*, RAU, 22 February 1996; 29 April 1996; 25 July 1996
4. Workshop: *Effective lesson planning/ Effektiewe lesbeplanning*, St Matthews School, Soweto, 5 August 1996; Teacher centre, JCE, Johannesburg, 14 August 1996
5. Workshop: *Teacher training for Technology Education*, Giyani College of Education, 7-8 August 1996
6. Workshop: *Teacher training for Technology Education*, Dr CN Phatudi College of Education, Burgersfort, 22-23 September 1997
7. Symposium by Mr Frank Banks (Open University, England): *Technology Education through distance education*, 3 March 1997



8. Symposium by Prof John Izard (Australian Council for Educational Research (ACER)): Assessment and evaluation, 19 June 1997
9. International seminar: *Technology Education for the new millennium: Myth or reality?* RAU, Johannesburg, 28 September 1999.
10. Seminar for technology facilitators of the Gauteng Department of Education: *Cement and concrete in the school curriculum.* RAUTEC, Johannesburg, 5 May 2000.
11. Workshop: *An Introductory Course to Concrete for ACE II students (sponsored by the C&C).* RAUTEC, 28-30 September 2000; 11- 13 January 2001; 29-31 August 2002; 22-24 September 2003; 28 September – 1 October 2004; 26 September – 1 October 2005.
12. Workshop for 336 educators of District S2 (Project manager and facilitator): *OBE training for Grade 8 educators of District S2.* Sebokeng, 8, 9, 14, 16 & 19 February 2001.
13. Outcomes based education (OBE) INSET course for 1440 educators of the Gauteng Department of Education (Project manager and facilitator): *Outcomes-based education (OBE) training for Grade 9 educators.* RAU, 31 August – 7 September & 13 October 2001.
14. Workshop for 30 Grade 7 educators of the Mpumalanga Department of Education. The fundamentals of Technology Education. Nelspruit, 25-27 February 2002.
15. Seminar for 20 INTERSEN technology facilitators of the Gauteng Department of Education. Learning support materials. RAUTEC, Johannesburg, 29 May 2002.
16. Material processing workshop for educators of the Rustenburg district (*sponsored by Anglo Platinum*). RAUTEC, 14 May 2003
17. Workshops for 430 Grade 7, 8 and 9 technology teachers in the Bojanala West region of the North West Province (*sponsored by Anglo Platinum*). Rustenburg and Mogwase, 3-4 June 2004; 12-13 August 2004; 21-22 October 2004; 2-4 March 2005; 1-3 June 2005; 10-12 August 2005; 19-21 October 2005; 11-12 May 2006; 7-9 June 2006; 26-28 July 2006; 18-20 Oct 2006; 14-16 March 2007; 1-3 August 2007; 29-31 August 2007; 3-5 October 2007.
18. Workshops for 70 Grade 7 technology teachers from the D10 district of the GDE (*sponsored by Toyota*). TechnEd, 18 September 2007; 18 March 2008; 13 May 2008; 7 August 2008.
19. Workshops for 39 Grade 8 and 9 technology teachers from the GDE (*sponsored by Sci-Bono Discovery Centre*). TechnEd, 29-31 March 2010.
20. Workshop for technology education attendees of the 25<sup>th</sup> SAARMSTE conference. Using a stage model as organizational framework to develop technological procedural knowledge through practice. Bloemfontein, 17 January 2017.

## 8. INTERNATIONAL CONFERENCES

### 8.1 Papers presented at international conferences

1. *18<sup>th</sup> International Conference on Cosmic Rays*, Paris, 1993:  
Ankiewicz, PJ; Moraal, H & Stoker, P H 1983: *Step like and shock related changes in the long term cosmic ray modulation*. Conference proceedings, 1983: MG4-21, 1-4.
2. *International Conference on Design and Technology Educational Research and Curriculum Development*, Loughborough, England, 1-4 September 1993:  
Ankiewicz, PJ 1993: *Aspects of the planning of Technology Education for South African schools*. Conference proceedings, 1993:123-128.
3. *PATT-TIPE Workshop*, Breukelen, The Netherlands, 13-15 October 1994:  
Ankiewicz, PJ 1994: *A draft module for Technology Education for 14 year old learners*.
4. *PATT-7 Technology Conference*, Breukelen, The Netherlands, 6-11 April 1995:  
Ankiewicz, PJ 1995: *The design and construction of a solar heater*. Conference proceedings, 1995:313-323.
5. *Looking for Links International Conference*, JCE, Johannesburg, 9-14 July 1995:  
Ankiewicz, PJ 1995: *Looking for links in Technology Education*. Conference proceedings, 1995:232-243.
6. *Looking for Links International Conference*, JCE, Johannesburg, 9-14 July 1995:  
Ankiewicz, PJ & Van Rensburg SJ 1995: *Linking an Ethiopian experience to the development of Technology Education in South Africa*. Conference proceedings, 1995:221-231.
7. *Second Jerusalem International Science and Technology Education Conference*, Jerusalem, 8-11 January 1996:  
Ankiewicz, PJ & Van Rensburg SJ 1996: *Linking a European (Portugal) and an African (Ethiopian) Experience to the Development of Technology Education in South Africa*. No conference proceedings.
8. *Gender and Science and Technology International Conference*, Ahmedabad, India, 5-10 January 1996:  
Van Rensburg, SJ; Myburgh, CPH & Ankiewicz, PJ 1996: *Curriculum Development for Technology Education in South Africa: Gender Issues*. Conference proceedings, Volume 4, 1996:161-175.
9. *International Technology Education Association Conference*: Phoenix, Arizona, 30 March-3 April 1996:  
Ankiewicz, PJ & Dyrenfurth, M 1996: *South Africa's first Masters degree in Technology Education*. (Poster).
10. *Pupils Attitudes Towards Technology (PATT) International Conference*, Cape Town, 14-17 October 1996:  
Ankiewicz, PJ; Myburgh, CPH & Van Rensburg, SJ 1996: *The design of an instrument to evaluate the effects of curricula on the technology profile of learners in South African schools*. Conference proceedings, 1996:84-92. ISBN: 0-958-4032-5-2
11. *Pupils Attitudes Towards Technology (PATT) International Conference*, Cape Town, 14-17 October 1996:

- Van Rensburg, SJ; Ankiewicz, PJ & Myburgh, CPH 1996: *Addressing gender issues in curriculum development for Technology Education in South Africa*. Conference proceedings, 1996:73-80. ISBN: 0-958-4032-5-2
12. *Pupils Attitudes Towards Technology (PATT) International Conference*, Cape Town, 14-17 October 1996:  
De Swardt, AE & Ankiewicz, PJ 1996: *The application of the technological process in other school subjects to develop technological awareness, literacy and capability among South African learners*. Conference proceedings, 1996:59-63. ISBN: 0-958-4032-5-2
  13. *Pupils Attitudes Towards Technology (PATT) International Conference*, Cape Town, 14-17 October 1996:  
Gumbo, MT; Kgole, MM; Maluleka, KJ & Ankiewicz, PJ 1996: *An evaluation of the implementation of Technology Education as part of the TECHNOLOGY 2005 project in the North west Province*. Conference proceedings, 1996:98-103. ISBN: 0-958-4032-5-2
  14. *Pupils Attitudes towards Technology (PATT 8) International Conference*, Scheveningen, The Netherlands, 17-22 April 1997:  
Ankiewicz, PJ; Myburgh, CPH & Van Rensburg, SJ 1997: *Assessing the attitudinal technology profile of South African learners: A pilot study*. Conference proceedings, 1997:178-191.
  15. *Pupils Attitudes towards Technology (PATT 8) International Conference*, Scheveningen, The Netherlands, 17-22 April 1997:  
De Swardt, AE & Ankiewicz, PJ 1997: *The application of the technological process in other school subjects: An assessment of creative thinking*. Conference proceedings, 1997:350-363.
  16. *International Working Seminar for Scholars in Technology Education (IWSSTE)*, Washington (DC), USA, 24-27 September 1998:  
Ankiewicz, PJ; De Swardt, AE; Myburgh, CPH & Poggenpoel, M 1998: *The experience of students in the TechnoLab: Do engineers and educationalists have to co-operate?* Conference proceedings, 1999:301-309. ISBN: 3-9805781-6-X
  17. *International Working Seminar for Scholars in Technology Education (IWSSTE)*, Washington (DC), USA, 24-27 September 1998:  
De Swardt, AE & Ankiewicz, PJ 1998: *The interdisciplinary nature of Technology Education: A means to promote both hands- and minds-on activities*. Conference proceedings, 1999:88-95. ISBN: 3-9805781-6-X
  18. *2<sup>nd</sup> Annual Conference on World Wide Web applications*, RAU, Johannesburg, 6-8 September 2000:  
Jakovljevic, M; Ankiewicz, PJ; De Swardt, AE & Gross, E 2000: *Technological stages in the system development lifecycle: an application to web page design*. Conference proceedings, 2000 (electronic).
  19. *Southern African Association for Science and Technology Centres (SAASTEC) Conference*, UP, Pretoria, 16-18 November 2000:  
Ankiewicz, PJ; De Swardt, AE & Gross, E 2000: *Aspects of establishing a school-university based technology centre*. Conference proceedings (In print)

20. *Pupils Attitudes Towards Technology (PATT) International Conference*, Cape Town, 4-6 October 2001:  
Ankiewicz, PJ; De Swardt, AE and Gross, E: 2001: *Establishing a school-university based technology centre: The experience of the project innovators*. Conference proceedings, 2001: 43-49. ISBN: 0-9584246-6-7
21. *Pupils Attitudes Towards Technology (PATT) International Conference*, Cape Town, 4-6 October 2001:  
De Swardt, AE; Ankiewicz, PJ & Gross, E: 2001: *Technology Education for learners with special educational needs (LSEN): A case study*. Conference proceedings, 2001: 31-36. ISBN: 0-9584246-6-7
22. *Pupils Attitudes Towards Technology (PATT) International Conference*, Cape Town, 4-6 October 2001:  
Jakovljevic, M; Ankiewicz, PJ; De Swardt, AE and Gross, E: 2001: *Implications of the technological process for teaching web design: A case study*. Conference proceedings, 2001: 57-64. ISBN: 0-9584246-6-7
23. *Pupils Attitudes Towards Technology (PATT) International Conference*, Cape Town, 4-6 October 2001:  
Reddy, K; Ankiewicz, PJ; De Swardt, AE and Gross, E: 2001: *OBE related programme development in Technology Education: The role of the essential features*. Conference proceedings, 2001: 23-30. ISBN: 0-9584246-6-7
24. *The 6<sup>th</sup> World Multiconference on Systematics, Cybernetics and Informatics*, Orlando, Florida, USA, 14-18 July 2002:  
Jakovljevic, M; Ankiewicz, PJ; De Swardt, AE and Gross, E: 2002: *The facilitation of complex thinking using an instructional web design model (IWDM)*. Conference proceedings, 2002: 86-91.
25. *Pupils Attitudes Towards Technology (PATT 13) International Conference*, Glasgow, Skotland, 21-24 Junie 2003:  
Jakovljevic, M; Ankiewicz, PJ and De Swardt, AE: 2003: *Appropriate instructional methodology for the facilitation of technological problem solving in the Instructional Web Design Programme (IWDP)*. Conference proceedings, 2003:150-158.
26. Alarpm 6<sup>th</sup> & Par 10<sup>th</sup> World Congress: Action learning, Action Research & Process Management (ALARPM) & Participatory Action Research (PAR), University of Pretoria, South Africa, 21-24 September 2003:  
Jakovljevic, M; Ankiewicz, PJ and De Swardt, AE: 2003: *Action research in an information systems design context: Exploring its relevance to enhance technological problem solving*. Conference proceedings available at <http://www.alarpm.org.au/>.
27. *The 8th World Multi-Conference on Systemics, Cybernetics and Informatics*, 18-21 July 2004, Orlando, Florida, VSA:  
Jakovljevic, M; Ankiewicz, PJ & De Swardt, AE: 2004: *The nature of an appropriate environment for teaching and learning Information System Design*. Conference proceedings, 2004:229-235.
28. *Pupils Attitudes Towards Technology (PATT 15) International Conference*, Haarlem, The Netherlands, 18-22 April 2005:  
Ankiewicz, PJ; De Swardt, AE & Engelbrecht W: 2005: *Technology Education in South Africa since 1998: A shift from contents (conceptual knowledge) to process-based learning*. <http://www.iteaconnect.org/PATT15/PATT15.html>, 1-18.

29. *Pupils Attitudes Towards Technology (PATT 15) International Conference*, Haarlem, The Netherlands, 18-22 April 2005:  
De Swardt, AE; Ankiewicz, PJ & Engelbrecht W: 2005: *Technology Education in South Africa since 1998: A shift from traditional teaching to outcomes-based education*. <http://www.iteaconnect.org/PATT15/PATT15.html>, 1-23.
30. *Pupils Attitudes Towards Technology (PATT 15) International Conference*, Haarlem, The Netherlands, 18-22 April 2005:  
Engelbrecht W; Ankiewicz, PJ & De Swardt, AE: 2005: *Technology Education in South Africa since 1998: A shift to decentralised continuous professional teacher development*. <http://www.iteaconnect.org/PATT15/PATT15.html>, 1-25.
31. *Pupils Attitudes Towards Technology (PATT 15) International Conference*, Haarlem, The Netherlands, 18-22 April 2005:  
Jakovljevic, M; Ankiewicz, PJ; & De Swardt, AE: 2005: *Technology Education in South Africa since 1998: A shift from traditional teaching to the development of complex thinking in a technology classroom in South Africa*. <http://www.iteaconnect.org/PATT15/PATT15.html>, 1-18.
32. *Pupils Attitudes Towards Technology (PATT 15) International Conference*, Haarlem, The Netherlands, 18-22 April 2005:  
Van Niekerk E; Ankiewicz, PJ; & De Swardt, AE: 2005: *Technology Education in South Africa since 1998: A shift from traditional evaluation to a process-based assessment framework*. <http://www.iteaconnect.org/PATT15/PATT15.html>, 1-22.
33. *14<sup>th</sup> Annual Meeting of the Southern African Association for Research in Mathematics, Science and Technology Education (SAARMSTE)*, University of Pretoria, Pretoria, 9-12 January 2006:  
Engelbrecht W; Ankiewicz, PJ & De Swardt, AE: 2006: *Continuous professional development of technology educators: A research-based school-focused model*. Conference proceedings available on CD.
34. *Pupils Attitude Towards Technology (PATT 18) International Conference*, Glasgow, Scotland, 23-25 June 2007:  
Engelbrecht W; Ankiewicz, PJ & De Swardt, AE: 2007: *Teachers and tools: Crafting technology education (A prospective five-year research project in South Africa)*. Conference proceedings, 2007: 182-189. ISBN: 987-0-85261-828-8
35. *UNESCO-SAICE International workshop: Engineering for poverty eradication and the Millennium Development Goals*, SACIE-House, Midrand, South Africa, 25-27 November 2007:  
Ankiewicz, P; De Swardt, E; Engelbrecht, W & Van As, F 2007: *An industry-sponsored model for teaching technology at school level: A case study by the University of Johannesburg, South Africa*.
36. *Pupils Attitudes Towards Technology (PATT 20) International Conference*, Tel Aviv, Israel, 3 - 7 November 2008:  
Engelbrecht W; Ankiewicz, PJ & De Swardt, AE: 2008: *Criteria for developing programmes for continuing professional development of technology teachers*. Conference proceedings, 2008: 275-286.
37. *5th Biennial International Conference on Technology Education Research*: Brisbane, Australia, 27 – 29 November 2008  
Ankiewicz, PJ; De Swardt, AE & Engelbrecht W: 2008: *Continuing professional teacher development (CPTD): Teaching technology teachers contentious issues*. Conference proceedings, 2008: 1-9. ISBN: 978-1-921291-54-8

38. *5th Biennial International Conference on Technology Education Research: Brisbane, Australia, 27 – 29 November 2008*  
De Swardt, AE & Ankiewicz, PJ: 2008: *Technology student teachers' practice of teaching contentious issues*. Conference proceedings, 2008: 99-100. ISBN: 978-1-921291-54-8
39. *ISTE International Conference on mathematics, science and technology education: "Towards effective teaching and meaningful learning in mathematics, science and technology"*: Mopani camp, Kruger National Park, 21-24 October 2013:  
Ankiewicz, PJ 2013: The alignment of the caps for technology in the senior phase with the philosophy of technology: a critical analysis. Conference proceedings, 2013: 317-336. ISBN: 978-1-86888-742-2
40. *ISTE International Conference on mathematics, science and technology education: "Towards effective teaching and meaningful learning in mathematics, science and technology"*: Mopani camp, Kruger National Park, 21-24 October 2013:  
De Beer, J & Ankiewicz, PJ 2013: Building on a solid foundation: Pre-Science teacher education in the first year of university study. Conference proceedings, 2013: 530-545. ISBN: 978-1-86888-742-2
41. *ISTE International Conference on mathematics, science and technology education: "Towards effective teaching and meaningful learning in mathematics, science and technology"*: Mopani camp, Kruger National Park, 21-24 October 2013:  
Jakovljevic, M & Ankiewicz, PJ 2013: Instructional methodology for technological problem solving in project-based classroom. Conference proceedings, 2013: 271-287. ISBN: 978-1-86888-742-2
42. *ISTE International Conference on mathematics, science and technology education: "Towards effective teaching and meaningful learning in mathematics, science and technology"*: Mopani camp, Kruger National Park, 22-25 October 2014:  
Cronje, A; De Beer, J & Ankiewicz, P 2014: The effect of an intervention programme on how science teachers view the nature of indigenous knowledge. Conference proceedings, 2014: 588-596. ISBN: 978-1-86888-800-9
43. Pupils' Attitudes towards Technology (PATT) 29th International Conference, Marseille, France, 7-10 April, 2015:  
Ankiewicz, PJ 2015: The implications of the philosophy of technology for the academic majors of technology student teachers. Conference proceedings, 2015: 13-25. ISBN: 978-2-85399-994-6
44. Pupils' Attitudes towards Technology (PATT) 32nd International Conference, Utrecht, The Netherlands, 23-26 August, 2016:  
Ankiewicz, PJ 2016: The relevance of indigenous technology knowledge systems (ITKS) for the 21st century classroom. Conference proceedings, 2016: 22-34. ISSN: 2542-3592
45. Pupils' Attitudes towards Technology (PATT) 36th International Conference, Athlone, Ireland, 18-22 June, 2018:  
Ankiewicz, PJ 2018: Rethinking Pupils' Attitudes Towards Technology (PATT) studies. Conference proceedings, 2018: 1-8. ISBN: 978-1-5272-2507-7
46. Pupils' Attitudes towards Technology (PATT) 37th International Conference, Sliema, Malta, 3-7 June, 2019:  
Hallstrom, J & Ankiewicz P 2019 - forthcoming: Laying down the "T" and "E" in STEM education: Design as the basis of an integrated STEM philosophy. Conference proceedings, 2019: In print.

## 8.2 International conferences attended without presenting papers

1. *The World Council for Associations of Technology Education (WOCATE) International Conference*, Weimar, Germany, April 1992
2. *6th International Conference on Thinking*, Boston, USA, 16-22 July 1994
3. *Pupils Attitudes towards Technology (PATT10) International Conference*, Salt Lake City, USA, 6-8 April 2000
4. *International Science Education Conference (ISEC)*, Singapore, 25-28 November 2014

## 8.3 Keynote addresses

1. Keynote address at the 25<sup>th</sup> SAARMSTE conference. The affordances of the philosophy/nature of technology for diversity in technology education. Bloemfontein, 20 January 2017.
2. Keynote address at the annual research seminar "Rockelstad-seminariet" hosted jointly by TESER and the Swedish National Centre for School Technology Education (CETIS). A brief overview of technology education in South Africa since 1994. Rockelstad castle, Sparreholm, Sweden, 14 June 2018.
3. Keynote address at the annual research seminar "Rockelstad-seminariet" hosted jointly by TESER and the Swedish National Centre for School Technology Education (CETIS). The affordances of Mitcham's philosophical framework for technology education. Rockelstad castle, Sparreholm, Sweden, 14 June 2018.

## 9. PUBLICATIONS

### 9.1 Subsidised, peer-reviewed articles published or accepted for publication

1. Ankiewicz, PJ 1995: The planning of Technology Education for South African schools. *International Journal of Technology and Design Education*, (ISI), 5(3): 245-254.
2. Van Rensburg, SJ; Ankiewicz, PJ & Myburgh, CPH 1999: Assessing South African learners' attitudes towards technology by using the PATT (Pupils' Attitudes Towards Technology) questionnaire. *International Journal of Technology and Design Education*, (ISI), 9(2): 137-151.
3. Steyn, E; Ankiewicz, PJ & Müller, A 1999: A qualitative enquiry into learner experience of utilising concept maps as a learning method in Physical Science. *Health SA Gesondheid, (DHET)*, 4(3): 25-33.
4. Myburgh, CPH; Poggenpoel, M; Ankiewicz, PJ & De Swardt, AE 1999: The experience of education students in the TechnoLab: Do engineers and educationalists have to co-operate? *Curationis, (DHET)*, 22(2): 41-46.
5. De Swardt, AE & Ankiewicz, PJ 2000: The interdisciplinary approach evolving typing and technology, *Acta Academica, (DHET)*, 32(1): 109-129.
6. Jakovljevic, M; Ankiewicz, PJ; De Swardt, AE & Gross, E 2000: Technological stages in the system development life cycle: an application to Web page design. *South African Journal of Information Management, (DHET)*, 2(3/3).

7. Ankiewicz, PJ; Myburgh, CPH & Van Rensburg, SJ 2001: Assessing the attitudinal technology profile of South African learners: A pilot study. *International Journal of Technology and Design Education*, (ISI), 11(2): 93-109.
8. Vandeleur, S; Ankiewicz, PJ; De Swardt, AE & Gross, E 2001: Indicators of creativity in a technology class: A case study. *South African Journal for Education*, (ISI), 21(4): 268-273.
9. Adam, F; Ankiewicz, PJ; De Swardt, AE & Gross, E 2001: The facilitation of critical thinking in a Technology Education classroom. *Acta Academica*, (DHET), 33(3): 188-206.
10. Reddy, K; Ankiewicz, PJ; De Swardt, AE & Gross, E 2003: Student teachers' experiences of a learning programme based on the content dimension of the essential features of Technology Education. *South African Journal of Higher Education*, (DHET), 17(1): 146-155.
11. Reddy, V; Ankiewicz, P; De Swardt, E & Gross, E 2003: The essential features of technology and technology education: A conceptual framework for the development of OBE (Outcomes Based Education) related programmes in technology education. *International Journal of Technology and Design Education*, (ISI), 13(1): 27-45.
12. Jakovljevic, M; Ankiewicz, PJ & De Swardt, AE 2003: Complex thinking in a project-based classroom, *Education as Change*, (ISI), 7(2): 20-45.
13. Jakovljevic, M; Ankiewicz, PJ; De Swardt, AE & Gross, E 2004: A synergy between the technological process and a methodology for Web design: Implications for technological problem-solving and design. *International Journal of Technology and Design Education*, (ISI), 14(3): 261-290.
14. Reddy, K; Ankiewicz, PJ; & De Swardt, AE 2005: Learning theories: A conceptual framework for learning and instruction in technology education. *South African Journal of Higher Education*, (DHET), 19(3): 423-443.
15. Ankiewicz, PJ; De Swardt, AE & De Vries, M 2006: Some implications of the philosophy of technology for science, technology and society (STS) studies. *International Journal of Technology and Design Education*, (ISI), 16(2): 117-141.
16. Jakovljevic, M; Ankiewicz, PJ & De Swardt, AE 2007: Relevant resources for teaching and learning information systems design at higher education institutions. *South African Journal for Higher Education*, (DHET), 21(2): 278-295.
17. Engelbrecht, W; Ankiewicz, PJ & De Swardt, E 2007: An industry-sponsored, school-focused model for continuing professional development of technology teachers. *South African Journal for Education*, (ISI), 27(4): 579-595.
18. Van Niekerk, E, Ankiewicz, P & De Swardt, E 2010: A process-based assessment framework for technology education: a case study. *International Journal of Technology and Design Education*, (ISI), 20(2): 191-215.
19. De Swardt E, Ankiewicz P & Gross E 2010: Implementing a technology learning programme in a school for learners with special educational needs: a case study. *Acta Academica*, (DHET), 42(3): 230-248.



20. Ankiewicz, P J 2013: 'n Teoretiese besinning oor die implikasies van die filosofie van tegnologie vir klaskamerpraktyk/A theoretical reflection on the implications of the philosophy of technology for classroom pedagogy. *Suid-Afrikaanse Tydskrif vir Natuurwetenskap en Tegnologie, (DHET)*, 32(1), Art.#386, 9 pages. <http://dx.doi.org/10.4102/satnt.v32i1.386>.
21. Ankiewicz, P J 2013: 'n Teoretiese besinning oor die implikasies van die filosofie van tegnologie vir onderwyseropleiding/A theoretical reflection on the implications of the philosophy of technology for teacher education. *Suid-Afrikaanse Tydskrif vir Natuurwetenskap en Tegnologie, (DHET)*, 32(1), Art. #387, 9 pages. <http://dx.doi.org/10.4102/satnt.v32i1.387>.
22. Ankiewicz, P J 2015: 'n Teoretiese besinning oor die implikasies van die filosofie van tegnologie vir kriteria vir vakkurrikulumontwikkeling en –evaluering/A theoretical reflection on the implications of the philosophy of technology for criteria for subject-curriculum development and evaluation. *Suid- Afrikaanse Tydskrif vir Natuurwetenskap en Tegnologie, (DHET)*, 34(1), Art. #1170, 7 pages. <http://dx.doi.org/10.4102/satnt.v34i1.1170>.
23. Ankiewicz, P J 2015: Inheemse en Westerse tegnologiese kennisstelsels: Twee kante van dieselfde muntstuk?/Indigenous and Western technology knowledge systems: Two sides of the same coin? *Suid-Afrikaanse Tydskrif vir Natuurwetenskap en Tegnologie, (DHET)*, 34(1), Art. #1309, 7 pages. <http://dx.doi.org/10.4102/satnt.v34i1.1309>.
24. Cronje, A; De Beer, J & Ankiewicz, P 2015: The development and use of an instrument to investigate science teachers' views on indigenous knowledge. *African Journal of Research in Mathematics, Science and Technology Education, (DHET)*, 19(3): 319-332.
25. Jakovljevic, M & Ankiewicz, P 2016: Project-based pedagogy for the facilitation of webpage design. *International Journal of Technology and Design Education, (ISI)*, 26(2): 225-242. <http://dx.doi.org/10.1007/s10798-015-9312-5>.
26. Engelbrecht, W & Ankiewicz, P 2016: Criteria for continuing professional development of technology teachers' professional knowledge: A theoretical perspective. *International Journal of Technology and Design Education, (ISI)*, 26(2): 259-284. <http://dx.doi.org/10.1007/s10798-015-9309-0>.
27. De Beer, J & Ankiewicz, P 2017: Herbesin oor die opleiding van natuurwetenskaponderwysers in Suid-Afrika: Lesse uit Finland/Reimagining science teacher education in South Africa: Lessons from Finland. *Suid-Afrikaanse Tydskrif vir Natuurwetenskap en Tegnologie, (DHET)*, 36(1), Art. #1474, 9 pages. <https://doi.org/10.4102/satnt.v36i1.1474>.
28. Ankiewicz, P 2019: Perceptions and attitudes of pupils towards technology: In search of a rigorous theoretical framework. *International Journal of Technology and Design Education, (ISI)*, 29(1): 37-56. <https://doi.org/10.1007/s10798-017-9434-z>.
29. Ankiewicz, P 2019: Alignment of the traditional approach to perceptions and attitudes with Mitcham's philosophical framework of technology. *International Journal of Technology and Design Education, (ISI)*, 29(2), 329-340. <https://doi.org/10.1007/s10798-018-9443-6>.

## 9.2 Non-subsidised articles published or accepted for publication

1. Ankiewicz, PJ 1995: Access and admission to education and training. (Toegang en toelating tot onderwys en opleiding). *Aambeeld*, 23(1), 10-12.
2. Ankiewicz, PJ 2004: Technology education: Some implications for higher education institutions. *Diskoers*, 32 (1), 16-24.

## 9.3 Subsidised articles provisionally accepted for publication

## 9.4 Books and chapters in books

1. Ankiewicz, P; Benson, C; Eriksson, A; Fischer, L; Mottier, I; Raat, J; De Vries, M; Vandyke, A & Dugger, W E (1995). Technology, Entrepreneurship and Employment. Technon, Den Hoorn (Delft), June 1995. ISBN 90-75471-02-5
2. Ankiewicz, P; Batchelor, J & De Beer, J (2015) Chapter 8 The teacher as a user of media. In Gravett, S; De Beer, JJ & Du Plessis, E (Eds.) (2015). *Becoming a Teacher*. (2<sup>nd</sup> ed.). Cape Town: Pearson.
3. Ankiewicz, P (to be published in 2019). Chapter on Indigenous technology knowledge systems through the lens of a philosophy of Western technology knowledge systems. In Chahine, IC & De Beer, J (Eds.) (to be published in 2017). *Evidence-based inquiries into Ethno-STEM research: Embodied, situated and distributed knowledge systems*. Information Age Publishing (IAP).
4. Ankiewicz, P (2018). Perceptions and attitudes of pupils toward technology. In M.J. de Vries (Ed.) (2018). *Handbook of technology education*, Springer International Handbooks of Education. Switzerland: Springer.
5. Ankiewicz, P (to be published in 2019). The implications of Feenberg's critical theory for technology education. In J.R. Dakers, J. Hallström, & M.J. de Vries (Eds.). *Reflections on technology for educational practitioners: Philosophers of technology inspiring technology education*. Boston MA: Brill/Sense.
6. Co-author of various learner workbooks and facilitator/teacher guides:

Title of Published Work	Author(s)	ISBN Number
Strukture ('n Skuiling teen wind en weer) Leerderwerkboek Graad 7	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 592 X
Prosessering (Weefwerk: Bo-oor en onderdeur) Leerderwerkboek Graad 7	PJ Ankiewicz; AE de Swardt; E Haahjem	0 86970 600 4
Stelsels en beheer ('n Meganiese opwipkaartjie) Leerderwerkboek Graad 7	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 596 2
Grafiese kommunikasie vir 'n uitstaande portefeulje Leerderwerkboek Graad 7	PJ Ankiewicz; AE de Swardt; E Haahjem	0 86970 604 7
Prosessering (Tuisgemaakte lekkers) Leerderwerkboek Graad 7	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 657 8
Strukture ('n SPkuiling teen wind en weer) Fasiliteerdergids Graad 7	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 593 8
Prosessering (Weefwerk: Bo-oor en onderdeur) Fasiliteerdergids Graad 7	PJ Ankiewicz; AE de Swardt; E Haahjem	0 86970 601 2
Stelsels en beheer (Meganiese opwipkaartjie) Fasiliteerdergids Graad 7	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 597 0

Grafiese kommunikasie vir 'n uitstaande portefeulje Fasiliteerdergids Graad 7	PJ Ankiewicz; AE de Swardt; E Haahjem	0 86970 605 5
Prosessering (Tuisgemaakte lekkers) Fasiliteerdergids Graad 7	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 658 6
Structures (A shelter against wind and rain) Learner workbook Grade 7	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 594 6
Processing (Weaving: Over and under) Learner workbook Grade 7	PJ Ankiewicz; AE de Swardt; E Haahjem	0 86970 602 0
Systems and control (Mechanical pop-up card) Learner workbook Grade 7	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 598 9
Graphic communication for an outstanding portfolio Learner workbook Grade 7	PJ Ankiewicz; AE de Swardt; E Haahjem	0 86970 606 3
Processing (Home-made sweets) Learner workbook Grade 7	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 655 1
Structures (A shelter against wind and rain) Facilitator guide Grade 7	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 595 4
Processing Workbook (Weaving: Over and under) Facilitator guide Grade 7	PJ Ankiewicz; AE de Swardt; E Haahjem	0 86970 603 9
Systems and control (Mechanical pop-up card) Facilitator guide Grade 7	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 599 7
Graphic communication for an outstanding portfolio Facilitator guide Grade 7	PJ Ankiewicz; AE de Swardt; E Haahjem	0 86970 607 1
Processing (Home-made sweets) Facilitator guide Grade 7	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 656 X
Prosessering (Verpakking) Leerderwerkboek Graad 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 527 X
Stelsels en beheer (Meganies) Leerderwerkboek Graad 8	PJ Ankiewicz; AE de Swardt; CM Grobler	0 86970 515 6
Grafiese kommunikasie vir 'n uitstaande portefeulje Leerderwerkboek Graad 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 519 9
Stelsels en beheer (Selfaangedrewe voertuig) Leerderwerkboek Graad 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 511 3
Prosessering (Gesonde snoepie-happies vir pouse) Leerderwerkboek Graad 8	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 507 5
Strukture Leerderwerkboek Graad 8	PJ Ankiewicz; AE de Swardt; CM Grobler	0 86970 577 6
Strukture Leerderwerkboek Graad 8	PJ Ankiewicz; AE de Swardt; Dr Lachenicht	0 86970 525 3
Prosessering (Sement en beton) Leerderwerkboek Graad 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 612 8
Stelsels en beheer (Elektries) Leerderwerkboek Graad 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-681-4
Prosessering (Verpakking) Fasiliteerdergids Graad 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 528 8
Stelsels en beheer (Meganies) Fasiliteerdergids Graad 8	PJ Ankiewicz; AE de Swardt; CM Grobler	0 86970 516 4
Grafiese kommunikasie vir 'n uitstaande portefeulje Fasiliteerdergids Graad 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 520 2
Stelsels en beheer (Selfaangedrewe voertuig) Fasiliteerdergids Graad 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 512 1
Prosessering (Gesonde snoepie-happies vir pouse) Fasiliteerdergids Graad 8	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 508 3
Strukture Fasiliteerdergids Graad 8	PJ Ankiewicz; AE de Swardt; CM Grobler	0 86970 576 8
Strukture Fasiliteerdergids Graad 8	PJ Ankiewicz; AE de Swardt; Dr Lachenicht	0 86970 526 1

Prosessering (Sement en beton) Fasiliteerdergids Graad 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 613 6
Stelsels en beheer (Elektries) Fasiliteerdergids Graad 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-682-9
Processing (Packaging) Learner workbook Grade 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 529 6
Systems and control (Mechanical) Learner workbook Grade 8	PJ Ankiewicz; AE de Swardt; CM Grobler	0 86970 517 2
Graphic communication for an outstanding portfolio Learner workbook Grade 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 521 0
Systems and control (Self propelled vehicle) Learner workbook Grade 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 513 X
Processing (Healthy snappy-snacks for break time) Learner workbook Grade 8	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 509 1
Structures Learner workbook Grade 8	PJ Ankiewicz; AE de Swardt; CM Grobler	0 86970 579 2
Structures Learner workbook Grade 8	PJ Ankiewicz; AE de Swardt; Dr Lachenicht	0 86970 523 7
Processing (Cement and concrete) Learner workbook Grade 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 610 1
Systems and control (Electrical) Learner workbook Grade 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-679-4
Processing (Packaging) Facilitator guide Grade 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 530 X
Systems and control (Mechanical) Facilitator guide Grade 8	PJ Ankiewicz; AE de Swardt; CM Grobler	0 86970 518 0
Graphic communication for an outstanding portfolio Facilitator guide Grade 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 522 9
Systems and control (Self-propelled vehicle) Facilitator guide Grade 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 514 8
Processing (Healthy snappy-snacks for break time) Facilitator guide Grade 8	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 510 5
Structures Facilitator guide Grade 8	PJ Ankiewicz; AE de Swardt; CM Grobler	0-86970-578-4
Structures Facilitator guide Grade 8	PJ Ankiewicz; AE de Swardt; Dr Lachenicht	0 86970 524 5
Processing (Cement and concrete) Facilitator guide Grade 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 610 X
Systems and control (Electrical) Facilitator guide Grade 8	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-680-0
Prosessering (Gestolde nageregsensasie) Leerderwerkboek Graad 9	PJ Ankiewicz; AE de Swardt; E Haahjem	0 86970 502 4
Stelsels en beheer (Meganies) Leerderwerkboek Graad 9	PJ Ankiewicz; AE de Swardt; CM Grobler	0 86970 543 1
Grafiese kommunikasie vir 'n uitstaande portefeulje Leerderwerkboek Graad 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 493 1
Stelsels en beheer (Elektries) Leerderwerkboek Graad 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 549 0
Prosessering (Impak van tegnologie op die omgewing) Leerderwerkboek Graad 9	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 554 7
Strukture (Raam en dop) Leerderwerkboek Graad 9	PJ Ankiewicz; AE de Swardt; Dr Lachenicht	0 86970 573 3
Strukture Leerderwerkboek Graad 9	PJ Ankiewicz; AE de Swardt; CM Grobler	0 86970 498 2
Prosessering (Gewapende beton) Leerderwerkboek Graad 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 616 0

Die impak van tegnologie op die omgewing (Sonenergie) Leerderwerkboek Graad 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 636 5
Stelsels en beheer (Elektronika) Leerderwerkboek Graad 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0--86970-703-6
Prosessering (Gestolde nageregsensasie) Fasiliteerdergids Graad 9	PJ Ankiewicz; AE de Swardt; E Haahjem	0 86970 504 0
Stelsels en beheer (Meganies) Fasiliteerdergids Graad 9	PJ Ankiewicz; AE de Swardt; CM Grobler	0 86970 544 X
Grafiese kommunikasie vir 'n uitstaande portefeulje Fasiliteerdergids Graad 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 495 X
Stelsels en beheer (Elektries) Fasiliteerdergids Graad 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 550 4
Prosessering (Impak van tegnologie op die omgewing) Fasiliteerdergids Graad 9	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 555 5
Strukture (Raam en dop) Fasiliteerdergids Graad 9	PJ Ankiewicz; AE de Swardt; Dr Lachenicht	0 86970 572 5
Strukture Fasiliteerdergids Graad 9	PJ Ankiewicz; AE de Swardt; CM Grobler	0 86970 499 0
Prosessering (Gewapende beton) Fasiliteerdergids Graad 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 617 9
Die impak van tegnologie op die omgewing (Sonenergie) Fasiliteerdergids Graad 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 637 3
Stelsels en beheer (Elektronika) Fasiliteerdergids Graad 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-704-3
Processing (Gelated dessert sensation) Learner workbook Grade 9	PJ Ankiewicz; AE de Swardt; E Haahjem	0 86970 506 9
Systems and control (Mechanical) Learner workbook Grade 9	PJ Ankiewicz; AE de Swardt; CM Grobler	0 86970 545 8
Graphic communication for an outstanding portfolio Learner workbook Grade 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 496 6
Systems and control (Electrical) Learner workbook Grade 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 548 2
Processing (Impact of technology on the environment) Learner workbook Grade 9	PJ Ankiewicz; AE de Swardt; E van Niekerk	0 86970 556 3
Structures (Frame and shell) Learner workbook Grade 9	PJ Ankiewicz; AE de Swardt; Dr Lachenicht	0 86970 575 X
Structures Learner workbook Grade 9	PJ Ankiewicz; AE de Swardt; CM Grobler	0 86970 500 8
Processing (Reinforced concrete) Learner workbook Grade 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 614 4
The impact of technology on the environment (Solar energy) Learner workbook Grade 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 634 9
Systems and control (Electronics) Learner workbook Grade 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-705-0
Processing (Gelated dessert sensation) Facilitator guide Grade 9	PJ Ankiewicz; AE de Swardt; E Haahjem	0 86970 506 7
Systems and control (Mechanical) Facilitator guide Grade 9	PJ Ankiewicz; AE de Swardt; CM Grobler	0 86970 546 6
Graphic communication for an outstanding portfolio Facilitator guide Gr 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 497 4
Systems and control (Electrical) Facilitator guide Grade 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 551 2
Processing (Impact of technology on the environment) Facilitator guide Grade 9	PJ Ankiewicz; AE de Swardt; E Van Niekerk	0 86970 557 1
Structures (Frame and shell) Facilitator	PJ Ankiewicz; AE de Swardt;	0 86970 574 1

guide Grade 9	Dr Lachenicht	
Structures Facilitator guide Grade 9	PJ Ankiewicz; AE de Swardt; CM Grobler	0 86970 501 6
Processing (Reinforced concrete) Facilitator guide Grade 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 615 2
The impact of technology on the environment (Solar energy) Facilitator guide Grade 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0 86970 635 7
Systems and control (Electronics) Facilitator guide Grade 9	PJ Ankiewicz; AE de Swardt; W Engelbrecht	0-86970-706-7
Strukture, kommunikasievaardighede en meganiese stelsels en beheer: Leerderwerkboek. Graad 8. Kwartaal 1 CAPS-uitgawe	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-733-3
Impak van tegnologie. Leerderwerkboek. Graad 8. Kwartaal 2 CAPS-uitgawe	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-737-1
Meganiese stelsels en beheer. Leerderwerkboek. Graad 8. Kwartaal 3 CAPS-uitgawe	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-741-8
Elektriese stelsels en beheer Leerderwerkboek. Graad 8. Kwartaal 4 CAPS-uitgawe	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-745-6
Strukture, kommunikasievaardighede en meganiese stelsels en beheer: Onderwysergids. Graad 8. Kwartaal 1 CAPS-uitgawe	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-734-0
Impak van tegnologie. Onderwysergids. Graad 8. Kwartaal 2 CAPS-uitgawe	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-738-8
Meganiese stelsels en beheer. Onderwysergids. Graad 8. Kwartaal 3 CAPS-uitgawe	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-742-5
Elektriese stelsels en beheer Onderwysergids. Graad 8. Kwartaal 4 CAPS-uitgawe	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-746-3
Structures, communication skills and mechanical systems and control Learner workbook Term 1 Grade 8 CAPS edition	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-735-7
Impact of Technology Learner workbook Term 2 Grade 8 CAPS edition	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-739-5
Mechanical systems and control Learner workbook Term 3 Grade 8 CAPS edition	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-743-2
Electrical systems and control Learner workbook Term 4 Grade 8 CAPS edition	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-747-0
Structures, communication skills and mechanical systems and control Teacher guide Term 1 Grade 8 CAPS edition	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-736-4
Impact of Technology Teacher guide Term 2 Grade 8 CAPS edition	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-740-1
Mechanical systems and control Teacher guide Term 3 Grade 8 CAPS edition	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-744-9
Electrical systems and control Teacher guide Term 4 Grade 8 CAPS edition	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-748-7
Strukture. Leerderwerkboek. Graad 9. Kwartaal 1 CAPS-uitgawe	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-749-4
Meganiese stelsels en beheer. Leerderwerkboek. Graad 9. Kwartaal 2	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-753-1

CAPS-uitgawe		
Elektriese/Elektroniese stelsels. Leerderwerkboek. Graad 9. Kwartaal 3 CAPS-uitgawe	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-757-9
Prosessering. Leerderwerkboek. Graad 9. Kwartaal 4 CAPS-uitgawe	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-761-6
Strukture. Onderwysergids. Graad 9. Kwartaal 1 CAPS-uitgawe	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-750-0
Meganiese stelsels en beheer. Onderwysergids. Graad 9. Kwartaal 2 CAPS-uitgawe	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-754-8
Elektriese/Elektroniese stelsels. Onderwysergids. Graad 9. Kwartaal 3 CAPS-uitgawe	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-758-6
Prosessering Onderwysergids. Graad 9. Kwartaal 4 CAPS-uitgawe	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970- 762-3
Structures. Learner workbook Grade 9 Term 1 CAPS edition	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-751-7
Mechanical systems and control. Learner workbook Grade 9 Term 2 CAPS edition	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-755-5
Electrical/Electronic systems. Learner workbook Grade 9 Term 3 CAPS edition	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-759-3
Processing. Learner workbook Grade 9 Term 4 CAPS edition	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-763-0
Structures. Teacher guide Grade 9 Term 1 CAPS edition	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-765-4
Mechanical systems and control Teacher guide Grade 9 Term 2 CAPS edition	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-756-2
Electrical/Electronic systems. Teacher guide Grade 9 Term 3 CAPS edition	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-760-9
Processing. Teacher guide Grade 9 Term 4 CAPS edition	PJ Ankiewicz; AE de Swardt; W Engelbrecht	978-0-86970-764-7

## 10. UNPUBLISHED RESEARCH

1. The influence of training on the communication style of Physical Science teacher students. (Die invloed van opleiding op die kommunikasiestyl van Natuur- en Skeikunde-onderwysstudente) D.Ed-Thesis, PU for CHE, 1990
2. Technology Education in the pre-tertiary school curriculum of England, Scotland Germany and Belgium. (Tegnologie-onderwys in die pretersiêre skoolkurrikulum van England, Skotland, Duitsland en België). Department of National Education, 1991
3. Successful models for distance education in schools in some overseas countries: Japan, Hong Kong, Singapore, Canada and Israel. (Sukksesvolle modelle vir afstandsonderwys in skole in enkele oorsese lande: Japan, Hongkong, Singapoer, Kanada en Israel). Inter-departemental Committee for Distance Education , 1992
4. Vocational experience of N5/N6 students in an engineering laboratory at a university. In cooperation with prof W Cronje of the Faculty of Engineering at RAU, 2000.

5. Learners' experience of Technology Education at the Laerskool Louw Geldenhuys. 2000.
6. B.Ed. (Hons) Technology Education C students' experience of the module. 2000.

## 11. RESEARCH AND OTHER AWARDS

CSIR study bursary: Fulltime MSc study, 1982-1983

HSRC study bursary: Part time DEd study, 1988-1989

Anglo American Chairman's Fund: R6 000 for attending International conferences, 1994-1995

Department of National Education: R3 000 for attending International conference, 1993

Metropolitan Life competition for community development: R70 000 for establishing the TechnoLab at RAU, 1995

The first South African to receive the Epsilon Pi Tau international award for research in Technology Education; Jerusalem, 1996

FRD award of R19 000 for advancing Technology Education, 1996

FRD award of R30 000 for research for the advancement of Technology Education in marginalized communities, 1996

Sponsorship of R665 000 of *die Anglo American and De Beers Chairman's Fund* for the establishment of a Centre for Technology Education at RAU, 1997

HRSC award of R12 000 for a research project to develop instruments to assess the technology profile of learners in South African schools, 1997

Dr Susan J van Rensburg (M.Ed in Technology Education) received the Chancellor's medal for the best achievement at postgraduate level, 1997

Mrs Monica McDonald (M.Ed in Technology Education) received the Chancellor's medal for the best achievement at postgraduate level, 1999

NRF award of R26 000 to support postgraduate students in Technology Education, 1999

NRF award of R155 000 to support postgraduate students in Technology Education, 2000

A donation of 32 Pentium computers by Hewlet Packard to RAUTEC: R500 000, 2000

Sponsorship by Billiton Development Trust for establishing a satellite centre at Trinity Secondary School in Lenasia: R42 964, 2000

Rated as a Category C, C3 and C2 researcher by the NRF in 2000, 2005 and 2018 respectively. The C category is defined as "established researchers who, as individuals or members of a team, produce research outputs of an international standard which are appreciated by the science, engineering or technology community either internationally or locally".



Nominated for the 2001 *National Science and Technology Forum (NSTF) Science and Technology Awards* in the category: “*Individual over the last two years through research and innovation*”

Receiver of the Education Association of South Africa’s research medal, 13 January 2004.

Sponsorships from the trade and industry to RAUTEC in 2004 to the value of R237 776.

Sponsorships from the trade and industry to RAUTEC in 2005 to the value of R955 470.

Sponsorships from the trade and industry to TechnEd (Former RAUTEC) in 2006 to the value of R1 191 665.

Sponsorships from the trade and industry to TechnEd in 2007 to the value of R879 675.

RNA 2007-2010: Teachers and tools: Crafting technology Education (R83 333 sponsorship: R59 967 from NRF and R23 333 from UJ).

Sponsorships from the trade and industry to TechnEd in 2008 to the value of R70 000.

Sponsorships from the trade and industry to TechnEd in 2009 to the value of R580 000.

The Technology Education Catalyst Project was a finalist in the NSTF Awards for 2008/09, in the category: *Research for innovation by a team or individual in a Not-for-Profit (NPO)/ Non Governmental Organisation (NGO) or Community Based Organisation (CBO)*.

Sponsorships from the trade and industry to TechnEd in 2010 to the value of R213 250.

GDE Research Project in Technology Education, 2010-2012: The implementation of the National Curriculum Statement (NCS) in technology classrooms in the Senior Phase. ISBN 978-0-86970-723-4 (with funding of R800 000 from the GDE).

Sponsorships from Toyota SA to the TechnEd Catalyst Project in 2011 – 2018 to the value of R85 000/year.

Sponsorships from Albert Wessels Trust to the TechnEd Catalyst Project in 2017 to the value of R300 000.

Sponsorships from ID Logistics to the TechnEd Catalyst Project in 2018 to the value of R119 040.

Sponsorships from Albert Wessels Trust to the TechnEd Catalyst Project in 2018 to the value of R312 000.

The TechnEd Catalyst Project was awarded the best community engagement project at UJ in the category “Organised Outreach linked to Community-based Research” on 2 November 2018.

Acknowledged as the third most influential and prolific authors in the *International Journal of Technology and Design Education* during the period 2000 until 2018 (<https://doi.org/10.1007/s10798-019-09508-6>).

## 12. CURRENT RESEARCH INTERESTS AND CITATION INDEXES

Google Scholar h-index 2019		Scopus h-index 2019
All	Since 2014	All
13	10	6

The implications of the philosophy of technology for classroom pedagogy, students' attitudes towards technology, teachers' pedagogical content knowledge (PCK), initial teacher education (IPET), curriculum development & evaluation, continuing professional development (CPTD), indigenous technology knowledge systems (ITKS).

## 13. POSTGRADUATE SUPERVISION

### 13.1 Master's students (Supervisor)

Maré, I 1995: An introductory literature study to teaching thinking skills ('n Inleidende literatuurstudie tot die onderrig van denkvaardighede)

Steyn, E 1996: Concepts maps as learning method in Physical Science (Begripskaarte as leermetode in Natuur- en Skeikunde)

Janse van Rensburg, S 1997: Gender issues in curriculum development for Technology Education in South Africa

De Beer, MJ 1998: Career guidance in a technologically stimulating school environment: An exploratory-descriptive study (Beroepsleiding in 'n tegnologies-stimulerende skoolomgewing: 'n Verkennend-beskrywende studie)

De Swardt, AE 1998: Technology Education and the development of thinking skills: A case study

Gumbo, MT 1998: An investigation of the primary education upgrading programme (PEUP) from a Technology Education perspective

McDonald, MA 1998: The social component of the technological process and interdisciplinary-integrated studies

Adam, F 1999: The facilitation of critical thinking in technology classrooms: A case study

Vandeleur, SM 1999: Indicators of creativity in a technology class: A case study

Smit, PL 2000: The effect of the introduction to the A course on the technological problem-solving style of future Telkom workers: A study in Technology Education (Die effek van die inleiding tot die A-kursus op die tegnologiese probleemoplossingstyl van voornemende Telkom werkers: 'n Studie in Tegnologie-onderwys)

Van der Spuy, TJ 2000: Technology Education and values teaching: An interdisciplinary approach (Tegnologie-onderwys en waarde-onderrig: 'n Interdissiplinêre benadering)

Van Dyk, H 2002: Guidelines for financial accountability and asset management for a centre of technology education: A case study (Riglyne vir finansiële verantwoording en batebeheer van 'n tegnologie-onderwysentrum: 'n Gevalstudie)

Van Niekerk, E 2003: A process-based assessment framework for Technology Education: A case study ('n Prosesgebaseerde assesseringsraamwerk vir Tegnologie-onderwys: 'n Gevalstudie)

Van Tonder, H 2003: Guidelines for transforming present school facilities into technology centres (Riglyne vir die omskepping van huidige skoolfasiliteite in tegnologiesentra)

Nkosi, DF 2005: The technological process as framework for the improvement of instruction of technology: A case study

Engelbrecht, W 2008: Technology teachers' experience of an industry-sponsored, school-focussed model for continuing professional development of technology teachers

### **13.2 Doctoral students (Supervisor)**

Reddy, K 2001: The education of pre-service teachers in Technology Education: A case study

Jakovljevic, M 2002: An instructional model for teaching complex thinking through web page design: A case study

Harvey, RN 2019: A human-centered design approach to fashion design education.

### **13.3 Doctoral students (Co-supervisor)**

Ralenala, MF 2003: Reading behaviour of first-year physics students at the University of the North

Cronje, A 2015: Epistemological border-crossing between western science and indigenous knowledge and its implications for teacher professional development (submitted for evaluation)

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