



ANNUAL QUALITY REPORT

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WORK PACKAGE 1: MANAGEMENT

Compiled by the University of Pretoria

MANAGEMENT GUIDELINES AND PARTNERSHIP AGREEMENTS

University College Dublin (UCD) exited the consortium in June 2023. The unspent funds allocated to UCD were thus redistributed to the remainder of the consortium. Mr John Visagie compiled and completed Amendments to the Partnership Agreements of all partners to reflect these changes.

The management structure for the Dirisana+ project involves a top-down approach. Prof EN L'Abbé is the project coordinator for UP, with Ms Meg-Kyla Erasmus as the project manager (UP). Mr Rudi Duvenhage replaced Mr Riaan de Kock as finance manager (UP) from January 2023. Each consortium also has a project manager who reports to the project manager at UP. Similarly, dissemination and exploitation are centralized at SMU with each institution having its own dissemination liaison. Social media pages are managed by the Miksha Harripershad (UP). For further details, go to the section on Staff Costs.





Table 1. Contact details of the Project Coordinator and Project Managers for the Dirisana+ project		
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3RD INTERIM MEETING

The Dirisana+ quality assurance meeting was held virtually and in person from 19 to 23 September 2022. SMU hosted this meeting. The topics discussed included question banks, teaching material, 3D teaching models, 3D surface scans of juvenile bones from WITS, research studies (primarily SMU), feedback from the 6 themes (curriculum development, IPE, Technology, Inclusivity and socio-cultural diversity, and assessment) as well as feedback on exploitation and dissemination (SMU), quality assurance (WITS and UNAM) and management (UP). Online representatives of this meeting from SMU were: Anna Oettle, Ciska van der Schoor, Gerda Botha, Estelle Viljoen and Patria Coetzee. Three workshops were held and included: Action Your Curriculum, Jumping into Question Banking and a 3D Printer Demonstration. Teaching materials are also being created and include videos (hosted on the Dirisana+ YouTube





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channel which can be found at: <https://www.youtube.com/@Dirisana>) as well as PowerPoint lectures (SMU). The consortium remains in discussion as to how this data will be stored, but YouTube seems to be a good place for now.

Deliverables for each committee included:

Technology: We purchased several 3D printers and 3D surface scanners in 2022 and 2023. At the University of Pretoria, the 3D printing laboratory is part of the Simulation and Innovation Centre in the Faculty of Health Sciences. We have been producing 3D models for use in the classroom for UP, UNAM and WHTC Staff at UP are creating a 3D model booklet which will show all the models created for teaching and learning during the grant period. UP also printed two human skeletons and two bone trauma skulls for Eduvos University in Centurion, South Africa, as they provide a course in Anatomy and Forensic Sciences but did not have skeletal specimens.

WHTC purchased equipment to record video and training simulations to add to their online nursing programme, with training assistance from UTU and WITS. WHTC learned how to use Moodle and how to create online content.

UP purchased tablets in 2022 and 2023 for student use, particularly the students of the Bachelor of Clinical Medical Practice (BCMP), to record their activities in the rural clinics. From this data, UP will be able to create a disease profile from the rural areas which will be used to align with what is taught within the curriculum.

The Clinical Anatomists within the Department of Anatomy at UP is using the Riddel system and it is being improved by Dr Piet Ackermann.

WHTC has developed a module on IPE to be introduced across all the schools. Currently, it is under review by all stakeholders and Allocation of Equipment.

WITS purchased an Ultimaker 3 Filament printer in April 2022. A teaching model of the shoulder has been developed and printed and was used in a teaching session on May 2023. Dr Mandic is in the process of developing a thoracic percussion model, and he is currently busy testing various materials to use for the printer.

WITS in collaboration with UNAM is in the final stages of the development of a validation tool for 3D-printed models. This will be included in an ethics application for





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Wits' simulation lab to enable a smoother validation process but also to gain the perspectives of students and staff on the usability and effectiveness of the 3D printed models in future teaching and learning. The ethics application has been submitted to the Human Research Ethics Committee (non-medical) at Wits in July 2023 for consideration.

WITS experience some challenges: Loadshedding in South Africa impacts the 3D printing as the printer stops when the power goes out and if the generator does not kick in immediately the printer resets and the 3D print is unusable. We are in the process of purchasing a UPS and inverter to address this problem. In the room where the 3D printer is secured, we noticed a high level of humidity mainly due to construction taking place on the floor level above. This makes printing material swell and then the extruder nozzle gets blocked. We are in communication with BuildVolume to build a dehumidifying chamber to address this issue.

The following equipment was purchased by UNAM in 2022 and early 2023:

A. 12 Lenovo Tablets TB-8505

Ten Lenovo Tablets TB-8505 (and covers) were procured for implementation of remote work-based assessment of the UNAM Master of Pharmacy (Clinical) students. The tablets were received at the end of Semester 1 2022 (28 June 2022). The implementation of this pilot project was delayed until 2023, due to there being no intake of students into the programme in 2021 and 2022, due to the COVID-19 pandemic. It was not appropriate to issue tablets for this purpose to the students in Semester 2 of 2022, as these students were about to complete the programme in November 2022.

Unfortunately, due to the dire financial situation experienced by many Namibians currently, only three of the nine provisionally admitted students for 2023, have managed to register. The piloting of remote work-based assessments will start with the current first years and will continue with the 2024 intake of MPharm Clinical Students.

During the MPharm students' first contact sessions, they were introduced to the project to pilot remote work-based assessments and issued one tablet each – which they signed agreements. The School's DEC Chair has only just been appointed after the





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last Chair left in Dec 2022. So Ethical approval for the study is still pending, as the Committee were not able to work in the absence of an appointed Chairperson. The research cannot start until approval is granted.

Two of the tablets are being used by 4th-year Occupational therapy students. The students wrote a short feedback.

I am a 4th year Occupational Therapy student and I have been using this tablet to record my research interviews for my thesis. My research topic is to explore the employment-related experiences of individuals who have been discharged from the Forensic Psychiatry Unit at Windhoek Central Hospital. It has been extremely helpful to have the tablet, as my interviews were telephonic and I needed an extra device (the tablet) to record my interviews for transcription. I am not sure if my research process would have gone as smoothly, as did I not have access to the tablet - so I'm very grateful! :)

"UNAM Khomasdal 4th year student teachers' awareness on Sensory needs of different children and its influences on learning in the classrooms". I received one of the tablets during the first semester when my research took a turn, where I had to use phone calls to conduct my interviews instead of the initially planned (face-to-face interviews). It has since made it easier because the audio recordings are very clear and can easily be transcribed, compared to when I was doing it with my cellphone.

B: 3D Printers

Ultimaker 3D printer

The printer was used for printing anatomical models such as:

- Homo Naledi mandible and ½ maxilla
- 2 x small skulls
- Atlas and axis, cervical vertebrae, thoracic vertebrae, lumbar vertebrae
- 10 x heart key rings, 1 x vertebral key ring
- Midbrain and cerebellum
- Magnified tarsal and carpal bones
- 2 x radius and 2 x ulna





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- 3 x small skeleton trophies
- Brachial plexus mounted
- Hand skeleton model mounted
- Aortic arch
- 2 x small hearts
- 2 x internal ear models
- Rotator cuff of the shoulder

Consumables and Materials for Ultimaker S3 Filament Printer

The Ultimaker S3 is a filament deposition 3-D printer. It uses two filaments, the filament we use for the actual model (usually PLA) and PVA which serves as a support material. The Ultimaker printer is user-friendly and easy to maintain. The printer also allows for the use different of filaments, depending on the required characteristics of the need of 3D print eg., elastic, mouldable, tough. Post-printing step processes involve the removal of the support material, filing, and painting and pose a time challenge.

Date of receipt: March 2022.

Progress on utilization: The Forge 3D Lab at the UNAM School of Medicine has been actively utilizing the PLA and PVA materials to create 3D anatomical models for the students at the campus. The objective is to enhance the learning experience of the students, providing them with tangible and accurate representations of anatomical structures, which aids in better comprehension and retention of knowledge.

Challenges faced:

Financial constraints: One of the major challenges encountered is financial problems due to the ending of the Dirisana + grant. The availability of funds to purchase consumables and materials has become limited, affecting the lab's ability to continue its operations smoothly.

Plan for self-sufficiency: To address the financial challenges, the lab has devised a strategy to make the 3D lab self-sufficient by offering 3D printing services to private individuals and organizations. By commercializing the services, the 3D lab aims to generate additional revenue that can be reinvested in purchasing





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consumables and maintaining the equipment to prevent the lab from turning into a white elephant.

Future considerations: To further enhance sustainability and expand revenue streams, the Forge 3D Lab may explore collaborations with medical institutions, other universities, and primary and secondary schools. Additionally, marketing efforts to promote the 3D printing services and showcasing the unique capabilities of the lab in producing accurate and detailed 3D models could attract a wider clientele. Advertisements and promotions for the Forge 3D lab on social media, radio, and TV advert platforms.

Crealty Ender Filament printer

The printer arrived in December 2022. For the Creality Ender 5 Pro 3D Printer the same can be said as the Ultimaker S3. The filament of the creality is also less expensive and more readily available. The Creality is also easier to transport and we have used the printer for the past two conferences where we did marketing and education.

Printed with the Creality printer

- Stomach
- Stomach, pancreas and duodenum.
- Female sagittal pelvis model.
- Male sagittal pelvis model.
- Ulna and radius x 4
- Scanned hand image

All models have been used in practical teaching and theory lectures. We are creating a list of all available 3D models as part of the 'Model Library' so that other departments, schools and institutions can borrow models.

Formlab 3B bio-compatible resin printer





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The Formlabs Form 3B Biocompatible Resin Printer was acquired to enhance the educational experience for students at the UNAM School of Medicine, particularly within the School of Dentistry. The primary goal was to utilize the printer to create 3D anatomical models and 3D dental models, allowing students to gain practical experience and improve their learning outcomes. However, there have been some challenges faced in the implementation process.

Receipt Date: November 2022

Progress and Utilization:

Since its acquisition, the Form 3B Biocompatible Resin Printer has seen limited utilization and was not used extensively to print 3D models.

3D Anatomical Models:

The printer has been successfully employed to create some 3D anatomical models, to be beneficial for students. These models are aimed at allowing students to visualize complex anatomical structures, improving their understanding and knowledge retention.

3D Dental Models:

The main focus was on using the printer to produce 3D dental models for the School of Dentistry. However, challenges arose due to the lack of a dental software license for the intra-oral scanner with the necessary features to convert 3D images into a 3D printable format such as STL or OBJ. This has hindered progress and limited the scope of utilization for dental models.

Challenges:

a. Dental Software License: The absence of a dental software license for the intra-oral scanner with the required capabilities has been a major impediment. The university must address this issue to fully realize the potential of the printer for dental applications.





b. Financial Constraints: The project initially received funding through the Dirisana grant co-funded by the Erasmus + European Union, but now faces financial difficulties as the grant is coming to an end. Procuring essential consumables for the printer has become a challenge, hindering further progress.

Future Plans:

To ensure the sustainability of the Forge 3D lab at the UNAM School of Medicine, efforts are being made to explore alternative funding sources. One such strategy is to make the lab self-sufficient by offering 3D printing services to private clients and dental practices. This initiative aims to generate revenue to support the ongoing maintenance and consumables required for the printer's operations.

As part of our inter-institutional and international outreach and dissemination, Dr Esther Hangula from the engineering faculty has been offered an attachment at a biomedical 3D printing Facility in Spain. We believe her work will create further opportunities for expanding 3D printing in the Health Sciences realm.

3D prints with the resin printer

1. Intraventricular system x 3
2. Magnified Carpal bones.

C: Occupational therapy books

Various textbooks on occupational therapy were procured from Van Schaik bookstore for the UNAM Hage Geingob campus library. The Occupational therapy books are being used on a daily basis by students in the faculty.

D: Plastination equipment and chemicals:

Plastination equipment was donated to the University of Namibia by the University of Pretoria and was received on 13 September 2021 by Jan van der Merwe and transported to Namibia. The equipment included a set of vacuum chambers and a crane. The equipment would assist to set up a plastination laboratory in the Unit of Anatomy at UNAM, Hage Geingob Campus.





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The implementation of the project has been delayed by timeless correspondence between UNAM's Estate Department and the consulting engineers appointed to renovate the location (forced extraction system) and isolate the laboratory (fireproof) from the rest of the working areas. The renovations of the laboratory are necessary to comply with plastination-specified safety measures and prevent hazards due to possible explosions. Unfortunately, no action has been taken yet and is still pending.

UNAM's procurement system also delayed the purchasing of the rest of the equipment and chemicals needed for the S-10 plastination technique. Fortunately, the rest of the plastination equipment and chemicals arrived between November 2022 and April 2023 from the different suppliers who tendered.

A technical modification of equipment still needs to be done and is pending due to outstanding quotations to be accepted by procurement from approved suppliers. The freezer compressors, thermostat, vacuum pump, control units of the impregnation unit, and all electrical lines should be relocated outside the room due to the electrical contacts and the acetone vapour. Unfortunately, the plastination laboratory cannot become functional until the renovations and modifications are not finalized and completed.

E: Dell Server for Image Storage and Software Service

Received Date: November 2022

Purpose: The Dell Server was acquired to address the storage needs of 3D scanned models, particularly large 3D images, which were consuming significant space on individual computers.

Progress and Utilization:

The Dell Server is yet to be set up and integrated into the existing infrastructure to handle image storage and software services.

Efficient Storage Solution: The server is aimed to be highly effective in managing the vast collection of 3D models and images. It offers ample storage capacity, ensuring





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the preservation and accessibility of these files without compromising system performance. With centralized storage and access to 3D models, collaboration among the technical team from UNAM and other Universities is expected to be effective.

Challenges:

The process of setting up and installation of the server has not yet commenced.

Divers post printing equipment e.g., drill set, buffer, vacuum cleaner.

Co-funded: Consumables and materials for 3D printer.

Plastination consumables.

WELWITCHIA EQUIPMENT

360-degree recorders (x2)

LMS /Moodle server set-up was done by UNAM for WHTC. UNAM is hosting from LMS/Moodle for the creation of online teaching programmes by WHTC. The implementation was completed in September 2022 and training of technical and lecturers was done by UNAM staff. The BSc Nursing students and staff are using the platform after the training that was facilitated by WITS.

4 Smart TVs with 4 webcams and 4 Speakers were purchased to complement the online learning and teaching aids in simulation rooms for clinical instructions.

To enable video conferencing for online classes, we purchased 4 Mini TV computers and 4 Wireless Mouse Keyboards to be attached to the smart TVs. Additional power sundries such as 4 extension Cord 3m and 4 Multiplug 8-way were required to power the equipment. The 4 Vinyl Stickers were for tagging equipment.

UNIVERSITY OF PRETORIA EQUIPMENT

After the second round of funding, UP was able to purchase additional printers from BuildVolume in South Africa. The Creality PrintMill was purchased to print infinity-sized models such as the femora or tibia, which cannot be printed on the current suite of





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printers at UP. The Bambu Lab Carbon Combo is a multi-colour, multi-material printer used for printing 3D teaching models. UP also purchased Samsung Galaxy A7 Lite Tablets for the BCMP students, as specified in the grant guidelines. The tablets are used by students to record disease profiles at the rural clinics which in turn informs the development of their curriculum.

A set of skeletal elements were printed in resin on Formlabs 3+ and 3BL. This entailed processing the micro-CT scans obtained from the Bakeng se Afrika repository as well as surface scanning of additional materials using the Einscan HX handheld scanner. A full male skeleton, female skull and pelvis and two trauma specimens were printed for Eduvos. This also forms part of our sustainability program to assist in maintaining the machines and obtain funding for our own needs.

The following projects are underway to supply teaching material to various departments and partners:

- Brain models for teaching neuroanatomy: Brain material obtained from cadavers is scarce and fragile. A set of models are being designed to show various views of the brain, as parts, sections and specific nuclei in the larger context of the brain morphology.
- Virtual skeleton: The scans used to print skeletons will be used to create a virtual atlas of skeletal elements. The prototype has been designed and the completed meshes will be built on the prototype for use by students. It is hoped this will bridge the gap between the flat image in a handbook and the physical object.
- Half head with the ear: Speech-Language Pathology and Audiology students have to make casts of an ear as part of their practical work. At the moment, they depend on a human subject. A printed head with an ear will enable them to work on their own without having to get a partner to assist.
- Shoulder model: Sports Medicine needs a shoulder model to practise shoulder infiltration.
- Pelvis for Radiology students.
- Skin model of suture pad: Skills lab.





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- Upper arm prototype for tissue types: Using a combination of 3D printing, laser cutting and casting, we are working on getting a material which will simulate each of the tissue types found in an arm, namely skin, subcutaneous tissue, adipose tissue, muscle, bone and tendon. This can then be combined to “build” any type of anatomical model, with a realistic look and feel.
- Cornea support tool: Cell biology students are growing cell cultures on donated corneas. For this, they use a blown glass support structure. This is unfortunately not available locally. We are working on a 3D-printed solution to replace the glass part.
- Fossils: A wide range of fossil hominins are available for download on the internet. We are systematically printing fossils used in the curriculum at both the secondary school level as well as the university level.

Academic and Research Literacy:

Research Literacy: The Undergraduate Research in Health (URH) journal was launched and published its first issue in 2023 (see Figure 1).



Figure 1. Undergraduate Research in Health (URH) journal. [LINK](#)

The first issue highlights papers from undergraduate students from South Africa and Namibia. A second call for papers has been sent out and editors are currently busy





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with receiving papers for the second issue of the journal. Two members of the editorial board (one from Welwitchia Health Training Centre and one from the University of Pretoria) are planning to visit the University of Turku to co-develop a URH workshop toolkit. The intention is that members of the consortium (and others) will be able to use the toolkit to host workshops for their interested undergraduate health sciences students and assist them to convert their work for submission to the URH journal. In the interim, the board of the URH journal has also identified the need to source useful resources for potential authors that can be linked to the journal website. Two international editorial advisors have been invited to join the board (one from Maastricht University and one from the University of Turku). The writing clinic (Avasha Rambiritch) is working on a project with other colleagues to do a needs analysis for the creation of a writing centre within the Faculty of Health Sciences (2023).

A research study to evaluate the impact of the journal received ethical approval in 2021 and subsequent annual renewal due to delayed publication. A link to the online survey will be sent via the publishers to the submitting authors who published in the first URH journal issue by May. Invited academic reviewers and members of the editorial board will be asked about their perception of the impact of the journal after the publication of the second issue.

Academic literacy: Avasha Rambiritch, Prof Angu and Ms Mashadi Sambo have applied for ethical clearance for an impact study on academic literacy modules in the Faculty of Health Sciences at the University of Pretoria as well as a needs analysis to determine the need for such a writing centre. Once clearance has been granted data collection will begin.

Assessment: All southern African institutions (UNAM, SMU, UP, WITS, WHTC) are participating in building a question databank in the basic sciences (Anatomy, Embryology, Histology, and Osteology). The question databank contains multiple choice questions (MCQs) and short answer questions (SAQ). The databank is stored in ROGO and is currently under the maintenance of WITS. We have completed and signed a Memorandum of Understanding (MOUs) for all of the institutions. At the end of the project, we will complete a new MOU for the sharing and use of these questions. From SMU, 1358 questions have been internally reviewed and English and content





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editing performed. Patria Coetzee is working on uploading these questions to the ROGO database for SMU as soon as it becomes accessible, while Pearl Bothma is uploading for UP, Candice Small for WITS, and Albertina Shatri for UNAM.

SOP FOR STORAGE AND DISSEMINATION OF TEACHING AND QUESTION BANKS

The SOP guidelines for the usage and maintenance of the birth simulator have been developed and are still within a validation phase at WHTC.

All southern African institutions (SMU, WITS, WHTC, and UNAM) signed the Memorandum of Understanding (MOU) with the legal team at the University of Pretoria with regard to sharing database questions. The questions are stored on the ROGO system, which is free software for e-assessment management and is currently being maintained by WITS (Mark Allen).

Guidelines and SOPs have been developed for all 3D printers and 3D surface scanners housed at the UP and UNAM.

A YouTube channel was created for all videos created from UP, UNAM, SMU and MU. Access to the channel can be found at: <https://www.youtube.com/@Dirisana/playlists>.

ESTABLISHMENT OF RESEARCH TOPICS IN FOCUS AREAS FOR THE PROJECT

The project has been divided into six themes, for which each institution contributes one or more themes. Each of the six themes is comprised of a committee of people from various institutions. Each committee has a chairperson who reports to the project manager at UP as to the progress of the committee in addressing various operational goals. Throughout 2021, the various research committees were tasked to develop operational plans for the research topics in their focus area. Committees and various researchers from the partner institutions held regular meetings to establish the research projects and timelines for the remaining two years of the





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project (See Figures 1 to 6.) The chairperson runs monthly or bi-monthly meetings on the progress of their committee and the minutes of the meetings are sent to the administrator of the project coordinator. The project coordinator also conducts meetings with the chairpersons of the various themes and requests information on their progress and their planned progress for the year. The last meeting was on 14 July 2023. The minutes of these meetings have been added to a Google Drive which is monitored by Ms Meg-Kyla Erasmus. Google Drive Access:

https://drive.google.com/drive/folders/1PFNyW_X2eIHE7s_3QEPHxpqwz6sKhJGm?usp=sharing

CANDIDATES FOR POSTGRADUATE TRAINING AND WORKSHOPS

Several collaborative workshops were identified for undergraduate and postgraduate students at WITS, UNAM, UP, and SMU. These workshops are outlined in the workshop section and will take place in 2022 and 2023. The average workshop contains about 20 people (students and staff from the consortium).

IPE workshops were developed for the Namibian group (UNAM, WHTC) staff and students (20 people from UNAM and WHTC) with the University of Turku (UTU) for February/March of 2023. A presentation was done at WHTC. All faculty attended the workshop. Different models for IPE were presented and discussed. On the way forward, WHTC will be collaborating with Maastricht University to finalise their IPE curriculum.

Postgraduate training and workshops took place during the second interim meeting from 07 to 11 March 2022, which is hosted by WITS and includes staff and students from the entire consortium. The workshops include AVISO training (x2), forensic archaeology, 21st-century learning design; IPE; and assessment practices. Feedback surveys have been planned for all of these workshops for quality assurance. Feedback has been provided in the previous report for the wits workshops that took place in March 2022 and September 2022.

A presentation was done at WHTC. All faculty attended the workshop. Different models for IPE were presented and discussed. On the way forward, WHTC will be collaborating with Maastricht University to finalise their IPE curriculum.





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Dr Derek Vallence gave a workshop at UP (with all southern African consortium members invited) on the creation of 3D creation and printing of medical devices.

The workshop was from 16 to 20 January 2023 and focused on the initial processes of design that individuals should consider when a medical device is being developed. The purpose of the workshop was to guide the early development of decision-making, assist in proposing an intuitive medical device, and initiate a device that is user-friendly and minimises the exploitation of a device.

The first day of the workshop focused on defining the need for a medical device as the first step in developing any device and research methods we apply as medical device designers. The second day looked at identifying critical key design insights leading to a functional and intuitive device by understanding and evaluating the environment along with each step of use. The third day focused on building rigs in order to evaluate and reflect on design choices as a critical skill and being quicker at doing this promotes a more functional development process. The fourth day focused on how important it is to test the hypothesis of your proposed device with potential users early and regularly to assist in identifying potential costly errors which in turn allows for simplification by reflecting on qualitative data. The last day of the workshop focused on the primary responsibility of a medical device designer which is reducing risk from the device for the user and looked at quantitative tools which can be used to assist with this.

WORK PACKAGE 2: DEVELOPMENT

SUB-CONTRACTORS

SAMA PUBLISHING GROUP

Regular meetings. Training by the SAMA publishing group WHTC students published two articles in the first issue. Two other manuscripts are up for review and some other students have shown interest to submit for the second issue.





AITA/RIDDEL

We recruited Ms Shavuka from Computer Science to develop an APP Developing our logbook: Ms Fosia Shavuka is employed as a technician, from March 2023, to complete the logbook application. The logbook allows occupational therapy students to create a diary of their activities, log activities and receive feedback from their supervisors on the same platform.

It is ready for implementation and will be tested from August 2023 to December 2023. Students and lecturers will complete online feedback on the use of the logbook (feedback form: <https://forms.gle/hvdEzyX2JGiwQ7WE8>). This is an ongoing process as we refine the system and work on glitches.

E-learning resources, frameworks and module development for MOODLE (UNAM, WHTC)

PJ Ackermann from Seziwave (SMU): Continuous development and updates to align and maximise testing systems for uploading questions, marking questions and providing support and training on the Riddel system. The Riddel programme has been disseminated and the workshop was presented on the 27th of June 2022 at the SAAHE conference Pre-conference workshop 6. Riddel is an alternative to online testing P Ackermann, A Oettlé, G Venter, L Prigge

The following instructional videos in the use of Riddel have been added to the communal Dirisana plus channel: <https://www.youtube.com/@Dirisana/playlists> 1)

Riddel: An Assessment Resource with Unique Advantages Including Reduced Marking, 2) Riddel: Marking Tutorial

Edlingtech does all the English/content editing of research and teaching material for SMU for the project (2021 to 2023)

RESEARCH PROPOSALS SUBMITTED TO COMMITTEES AT EACH INSTITUTION





TECHNOLOGY IN ADVANCING TEACHING AND LEARNING

Ms Thandolwethu Mbonani, an MSc candidate, submitted her research proposal entitled:

“Prediction of the soft-tissue facial morphology matrices in a European population, a Geometric Morphometric study using Cone-Beam Computed Tomography” to the MSc Committee at UP in March of 2022, followed by the Research Ethics Committee (REC) at UP in May of 2022. She is using CBCT scans to investigate the influence of factors (ancestry, sex, age and allometry) on the hard- and soft-tissue facial morphology matrices of a European population as compared to White South African group data.

FORMATIVE AND SUMMATIVE ASSESSMENT IN CLINICAL AND BASIC HEALTH SCIENCES EDUCATION

Proposals for assessment are also aligned with the curriculum, see below.

ACADEMIC AND RESEARCH LITERACY

Regarding the undergraduate research journal, a research project *An impact evaluation of an online peer-reviewed journal for health sciences research conducted by undergraduate students* was approved by the University of Pretoria’s Faculty of Health Sciences Research Ethics Committee (EBIT/266/2021). It will commence when the journal site is created and will be led by a junior researcher (Gabrielle Thompson, UP), supported by the editorial team members: Astrid Turner (UP), Adèle du Plessis (UNAM), Liz Wolvaardt (UP), Abigail Dreyer (Wits), Scholastika Ndatinda lipinge (WHTC), Gerda Botha (SMU), Otilie Katali (UNAM) and Clarisa Sutherland (UP). Using a cross-sectional study design, the study aims to evaluate the impact of the new online journal for undergraduate research in health sciences on the publication and research experience of the submitting authors and peer reviewers. It will be conducted for the first two issues of the new journal in 2022 in a form of an UP-licenced Qualtrics survey. The study findings will be used to further improve the online journal in its efforts





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to encourage, support and showcase the work of health sciences students who have not yet graduated. Article and conference submission outputs are envisaged.

PERCEPTIONS AND ATTITUDES OF STUDENTS AND STAFF TOWARD INTER-PROFESSIONAL EDUCATION (IPE) MODELS

The PhD research project, titled Interprofessional education and collaborative practice in the training of healthcare students in Namibia and South Africa, obtained ethical clearance from the Faculties of Humanities and Health Science, and Survey Committee, University of Pretoria. Ethical applications at WITS, SMU, UNAM and Welwitschia are currently underway. The two surveys related to the project have been piloted to the committee and are finalized. A video advert for participation in the surveys is currently in development. The systematic review (Exposure and experiences of undergraduate healthcare students to interprofessional education and collaborative practice (IPECP) during their training in low and middle-income countries (LMICs): A scoping review) related to the PhD is also underway.

CURRICULUM DEVELOPMENT IN MEDICINE, HEALTH CARE AND BASIC HEALTH SCIENCES

UNIVERSITY OF PRETORIA

The University of Pretoria is engaged with two curriculum projects based in the Department of Pharmacology (undergraduate Pharmacology) and the Department of Family Medicine (Bachelor of Clinical Medicine). The Department of Pharmacology is currently reassessing the undergraduate pharmacology curriculum present to students enrolled for the Bachelor of Dietetics, Nursing Sciences, Physiotherapy and Science. Following Kern's curriculum development model, a systematic review-originated Delphi-panel study was undertaken between January 2022 and April 2023 across national institutions, accreditation bodies, professional societies and a health professions education fellowship. Given the panel's diversity, public and private





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healthcare sectors were also represented. The Delphi study has been compiled as a list of competencies for development into a nationally-relevant framework for pharmacology curricula for Dietetics, Nursing Sciences and Physiotherapy (to be submitted once published given the research focus impact). The list is currently being used for focus group interviews between the relevant departments for a targeted curriculum mapping exercise making use of the LOOOP curriculum mapping system, which is taking place between August 2023 and February 2024. The research has allowed for not only a tangible nationally-relevant curriculum framework but also three publications currently under review by the associated authors. The research has been presented at the Southern African Association for Health Educationalists (SAAHE, South Africa) and World Congress of Pharmacology (WCP; Glasgow, United Kingdom) which has allowed for collaborative ventures to be formed for future development. Contacts at WCP have allowed for relationships to be built for external quality control review to be conducted between October and December 2023.

Separate from the main curriculum project, human capacity development has allowed students to be involved in health professions education research, predominantly at BSc Honours qualification level over the Dirisana+ collaboration. Two students have received degrees based on their research (one of which has recently published their research, and another is currently under review for publication). Both of these projects align with curriculum development as it is earmarked for competency development and knowledge of healthcare practitioners. One student is currently continuing her research on competency development which will contribute to the national drive for physiotherapists to become non-medical prescribers (and thus infer training platforms as bridging and undergraduate qualifications at a national level).

The Department of Family Medicine is engaged with a review of their Bachelor of Clinical Medicine programme assisted by Prof Pieter du Toit (Department of Humanities). This further ties into their technological incorporation of tablets as an electronic means to capture logbook information. Further national benchmarking with Walter Sisulu University and the University of the Witwatersrand is currently underway.





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The Faculty of Health Sciences at the University of the Witwatersrand are in the process of reviewing the MBBCh and BHSc qualifications.

The curriculum review is progressing well and the new curriculum will be presented to the Faculty and University structures in May and June 2023. The stakeholder consultations which took place in 2021 and 2022 have been instrumental in informing this proposal. During the review, the team has undertaken a scoping study (scoping review and survey) to develop a generic competency framework for non-clinical health professionals in the South African context, which will inform curriculum development for the next five years. The final framework is expected in August 2023. Furthermore, the historical development of the Bachelor of Health Science and Medical programmes has been documented, an important step in ensuring that further curriculum development will build on the success of the past and the curriculum does not stagnate. Additional projects investigating how South African students engage in virtual and physical learning environments, as well as Faculty development initiatives have also been initiated.

The establishment of core course content required for a Human Biology Honours course has been completed.

INCLUSIVITY AND SOCIO-CULTURAL DIVERSITY IN HEALTH PROFESSIONS EDUCATION

PROGRESS REPORT ON IPECP LEVEL 1: (SEFAKO MAKGATHO UNIVERSITY)

Gerda Botha

- Curriculum review, planning and implementation completed for MBCHB I in 2022.
- Curriculum planning completed as part of IPECP I for 2023, (training of facilitators completed in January 2023, workshops to 770+ students in eleven (11) Health Professions Programmes on 10 & 17 February 2023, Learning





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events/reflecting on patient encounters ongoing during the year to be finalised by middle September). Reporting ongoing at APCDC I meetings and to Deans of the various participating Schools.

- Curriculum materials (power-points, student and facilitators guides shared with Dirisana partners, requested feedback and permitted to use if they so wish. Also offered assistance with workshops if they need any)
- Another attempt at collaboration with UNAM – awaiting feedback from Dr Adele du Plessis.
- UP indicated they have their own programme, and have a new Dean of Education. Gerda requested the UP partners to explore if a meeting with the new Dean is indicated to explore collaboration.

Facilitator training, participation and preparation:

- Facilitators attended training sessions offered over 1 full day (multiple opportunities offered towards the end of 2022 and beginning of 2023).
- More than 90 facilitators across the Schools of Medicine, Health Care Sciences, Oral Health Sciences and Pharmacy have been trained.
- Facilitators received all teaching materials (PPP, facilitator guide, student learning guide) with all assessment rubrics.
- Facilitators were invited to comment on the teaching materials and make suggestions for improvements.
- At the end of the training days, facilitators indicated tremendous support for the programme and the topics of diversity, identity, bias, privilege, power imbalances and voiced that it is high time these topics get discussed within a safe and respectful learning environment. Many indicated that we should make this training part of staff induction programmes. One facilitator raised a concern and warning to others to not let personal bias impact student learning.
- Challenges:
 - Facilitators are generally very busy and experience conflicting demands in their home departments (other training, service delivery and research responsibilities); and some had to withdraw from the programme, either as per direct instruction from their HOD or as they had other diarized





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obligations. In the case of other facilitators serious life crises happen, one was admitted to the hospital, another lost a loved one etc.

- Facilitators who could not attend any of the multiple scheduled training opportunities did attend an individual briefing session with me in my office and continued to participate with great enthusiasm.
- Although the idea was to have two facilitators per group, in the end, some groups only had one facilitator.
- Some facilitators did not provide sufficient details and may not yet be linked to Blackboard
- Some exercises require a page to be printed for students to use, and in the case where the facilitator's department could not provide such facilities, my office had to stand in. This has put an unfair burden on our office supplies.
- Only a few facilitators took responsibility for arranging their own venue, again which has put unnecessary strain on us trying to secure venues for them. Venues are a huge problem on this campus, this challenge needs to be brought to the attention of management. Although Tsholo of IPD has tried to assist, the demand for training venues is only increasing and this is a risk for the face-to-face modality of the programme going forward.
- In general, all facilitators were very positive and tried their best within a short period to make this a huge success as could be seen from comments and photos posted on the WhatsApp group.
- We **applaud the commitment and dedication of the facilitators** and the passion with which they facilitated the topics. Kealeboga!

Students and group allocations:

Students from the following professions have been allocated into thirty (30) IPECP groups of about 25/26 students each.

- Medicine (8-9 per group)
- Radiography (generally 1 per group)
- Nursing (2 per group)
- Occupational therapy (1-2 per group)





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- Physiotherapy (2-3 per group)
- Speech-Language Pathology and Audiology (1-2 per group)
- Human Nutrition / Dietetics (on average 1 per group)
- Pharmacy (2 per group)
- Dentistry (1-2 per group)
- Oral Hygiene (1 per group)
- Dental Therapy (1 per group)
- Challenges:
- Obtaining lists with details of first-year students is a huge challenge and was a learning curve for all of us. The data from student admin is not in a user-friendly format, requiring course coordinators to edit lists in order to display home language, gender and all contact details. When the correct template is not used, the person (me) who has to **allocate the 700+ students** is completely overwhelmed.
 - Great care was taken to allocate students to represent various home languages in each group, and have a fair distribution of male: female ratio. When we ran out of time this attempt may have been compromised, although looking at the list it still seems fairly reasonably done (find [list](#) with allocations attached).
 - Mistakes such as a wrongly written e-mail address, spelling of the surname and or wrong digit in the cell number created problems when we communicate with students that are not yet linked on Blackboard and who depend on e-mails or their student WhatsApp groups.
 - Late allocations: One of the reasons was that selections took place once all results were released (matrics, and students with previous degrees) and the Registrar's announcement to extend the registration date. This resulted in students not being registered and allocated to groups by the first day of IPECP level 1 training (the training commenced as per the university calendar start of the academic year).
- Students who may have de-registered - their names may still appear on the [list](#). Course coordinators are to interrogate the list and correct mistakes asap. We are using this list to enter marks and keep track of student progress.





Learning events:

Day 1: Critical Conversations regarding Diversity (8 hours, including preparations and homework)

- The teaching programme started on 10 February 2023 in teaching venues across campus, including at the Sports Centre such as the squash courts
- The ECP II students (who are now doing MBCHB I) were a huge help, as we orientated them towards IPECP level 1 on 31 January, they were on the lookout for new first-year students in their residences and directed them to their departments to correct their details and enlist their names. They also communicated details about group allocation, venues, teaching materials etc. We should continue to use this informal channel of communication again in future.
- Students who missed the first day of training due to late registration had an opportunity to attend a catch-up session on Saturday, 25 February 2023. The catch-up session was attended by 72 students and the attendance list was mailed per separate mail to facilitators to check for their group members who joined late. Another catch-up opportunity is scheduled for Saturday 4th of March, 2023 09h00-13h00 for about 15 additional students who missed the first day of training.
- Teaching and Learning Materials: The PowerPoint Presentation is available on Blackboard, and was also mailed to students together with the student learning guide. [Here is the link to the PowerPoint presentation](#) which also explains the games and exercises.
- Assessment: The learning event had embedded formative assessments (peer evaluation and reflections / scored by facilitators). Summative assessment is planned in the form of a group reflective portfolio (due 26 September) and individual slide presentation – reflecting on the personal journey (scheduled for 6 October)
- Our impression is that the students generally enjoyed this training and participated with great enthusiasm. Estimated from the high number of e-mails,





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walk-ins and WhatsApp messages I get from first-year students, they do take this training very seriously and wish to adhere to all attendance, make-ups and assessments. **What a great group of students!**

Challenges Day 1:

- Relatively few challenges given the enormity of the group and the complexity of arrangements; the biggest issue is late registering students, but this was attended to as described above.
- One facilitator had to leave the venue with her group halfway through the training day as there was a double booking for the venue
- Some confusion regarding the scoring of participation/contribution may persist, which may result in not applying it in a standardized fashion across all groups. We recommend a facilitator meeting to iron out any remaining uncertainties.

Day 2: Health Disparities (this year it was on 17 Feb) (8 hours, including preparations and homework)

- Implementation went smoothly, apparently, one group had a problem with a facilitator not attending. The facilitator should arrange for a make-up session with his/her group.
- A few students also missed day 2 of training, the exact number needed to be determined. The facilitator group is to decide if we must schedule a make-up session centrally or if they will be willing to catch up with such students that may be in their particular group.
- Teaching and Learning Materials: The PowerPoint Presentation is available on Blackboard, and was also mailed to students. The same assessment strategies apply for day 2 as described under day 1.
- Materials for day 2 will be mailed per separate mail due to the size of the mail (not going out).

Case discussions 1-6 (6 hours)





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- Students have been prompted to attend six (6) patient case discussion events spread out during the year, the first to take place by the end of March and the last by the middle of September 2023.

This is a student-driven learning event, where students determine the specific date, time and modality (online or face-to-face) and a medical student has been dedicated to presenting his/her community service-learning patient in the form of a written scenario to the team (other professions do not yet encounter patients in clinical settings during the first year).

- The relevant presentation format and rubric are included in the student learning guide.
- Additional materials and progress regarding this will be reported on per separate mail due to the size of the mail (not going out)

Portfolio & Presentations: (16 hours)

Planned for the second semester

- 26 September – to submit a reflective portfolio (group project)
- 6 October – to present a reflection on the journey (individual presentation to the group – 3 slides per student, including title page)

Curriculum mapping:

- A national LOOOP users group have been established with representatives from the institutions involved with mapping (**SMU, UP, Wits**, UKZN, NMU, UCT)
- In some cases, the SMU LOOOP Profession/degree programme representative is also a facilitator of Level 1 IPECP.
- The decision during the first national users' group meeting was to map IPECP as a standalone undergraduate programme in order to ease benchmarking between the institutions and professions.





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- The Charite (Germany) team will upload the relevant competency list to this standalone programme and will assist us to import the standalone to all our individual degree programmes. The advantage of this is that each profession won't need to separately map our IPECP events or changes thereof.
- The level 1 IPECP objectives have been mapped on LOOOP already, and the Charite team will also move the current mapping of our IPECP level 1 objective to the stand-alone programme.

Short progress report on IPECP Level 1:

Gerda Botha, Sefako Makgatho Health Sciences University

- Curriculum review, planning and implementation completed for MBCHB I in 2022.
- Curriculum planning completed as part of IPECP I for 2023, (training of facilitators completed in January 2023, workshops to 770+ students in eleven (11) Health Professions Programmes on 10 & 17 February 2023, Learning events/reflecting on patient encounters ongoing during the year to be finalised by middle September). Reporting ongoing at APCDC I meetings and to Deans of the various participating Schools.
- Curriculum materials (power-points, student and facilitators guides shared with Dirisana partners, requested feedback and gave permission to use if they so wish. Also offered assistance with workshops if they need any)
- Another attempt at collaboration with UNAM – awaiting feedback from Dr Adele du Plessis.
- UP indicated they have their own programme, and have a new Dean of Education. Gerda requested the UP partners to explore if a meeting with the new Dean is indicated to explore collaboration.

REGISTRATION OF POSTGRADUATE STUDENTS IN DEGREE PROGRAMS





UNIVERSITY OF PRETORIA

1. Thandolwethu Mbonani (MSc):

Prediction of the soft-tissue facial morphology matrices in a European population, a Geometric Morphometric study using Cone-Beam Computed Tomography.

Supervisors: Dr AF Ridel (UP), Prof EN L'Abbé (UP)

RESEARCH PROPOSALS

UNIVERSITY OF PRETORIA

Department of Pharmacology (curriculum-based projects)

1. Benito Swart and Lilandi Niemand (MBChB/LLB, non-degree based research): Sexual and gender minorities in the South African medical curriculum: Are final-year medical students aware of this group's healthcare needs?
2. Tsungirirai Kakono (BSc.Hons Pharmacology, graduated 2022): Attitudes of physiotherapy students and graduates towards the inclusion of prescription rights to their scope of practice
3. Christie Megaw (BSc.Hons Pharmacology, graduated 2023): Dietitians' knowledge and sources of information regarding food-drug interactions
4. Nonhlanhla Mbonani (BSc.Hons Pharmacology, enrolled for 2023): Evaluation of the labelling adherence of the food-associated effects of selected pharmacotherapy
5. Tsungirirai Kakono (MSc Pharmacology, enrolled for 2023): Capacitation changes of undergraduate and graduate physiotherapists for prescribing extension of scope of practice
6. Mikayla Profe-Fuchloch (PhD Pharmacology, envisaged for 2024): Occurrence of food-drug interactions in public healthcare sectors in South Africa and the United Kingdom.

Department of Humanities Education (curriculum-based projects)





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Werner Cordier (PhD Curriculum and Instructional Design and Development, enrolled for 2023): Alignment of undergraduate pharmacology learning outcomes to healthcare practitioner workplace competencies.

UNIVERSITY OF WITWATERSAND

The 3D surface scanning of juvenile remains and using the 3D meshes and 3D prints for teaching and learning. The idea behind the project was to create 3D-printed models of juvenile bones for teaching and learning purposes. Juvenile skeletons were small, lightweight, and extremely fragile which made scanning the bones difficult. A total of six skeletons were chosen: a neonate, a 6-month-old, a 1-year-old, a 2-year-old, a 6-year-old and a 12-year-old. Six skeletons were chosen due to the condition and stages of development needed for the teaching course. The long bones such as the humerus, ulna, radius, femur, tibia and fibula were scanned to show the different development stages of the proximal and distal ends of bones. The crania of all six skeletons were scanned to show the different stages of development of the fontanelles. The mandibles, pelvis and sacrum were scanned for the skeletons that were preserved in good condition. Bones that were more than 20% damaged were not scanned. The neonate skeleton was completely articulated therefore it was sliced into three segments: skull, thoracic and upper limb and pelvis and lower limb bones. After the scans were completed, the models were exported as an STL (stereolithography) file format for printing purposes. There was a total of 89 bones scanned. The 3D printing of model began in April 2023. At least 2 months will be needed to complete the printing process of all 89 3D bone model scans. The introduction and implementation of the 3D models for teaching and learning purposes will begin in May/June 2023 during lectures on embryological and juvenile skeletons.

ESTABLISH RESEARCH TOPICS IN FOCUS AREA

UNIVERSITY OF NAMIBIA





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1. The proposals are in progress for the following research topics: identified three topics for research:
 - Establishing a 3D printing lab in a southern African context - abstract will be presented at ISMS.
 - The use of 3D models in Anatomy education. Ethics approval received from UNAM DEC. **Ethical Clearance Reference Number: SOM10/2023.** Research to be completed end of September.
 - Value of a logbook for clinical placement - The logbook is now available and the survey will be sent to students and supervisors. Proposal sent to DEC at UNAM. Awaiting ethics approval.

EXECUTION OF RESEARCH

UNIVERSITY OF PRETORIA

1. Ms Christie Megaw (Section 2.5.1) in Curriculum

The project focuses on determining the current knowledge and factors affecting dietitians in food-drug interactions. Data has provided insight into knowledge deficiencies for seminal interactions to be strengthened within the current curriculum. Furthermore, it has allowed for additional research to be conducted to strengthen the use of package inserts in clinical practice.
2. Ms Nonhlanhla Mbonani (Section 2.5.1) in Curriculum

The project builds on Christie Megaw's research to help elaborate on how package inserts are currently being used in clinical practice, which ties into the curriculum currently presented.
3. Ms Tsungirirai Kakono (Section 2.5.1) in Curriculum

The project builds on the research conducted by Tsungirirai during her Honours year. It currently assesses what regulations would be needed to ensure adherence to regulatory frameworks for the inclusion of non-medical prescribing as a clinical competency. This will require planning for both bridging





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qualifications for registered physiotherapists, and inclusion into the undergraduate pharmacology module.

SEFAKO MAKGATHO UNIVERSITY

1. Amkelwe Simelane (MSc) in Technology. The effectiveness of emergency remote teaching of Anatomy to medical students in one of the comprehensive South African universities during the COVID-19 pandemic

The following research topics have been established and have been submitted to the relevant committees (SREC (School Research Ethics Committee; Undergraduate Committee; SMUREC (Sefako Makgatho Health Sciences University Ethics Committee)

“Students’ and lecturers’ perspective on online assessments and the effectiveness thereof.” Supervisors: Adele du Plessis and Sone van der Walt. Ethics number received: SMUREC/M/420/2022: UG

“Students’ self-efficacy and motivation” Supervisors: Clarisa Sutherland and Sone van der Walt. The protocol has been resubmitted to SREC with comments attended to, awaiting approval followed by the ethics number.

Evaluating the quality of Anatomy tests comprising MCQs at a South African tertiary institution final. Supervisors Anna Oettle and Patria Coetzee. Submitted to SREC.

Ethics number received: SMUREC/M/367/2022: UG

Postgraduate research at SMU which already has ethical clearance:

1. Students’ survey on perceptions of strategies used in teaching and external factors affecting the learning of Anatomy at a South African institution

MSc: Konanani Given Phaswana

SMUREC/M/269/2020: PG

Completed, will be presenting findings at ISMS and Research days, SMU in August 2023

3. The effectiveness of Emergency Remote Teaching of Anatomy to medical students in one of the comprehensive South African universities during the COVID-19 pandemic.

MSc: Amkelwe Simelane

SMUREC/M/302/PG

Completed, has presented a poster at SAAHE: Title: "The Effectiveness of Emergency Remote Teaching of Anatomy to medical students during the COVID-19 Pandemic" which can also be found on the communal Dirisana Plus channel:





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<https://www.youtube.com/@Dirisana/playlists> and will also present at Research Days, SMU in August 2023

4. The development of an innovative interprofessional education instructional model for health care science students at a South African historically disadvantaged university

PhD: Estelle Viljoen

HSSREC Reference Number: HS22/4/14

Ongoing

A literature review has been presented at: Dirisana and IPE Research Day on the 1st of December 2022 and will be presented at SMU Research Day, in August 2023

5. Developing the attributes of cultural humility in the context of cross-cultural medical education and health care service delivery in a cohort of undergraduate students

PhD: Gerda Botha

SMUREC/M/333/2021:PG

Ongoing

Aspects of this research will be presented at Research day

6. Understanding of healthcare professionals towards the roles and competencies of clinical pharmacists in South Africa

PhD: Lucille Malan

SMUREC/P/221/2022: PG

Ongoing

Podium presentation at SASOCP (South African Society of Clinical Pharmacy)

ePoster presentation at AMEE (Association for Medical Education Europe)
SMU Research Day presentation TBC

Publication in scientific literature:

Crafford, L., Kusurkar, R.A., Bronkhorst, E., Gous, A.G.S. and Wouters, A., 2023. Understanding of healthcare professionals towards the roles and competencies of clinical pharmacists in South Africa. BMC Health Services Research, 23(1), p.290.

Independent educational research studies at SMU:





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1. The design of an e-learning course on the effective use of virtual technology for health professions education in the context of Sefako Makgatho Health Sciences University

Elize Venter
Helga Hambrock

Awaiting SMUREC and SREC clearance

2. The field-of-practice experiences of South African and Namibian medical practitioners who qualified outside and returned to practice in their own countries

Honey Mabuza
SMUREC/M/163/2021: CR

3. The relevance and importance of the Anatomy and Physiology content in the practice of the nursing profession in the Gauteng and Eastern Cape South African Provinces

Amkelwe Simelane
M Zatu

Awaiting SMUREC and SREC clearance

The effectiveness of low-cost 3D models in teaching clinical skills to medical students.





ATTENDANCE/PARTICIPATION OF MEMBERS TO WORKSHOPS AND SHORT COURSES/PLANNING OF WORKSHOPS FOR 2022 TO 2023

UNIVERSITY OF PRETORIA

1. 3D printing workshops: training of technicians on 3D printers
2. Workshop on IPE Research held on 1 December 2022 by UP and included all consortium members in IPE and colleagues and students from the participating institutions
3. IPECP Workshop focused on the implementation of IPECP core competencies to be held 13-20 March 2023. All Southern African institutions participated including UP (host and organizer – Dr Renata Eccles), SMU, WITS, UNAM, and Welwitschia Health Training College. Visiting lecturer and speaker Prof Jascha de Nooijer from Maastricht University
4. WHTC developed a module on IPE - the aim of an Interprofessional Health Education (IPHE) module for combined Nursing, Pharmacy, and Environmental Health students in Namibia is to foster collaboration, communication, ethical, and legal practices among healthcare professionals from different disciplines, in the context of the unique health challenges faced by the country.

The overall goal of the IPHE module is to prepare students to work effectively as members of interprofessional teams in Namibia, providing them with the skills and knowledge needed to provide safe, effective, ethical, and legally compliant patient-centred care in a culturally and economically diverse setting.

Philosophy: it's based on the following principles:-

- Holistic approach
- Collaboration and teamwork
- Patient-centred care
- Ethical and legal considerations
- Cultural Competency
- Continuous professional development





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IPEC could start from 1st year with less complex activities and make them more complex in the final year. Negative results of IPECP would be difficulties in working together. The most appropriate lecturer would be one who values IPE and a collaboration with Maastricht University is highly likely.

A workshop is planned to be facilitated by TURKU in August and September 2023 on grant writing and management for WHTC and UNAM

UNIVERSITY OF THE WITWATERSRAND

The following are collaborative workshops developed with WITS, UP for 2022/2023:

1. R and geometric morphometric (GM) workshop for staff/students (2022 to Dec 2023) – UP, WITS, UCD.
2. Using 3D imaging software (AVISIO), rendering 3D models for printing (2022 to Dec 2023) – UP, WITS, UCD.
3. Chronic Disease in Bones: Palaeopathology (18 April 2023) – WITS, UP.
4. Taphonomy and Bone Trauma (2022 to Dec 2023; can possibly be split), UP.
5. Forensic archaeology workshop (2022 to Dec 2023), WITS & UP

WITS to train 36 lecturing staff teaching BNSC on Instructional Design and Online teaching on MOODLE in Windhoek (WHTC). Lizelle Crous and Shirra Moch travelled to Namibia to present a 5-day workshop on designing learning on an LMS (MOODLE) considering student engagement and design principles for access.

Wits presented a workshop to the consortium at the 2nd Interim meeting: Action your curriculum which was a hybrid event. The focus of this workshop was on UDL and ABC learning design principles. An overview of storyboarding was also presented.

Wits presented a workshop to the consortium at the 2nd Interim meeting: Jump into Question Banking (Hybrid event). This workshop reviewed the principles of evaluating questions and key points to consider when using the shredding tool.

A workshop on quality assurance for projects will be hosted online by Prof R Drennan at the interim meeting (UNAM) in May 2023.





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Dr Carol Hartmann and Dr Stuart Pattinson attend workshops related to their research (PhD) in Maastricht in November 2022 and March 2023.

Wits hosted a workshop for registrars on article review for a journal club in March 2023.

Dr Danielle Verstegen from Maastricht University visited Wits from 28 June 2023 - 7 July 2023. During this time she presented and facilitated a few webinars, workshops and individual departmental consultations on Design-Based Research (DBR) and how to implement it in health science education-related research. The webinars and workshops were presented as either online or hybrid and members from the consortium could attend. She also engaged with the Occupational Therapy and Oral Health Science departments at Wits on the implementation of Problem-based Learning (PBL) curricula.

WELWITSCHIA HEALTH TRAINING CENTRE (WHTC)

Technical and Admin staff attended a workshop on Moodle LMS at UNAM.

UNAM facilitated a workshop for the IT, office of the registrar and online learning staff before rolling it out. 36 lecturing staff teaching BNSC on Instructional Design and Online teaching on Moodle in Windhoek (WHTC) were trained by WTS academics staff.

Subsequent training on Moodle was conducted for all BSN faculty by Robert Kopano. Furthermore, follow-up support workshops were done by the online learning coordinator every week. The 10 participants of the e-teacher course were given certificates of completion. The course facilitated the improvement of the flipped classroom online teaching mode.

IPECP core competency implementation for the Southern African institutions hosted in South Africa and Namibia by Prof Jascha de Nooijer Maastricht University at WHTC & UNAM.

Currently, WHTC does not implement IPE but soon will as the module developed on IPE was approved by the Faculty Board and is recommended for implementation.





UNIVERSITY OF TURKU

Ten persons from WHTC participated in courses in online education from the University of Turku – Online Training for the e-Teacher course. All 10 participants of the e-teacher course completed the course and were given a certificate of participation. The course facilitated the improvement of the flipped classroom online teaching mode.

UNIVERSITY COLLEGE OF DUBLIN

UCD's key involvement is fourfold. (1) Supporting technology in advancing teaching and learning and research, contributing to the development of knowledge involving 3D printing technology and techniques. (2) Attending advanced workshops (3D tissue segmentation, modelling and analyses, and forensic archaeology in the investigation of crime scenes for evidence identification and crime scene reconstruction). (3) Supporting education and research mobilities, through hosting members of UP, UNAM and SMU for activities variously aimed at enhancing teaching, learning and assessment practices in anatomical, biological anthropology and clinical education. (4) Research development via postgraduate (Co-Supervision of Thando Mbonani, UP) and postdoctoral research project development (hosting Linda Mbeki (UP) in Dublin to access laboratory facilities, academic staff expertise and development of research and funding collaborations).

TYPES OF TEACHING MATERIAL DEVELOPED IN 2022, OR PLANNED FOR 2023

(i.e., question banks, 3D models, birth simulation, undergraduate research publishing etc.)

UNIVERSITY OF PRETORIA

3D models of a pelvis, a diabetic foot, a club foot, and conjoined twins were created for pre-operative planning and teaching student's surgical techniques and concepts. We also created 24 models of bone trauma cases for teaching. We 3D surface





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scanned and 3D printed in resin a complete skeleton (male), the cranium, pelvis and femur of a female skeleton, and two bone trauma skulls for a private institution, Eduvos University, in Centurion, South Africa.

UP and SMU jointly review MCQs and SAQs prior to them being uploaded to the Rogo system. Two teams have been developed. The first team meets four times per month and works on anatomy and embryology questions, while the second team, who also meets four times per month, work on histology and osteology questions. We have revised questions from the face, thorax, neuroanatomy, embryology, abdomen and pelvis, perineum and lower limb, leg, ankle and ankle joint.

Each institution has a staff member to upload their questions to the Rogo system. A Memorandum of Understanding (MOU) has been signed by all southern African institutions regarding the structure and tagging of questions, the maintenance of the question databank, sharing of questions and IP material, and the access to the question databank. A new MOU will be compiled for the sustainability of the database, sharing of questions, and access to the databank after the Dirisana+ grant has ended.

The undergraduate pharmacology curriculum framework for Dietetics, Nursing Sciences and Physiotherapy has been developed, but will only be available upon publishing of the results.

SEFAKO MAKGATHO HEALTH SCIENCES UNIVERSITY

1. DIY Anatomy Tutorials: Five video demonstrations with homemade models have been created and uploaded onto YouTube. The videos have been viewed by students in class, and a lot of positive feedback has been received from the students. The topics of the videos are:
 - DIY Pterygopalatine Fossa Tutorial
 - Basal ganglia 3D to 2D (anatomy tutorial with the aid of a DIY clay model)
 - Extraocular muscles - Part 1 (DIY model)
 - Extraocular muscles Part II: Clinical examination (DIY model)





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- Urinary Bladder (surfaces, angles and related structures with the aid of DIY model)
2. Animated Anatomy Tutorials making use of virtual representations of 3D structures
 - Extraocular muscles of the eye (Anatomy tutorial)
 - Basal Ganglia Anatomy and Clinical Relevance
 - Introduction to the Ventricles of the brain
 - Pterygopalatine Fossa and Clinical Relevance (Anatomy tutorial)
 3. The following sections for the Allied Health Sciences groups have been completed for the question bank by the SMU team.
 4. Subcontracting for the creation of the following painted models:

Base of skull; 5 Heart (Ventricles exposed); 6 Face models; Brainstem and cranial nerves; 2 Basal ganglia; 3 Human kidney; 2 Ventricles of the brain; Extraocular muscles; 2 Muscles of facial expression; Epithelium; Mandible muscles; Mandible neurovascular; 2 Cross section of Tooth;

UNIVERSITY OF WITWATERSRAND

A shoulder model has been printed (3D) and will be used in teaching in May 2023. Samples will be shared with UNAM and Welwitchia.

UNIVERSITY OF NAMIBIA

1. 3 Anatomy 3D models printed
2. 10 Anatomy dissection videos: The following videos have been uploaded to the communal Dirisana Plus channel:
3. Dissection Tutorial: Anatomy of the Left ventricle of the heart (Exposed)
4. Dissection Tutorial: Right ventricle of the heart (exposed)
5. Dissection Tutorial: Left Lung Anatomy
6. Dissection Tutorial: Right Lung Anatomy





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7. 2 occupational therapy teaching videos
8. 10 3D models printed for WHTC
 - The head
 - A kidney model
 - Kidney Nephron
 - Reproductive organs: male and Female
 - 2 x Stomach models
 - The Heart

WELWITSCHIA HEALTH TRAINING CENTRE

SOP was developed on how to use and take care of the Birthing Simulator under the leadership of Skrywer. Robert took the lead to facilitate an internal review of the Anatomy MCQs for the nursing students. Twenty-two academic staff were trained on the instructional design on Moodle by colleagues from WITS.

PURSuing DEGREE PROGRAMMES

UNIVERSITY OF PRETORIA

1. Ms T Mbonani registered at the University of Pretoria with the Technology theme
2. Within the Curriculum theme
3. Werner Cordier (Doctoral)
4. Gugulethu Gabela (Honours)
5. Tsungirirai Kakono (Honours)
6. R.E. Mpilo is registered for Degree: Doctor of Philosophy (Audiology)

SEFAKO MAKGATHO HEALTH SCIENCES UNIVERSITY





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1. Students' survey on perceptions of strategies used in teaching and external factors affecting the learning of Anatomy at a South African institution
MSc: Konanani Given Phaswana
SMUREC/M/269/2020: PG
Completed, will be presenting findings at ISMS and Research days, SMU in August 2023
2. The effectiveness of Emergency Remote Teaching of Anatomy to medical students' in one of the comprehensive South African universities during the COVID-19 pandemic.
MSc: Amkelwe Simelane
SMUREC/M/302/PG
Completed, has presented a poster at SAAHE:
Title: "The effectiveness of Emergency Remote Teaching of Anatomy to medical students during the COVID-19 Pandemic" and will also present it at Research Days, SMU in August 2023
3. The development of an innovative interprofessional education instructional model for health care science students at a South African historically disadvantaged university
PhD: Estelle Viljoen
HSSREC Reference Number: HS22/4/14
Ongoing
A literature review has been presented at: Dirisana and IPE Research Day: 1 December 2022 and will be presented at SMU Research Day, in August 2023
4. Developing the attributes of cultural humility in the context of cross-cultural medical education and health care service delivery in a cohort of undergraduate students
PhD: Gerda Botha
SMUREC/M/333/2021:PG
Ongoing
Aspects of this research will be presented at Research Day





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5. Understanding of healthcare professionals towards the roles and competencies of clinical pharmacists in South Africa

PhD: Lucille Malan

SMUREC/P/221/2022: PG

Ongoing

Podium presentation at SASOCP (South African Society of Clinical Pharmacy)

ePoster presentation at AMEE (Association for Medical Education Europe)

SMU Research Day presentation TBC

Publication in scientific literature:

1. Crafford, L., Kusurkar, R.A., Bronkhorst, E., Gous, A.G.S. and Wouters, A., 2023. Understanding of healthcare professionals towards the roles and competencies of clinical pharmacists in South Africa. BMC Health Services Research, 23(1), p.290.

Lucille Malan PhD in Curriculum Amsterdam VUmc

- March to May 2022: Visit to Vrije Universiteit, Amsterdam, The Netherlands for research collaboration and to obtain European Credits (as part of PhD requirements).
- Presented and attended the SAAHE (South African Association of Health Educationalists) Conference (27-30 June 2022).
- L Crafford, A Wouters, E Bronkhorst, AGS Gous, RA Kusurkar. Work motivation of clinical pharmacists - a focus on the South African context (Poster presentation).
- Phase 2 of research project (Manuscript 2) accepted for publication on 27 February 2023.
- Title: "Understanding of healthcare professionals towards the roles and competencies of clinical pharmacists in South Africa", BMC Health Services Research Journal.
- Phase 3 of research project (Manuscript 3): data collection completed by December 2022, currently busy with analysis and write-up.





Dirisana+ Project Annual Quality Report: 2023

- Phase 4 of research project (Manuscript 4): MPharm study (part of PhD umbrella project) obtained ethical clearance in July 2022 (SMUREC/P/221/2022: PG), currently busy with data collection.

UNIVERSITY OF WITWATERSRAND

1. Dr Carol Hartman and Dr Stuart Pattinson's PhD proposals have been accepted and are registered for their PhDs at Maastricht. **Curriculum** theme.
2. Dr Stuart Pattinson has received ethical approval and has begun data collection on his first study entitled "Internship Doctors' Perceptions on Readiness and How to Thrive in the South African clinical context".
3. Dr Carol Hartmann has begun the first study with the working title "A scoping review of educational system functions for implementation of learner-centred educational strategies". She and the research assistants are currently screening the 10 000 articles identified during the systematic search of the literature, for inclusion in the study. She will be submitting her application for ethical approval for the second study to Maastricht University in May 2023.
4. Both Stuart and Carol have shared the competencies (gained during the Maastricht PhD process so far) on developing a meaningful and feasible research protocol based on educational theory, and evidence-informed practice with the 2023 MHSE candidates at the University of the Witwatersrand.

MOBILITIES

UNIVERSITY OF PRETORIA

1. UCD (Dr Robin Feeney) to assist [UP](#) and UNAM to learn and develop from information shared by others as part of capacity building in 3D Printing, Plastination, and Bioprinting. 15-28 May 2022, in Dublin, Ireland





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2. Dr Robin Feeney hosted three members of UP (Mr Marius Loots-Anatomy, Dr Alison Ridel-Biological Anthropology, Ms Hafiza Parkar-Pharmacology, and one person from UNAM (Mr Jan van der Merwe).

Objectives: examine the technology set-up (hardware, printing materials, software), and output of 3D printing in UCD and partner institution NCAD. The team took part in a variety of activities aimed to support project design and development and using innovative 3D printing (and bioprinting) technologies which may be applied to enhance teaching and research activities.

Dr Robin Feeney organised and coordinated visits to:

- UCD School of Medicine, Anatomy Unit
- UCD School of Mechanical and Materials Engineering and -UCD Medical Device Design Group
- UCD SFI I-Form 3D Printing Centre Ireland
- NCAD (National College of Arts and Design), Medical Device Design Unit.

Examined technology (hardware, printing materials, software) and output of 3D printing, plastination, and Bioprinting for teaching and research applications:

- Bridge 2D textbook and lab prosections/dissection with applied/hands-on learning (before working with patients)
- Material sciences (simulate skin, bone, fat, muscle, organs, enamel/dentine, etc.)
- Solve mutual problems and share ideas

Discussion of teaching and learning and assessment practice between UCD and UP/UNAM to improve and expand teaching, learning and assessment practices in anatomical and clinical education, medical education research, and use of 3D scanning and printing for education purposes

3. Dr Linda Mbeki travelled to UCD to contact stable isotope analyses on mine labourers from the early 1900s. The application is knowledge of the health status of these earlier labourers as compared to now (mine labourers) as well as where these individuals were coming from. This is aligned with





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understanding others within sociocultural diversity and technology. The cost of Stay was used from UCD funds. Dr Mbeki visited UCD from 08 June to 01 September 2022. Dr Robin Feeney organised and coordinated institutional support (access to office space, labs, library, etc.) and internal meetings with UCD's Discovery Centre and Humanities Institute. Dissemination: Discovery Podcast "Cape Town slaves to migrant gold miners - a colonial continuum in South Africa?", UCD Institute for Discovery, 25 July 2022 (<https://open.spotify.com/episode/1h3PTyhQC60twYrMUWTF3B>). Prof Liz Wolvaardt and Dr Astrid Turner will travel to Turku, Finland on a one-week mobility to discuss writing and research for the URH with Olli Vainio. This will lead to workshop development for the entire consortium in 2023 (dates to be announced), no exact date for travel has been set.

4. Ms Meg-Kyla Erasmus and Ms Helena De Villiers travelled to Namibia on a 5-day mobility for the 3rd interim meeting from 7 – 11 May 2023. Along with attending the interim meeting, individual discussions were held with the project managers from UNAM, WITS, Welwitchia, and Turku regarding budgets, constraints, and deliverables.
5. Ms Thandolwethu Mbonani from UP Anatomy visited UCD from the 19th of April 2023 to the 21st of May 2023 to participate in a variety of activities which can be applied to enhance teaching and research activities. The application included expanding the use of varied material sciences in 3D printing to simulate real tissues (including skin, fat, cartilage, muscle, tendon, ligaments, organs, bone, and enamel/dentine). Dr Robin Feeney organised and coordinated visits to NCAD (National College of Art and Design), Medical Device Design Unit and Mater Misericordiae University Hospital, Dermatology Department, Mater Transformation.
6. Prof Werner Cordier will be travelling to Maastricht in January 2024 to discuss assessment structures within revised pharmacology curricula.

SEFAKO MAKGATHO HEALTH SCIENCES UNIVERSITY





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1. UCD (Robin Feeney) to share education practices with SMU as part of D+'s educational mobilities for capacity building. RF's role in the Assessment sub-committee was to provide UCD's online Teaching and Learning Resources (for improving standards and capacity building) with the D+ Assessment sub-committee. These online Teaching and Learning Resources are structured around effective evidence-based literature/ pedagogy within five categories (<https://www.ucd.ie/teaching/resources/resourcesa-z/>):-Teaching Toolkit: Strategies and Skills, -Module and Programme Design, -Assessment and Feedback, -Technology Enhanced Learning, -Review and Research. Dr Feeney contributed this for capacity building during Interim Meeting #2 in Jo-burg (March 2022).

UCD hosted 4 staff from SMU partner institutions:

- Daniële Kristen (Lecturer in Anatomy and Histology, PhD candidate), Soné van der Walt (Lecturer in Anatomy and Histology, PhD candidate), Kholofelo Shokane (Research and Technical Assistant to Dirisana+, MSc student), Patria Coetzee (Demonstrator in Anatomy and Histology, Research and Technical Assistant to Dirisana+, MSc student), 27 June-01 July 2022, Dublin.

Objectives: examine the technology set up (hardware, printing materials, software), and output of 3D printing in UCD and partner institution NCAD.

The team took part in a variety of activities aimed to support project design and development and using innovative 3D printing (and bioprinting) technologies which may be applied to enhance teaching and research activities.

Dr Robin Feeney organised and coordinated visits to:

- UCD School of Medicine, Anatomy Unit
- UCD School of Mechanical and Materials Engineering and;
- UCD Medical Device Design Group
- UCD SFI I-Form 3D Printing Centre Ireland





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2. NCAD (National College of Arts and Design), Medical Device Design Unit.
Ms Gerda Botha travelled to Maastricht University: From (date):20/03/2023 To (date): 05/05/2023

She took part in the following activities:

Consultation with supervisors, attending workshops, participating in the PhD conference SHE Academy, presenting and discussing her PhD work, and finalising articles for publication.

Prof Mabuza and Mrs Gerda Botha are still awaiting confirmation for dates from UNAM to travel there.

UNIVERSITY OF THE WITWATERSRAND

1. Carol Hartmann travelled to Maastricht to meet with her supervisors and do curriculum and research-related activities as well as attend the AMEE conference. The conference theme was curriculum review and development. The workshops and presentations that Carol attended were extremely valuable in increasing her knowledge and skills in the area of curriculum review, development and design, providing her with additional tools that she is using in the curriculum review taking place at Wits. In addition, attendance at the conference provided the opportunity to network with experts in the field of curriculum design and make contacts who can contribute to developing the expertise at Wits in the future.
2. Lizelle Crous and Shira Moch presented workshops on Learning design and assessment for the LMS (Moodle)
3. Matty van Niekerk travelled to Maastricht to consult with various departments on PBL implementation.
4. Carol Hartmann travelled to Maastricht to consult with various departments on PBL implementation; Quality Assurance of curricula; Research Methodology related to curriculum development of her PhD
5. Attending the Interim Meeting 3 at UNAM, co-present workshops at the meeting (L Crous in person; JL Greyvenstein, and Robin Drennan online)
6. Stuart Pattinson travelled to Maastricht to consult with various departments on PBL implementation, quality assurance of curricula, and research methodology related to his PhD





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7. Carol Hartmann travelled to Maastricht to take part in the 2023 School of Health Professions Education (SHE) Academy. The Academy provides important community-building, networking and development opportunities for PhD candidates in the School. Discussion of the research project progress and difficulties, as well as sessions on research integrity and data management and involvement in the SHE Special Interest Groups were valuable in moving her PhD project forward.
8. Assoc Prof Daniëlle Verstegen from Maastricht University visited Wits in June 2023 to deliver workshops on Design-based research in education as well as curriculum design and development.
9. Lizelle Crous will be travelling to UNAM in May 2023 to attend the interim meeting as well as present workshops on course design to promote student engagement.
10. Prof Leo Köhler from Maastricht University will be visiting Wits in January/February 2024 to present workshops on Curriculum Review.

UNIVERSITY OF NAMIBIA

1. Mr J. van der Merwe travelled to Dublin and visited the UCD 3D printing facilities for capacity building, cooperation for innovation, and the exchange of good practices in May 2022.
2. Denise Bouman and Adele du Plessis travel from Namibia to Finland to develop Qupath teaching worksheets.
3. Tina Shatri and Ottilie Katali, travel from Namibia to RSA to attend Interim Meeting II and workshops, in September 2022.

WELWITSCHIA HEALTH TRAINING CENTRE

1. Scholastika Ipinge, Valerie Garises and Elizabeth Shali travelled to South Africa to attend the Interim meeting at WITS in 2022
2. Scholastika Ipinge, Valerie Garises and Robert Kopano travelled to South Africa to attend the Interim meeting at SMU & UP





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3. Elizabeth Shali travelled on invitation from UTU (Olli Vainio) for educational purposes with regard to online teaching
4. Robert Kopano travelled and provided support training on Moodle LMS at all four campuses of WHTC. The training capacitated lecturers with skills on how to maximise different resources built up in the Moodle LMS for Teaching & Learning as well as Assessment. Practical workshop sessions were conducted to measure mastery of the skills.

UNIVERSITY OF TURKU

1. Prof. Olli Vainio will travel to Namibia to collaborate with IPECP planning and assist in the implementation of online teaching and its pedagogy for the staff of Welwitchia and UNAM
2. Prof. Olli Vainio and Dr Outi Savolainen-Kortekangas are to travel from Finland to Namibia for an IPECP workshop and to attend the 3rd Interim Meeting on 14-day mobility.

MAASTRICHT UNIVERSITY

1. Dr Jascha Nooier and Dr Rikus Nieuwenhuis travel from the Netherlands to South Africa and Namibia for an IPECP workshop (13-20 March 2023)



USE OF STAFF COSTS

UNIVERSITY OF PRETORIA

Meg-Kyla Erasmus is employed as the project manager at the University of Pretoria, assisting the coordinator Prof Ericka L'Abbé with managing the partners and ensuring the grant guidelines are being followed. Rudi Duvenhage is the designated financial manager for the grant. The University of Pretoria currently has one full time (Dr Alison Ridel) and three part time (Pearl Bothma, Miksha Harripershad, Thando Mbonani) research assistants on the trainer budget. Their duties include creating teaching materials, development of 3D models and the anatomy question banks, preparing and offering various workshops, dissemination and quality assurance activities. Two technical assistants (Pieter de Wet and Helena de Villiers) work for the project on claims basis for assistance in creating project outputs and financial reporting. Six students from the BCMP programme have claimed administrative and technical funds for encoding patient data recorded by students during their clinical practicals on the tablets purchased through the grant.

SEFAKO MAKGATHO HEALTH SCIENCES UNIVERSITY

Anna Oettle is the overall manager of the project at SMU. Patria Hartman is the local manager of the project at SMU: she attends all meetings and arranges all mobilities. Patria Hartman further also assists as a research assistant for educational research projects and as a teaching assistant for developing question banks. She also participates in outreaches for the dissemination of 3D models beyond campus. Estelle Viljoen, Sone van der Walt, Delisile Kubheka, Vusi Sape, Hester van Biljon, Corette de Jager, Frances Kelly and Honey Mabuza act as research assistants. Petro Brenkman addresses copyright issues of images used in tests for the question banks. Marisca Meyer is the social media manager. Jan Ackermann assists with creating and uploading videos on YouTube and elsewhere where needed. Daniele Kristen creates the DIY videos which are uploaded onto Youtube. Clarisa van der Merwe is the remote manager and organises all supporting material for reporting.

UNIVERSITY OF THE WITWATERSRAND



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Research assistants (4) employed 3 working on the curriculum review and related processes; 1 working on the scanning of the juvenile skeletons.

During November and December 2022, we employed 4 student assistants to help with the scanning of historical curriculum documents (digitizing information).

UNIVERSITY OF NAMIBIA

All staff are appointed on part-time contracts. We do not have any postgraduate students and work is done by part-time appointments or UNAM employees.

Manager (3) Dorothy Titus is employed for quality assurance of the project, Denise Bouman manages all financials and procurement, and Adele du Plessis coordinates UNAM activities and liaise with partners.

Research assistants (4). Hilja Eelu is responsible for management at UNAM, Otilie Katali is involved with academic literacy as well as editing and reviewing student submission to the undergraduate research journal (URJ), Albertina Shatri and Renate Potgieter create, edit, and review questions for the question bank, uploads them to ROGO. Jan van der Merwe, 3D scanning of forensic specimens and overseeing plastination plant.

Technicians (4) employed. Hansbert Hamutenya and Michael Nauta working on 3D printing, Fosia Shavuka is on the logbook application and Joseph Lakanemo is on plastination installation.

Administrator (1). Yvette Shaanika is responsible for the administration of workshops, internal meetings, and liaising with the procurement office.

WELWITSCHIA HEALTH TRAINING CENTRE

WHTC used staff costs for attending meetings locally, especially in regular WHTC meetings to create awareness among staff on the project; setting up the work plans at the initial stage. Skrywer went around the four campuses to conduct training on the use of the birthing simulator. Robert went around capacitating staff on Online teaching and learning using the Moodle platform. Some staff attend training at WHTC Windhoek campus on the instructional design on Moodle – WITS facilitated this training.





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Furthermore, we used staff costs for the training of IT staff on the use of Moodle and maintenance at UNAM.

MAASTRICHT UNIVERSITY

Rikus Nieuwenhuis claims for activities related to general project management at the institution. Jascha de Nooijer was temporarily employed as a trainer for the presentation of several workshops to the southern African institutions.

UNIVERSITY OF TURKU

Olli Vainio acts as project manager for the institution, but also claims as a trainer/researcher for activities related to development of educational programmes. Minna Sakkinen is employed as the administrative assistant for the project and assists in the generation of financial reporting documentation.



EVALUATION OF THE FIRST INTERIM MEETING

Feedback on the First Interim meeting: 20 – 23 September 2021 from WITS

The 12 participants that completed the survey have given overall positive feedback. Only 6 institutions were represented in the feedback, although the survey was circulated on short notice it still provides valuable information. The survey aimed to ask questions related to specific aspects of the interim meeting that was held online due to Covid restrictions. Scoring for each of the questions was out of 5 and the results showed:

Most participants in the survey attended all 4 days of the meeting, with the exception of 3 who attended 1 day and 2 days respectively. Participants acknowledged that they only attended sessions relevant or of interest to them.

Questions related to the ease of registration and accessing the online meetings scored 4.5. Time allocation per session; the pacing of information and meaningfulness of presentation all scored 4. However, the question related to the level of participation in the meetings only scored a 3. This is not a representation of the overall interaction that did take place in the meetings as sufficient time was allocated to ask questions and for clarification.

Final comments were complementary towards the organisers who did a sterling job of setting up, providing information and support throughout the meeting days.

Comments related to what can be done to improve the second interim meeting included:

- More involvement from international collaborators with clarity from some partners about what their involvement is.
- Not having the role players actively involved is difficult.



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- Identify the sub-theme coordinators at all the partners ahead of time and the sub-theme coordinators MUST attend their sub-theme meetings. Otherwise, we waste time trying to make something work that most likely won't.
- Background information is required to help the new staff (those who recently joined the project) catch up and understand what is going better.
- Perhaps undertake this survey within a month following the meeting rather than five months afterwards, so that the memory will be fresh to better respond to these questions!
- More engagement for virtual sessions
- Information about what DIRISANA is all about can be confusing and overwhelming for new members.



WORK PACKAGE 4: DISSEMINATION AND EXPLOITATION

PLAN AND EXECUTE DISSEMINATION AND EXPLOITATION

Creation and continued population of an online environment, including Facebook, Instagram, Twitter and LinkedIn pages for informal dissemination of project activities with information provided by all partners.

Creation and continued population on the Dirisana+ website for the informal dissemination of project activities with the information provided by all partners.

Creation and continued population on the Dirisana+ blog for informal dissemination of project activities and mobilities with the information provided by all partners.

Creation and continued population on the Dirisana+ youtube channel for the storage and dissemination of project activities and teaching materials with videos provided by all partners.

Monthly meetings are held between Ms M. Harripershad, Ms A. Dreyer, Ms H. Eelu, Ms T. Mvududu, Ms M. Meyer, Dr L. Crous to obtain dissemination material, create posting plans and schedules for the month of all dissemination content received from partners.

Dr Robin Feeney prepared a Marketing and Communication Update about the Interim Meeting and SA Mobility visit to UCD that was distributed within the Anatomy department, School of Medicine and university-wide at UCD.

“Now that borders are open, two members of UCD Anatomy (School of Medicine) are in South Africa for the Dirisana+ project – €1,000,000 collaborative capacity building project in higher education integrating research and teaching and the application of knowledge to work practice in Medicine, Health Sciences and Biological Anthropology. Dr Robin Feeney and Maria Cristina Serrangeli are in the Gauteng province undertaking meetings and workshops at Witwatersrand University (Johannesburg) and University of Pretoria (Pretoria), in collaboration with Sefako Makgatho Health Sciences University, University of Namibia, Welwitschia Health Training Centre, University of Turku (Finland) and Maastricht University (Netherlands). Our key involvement is with technology in advancing teaching and learning (3D printing)

and advanced workshops (3D tissue segmentation, modelling, and analyses, and forensic archaeology in the investigation of crime scenes for evidence identification and crime scene reconstruction). To learn more, visit the D+ webpage and like and follow us on social media: <https://www.up.ac.za/dirisana>".

Presentation of a collaborative research project between UP and UCD in a YouTube Conference hosted by BioAntTalks. Conference title: Applications of 3D Technology to Unidentified and Missing Persons Cases in 2022. Presentation entitled: Variation in hard- and soft-tissue European facial morphology matrices for 3D facial approximation. Ms TM. Mbonani, Dr R.N.M Feeney, Prof EN. L'Abbé, Ms M. Erasmus, Mr P. de Wet, Dr AF. Ridel.

Oral presentation at the ASSA conference on the 19th of April 2022. Presentation entitled: Students' survey on perceptions of strategies used in teaching and external factors affecting the learning of Anatomy at a South African institution. Ms S. van der Walt, Ms KG. Phaswana, Ms L. Prigge.

Various Dirisana+ members presented at the Dirisana+ IPE Research Day on the 1st of December 2022. Presentations entitled:

- Pedagogical approaches and teaching and learning materials that underscore interprofessional education globally and in South Africa: a scoping review protocol. Ms E. Viljoen.
- Using games to clarify interprofessional roles. Ms A. Dreyer.
- Curriculum mapping to identify opportunities for IPECP. Ms H. Pitout.
- The use of the International Classification of Functioning, Disability and Health by final year students in Gauteng universities to improve Interprofessional Collaborative Practice. Final year OT students.
- Planning and development of an interprofessional and collaborative practice module at an African university: a qualitative reflection. Ms H Pitout.
- Facilitators and Barriers to individualised person-centred care. Ms FM. Asmail, Dr R. Eccles.



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- Improving Research Outputs for a University Nursing Department using Mutingati: An Ubuntu Perspective. Ms M. Moeta.
- AfriVIPE: Value of virtual interprofessional education for students from multiple countries. Ms H. Pitout.
- Students' experiences of IPE-based community engagement during the Covid-19 era. Ms M. Kekana.

Meeting presentation at AfriHealth Symposium, University of Zimbabwe School of Medicine, Harare, Zimbabwe.

Meeting presentation at CONSAMS Annual Meeting, Cavendish University School of Medicine, Lusaka, Zambia

Joint virtual conference (UFS and UP) organised and held annually from 2021 by members of the academic literacy committee. Call for papers to interested researchers locally and internationally is advertised annually on social media platforms, internally and through the website.

Undergraduate Research in health journal (URHJ) was created in 2022 and published its first issue in March 2023 with articles from various institutions. The call for papers for the second issue is currently being circulated on various social media platforms.

Two curriculum-based research projects have allowed for the creation of research manuscripts, which has allowed for the submission of curriculum recommendations to the Faculty of Health Sciences of the University of Pretoria, and serve as a national recommendation to the medical and physiotherapist professions:

- Sexual and gender minority research (recommendations inclusive within the manuscript). The manuscript has been recommended as a short communication, thus is currently being reviewed.
- Physiotherapy prescribing attitudes (recommendations are currently being addressed as part of the manuscript finalisation). The manuscript has recently been published in the South African Journal of Physiotherapy.





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Meeting presentation at SANORD meeting at Limpopo University School of Medicine, South Africa.

Presentation at the Adept ICT conference on the 13th of March 2023. Presentation entitled: Utilization of 3D printing to enhance teaching and learning. Dr A. Du Plessis, Mr J. van Der Merwe, Mr J. Lakanemo, Mr H. Hamutenya

Publication in scientific literature on the 28th of March 2023:

Crafford, L., Kusurkar, R.A., Bronkhorst, E., Gous, A.G.S. and Wouters, A., 2023. Understanding of healthcare professionals towards the roles and competencies of clinical pharmacists in South Africa. BMC Health Services Research, 23(1), p.290

Presented at the OHASA Gauteng Seminar on the 20th of May 2023. Presentation entitled: Interprofessional Collaboration: hearing care, language and communication, and oral health services. Mr M. Booie.

Podium presentation at the SASOCP (South African Society of Clinical Pharmacy) on the 1st -3rd June 2023. Presentation entitled: Understanding of healthcare professionals towards the roles and competencies of clinical pharmacists in South Africa. Mrs LM. Crafford.

Dirisana+ members presented various research topics at the SAAHE conference from 19 - 21st of June 2023. Presentation entitled:

- Dirisana+ collaborations for interprofessional education (IPE). Ms A. Dreyer, Dr R. Eccles, Ms E. Viljoen, Ms. Pitout.
- The effectiveness of Emergency Remote Teaching of Anatomy to medical students during the COVID-19 pandemic. Ms A. Simelane
- A modified Delphi-review of pharmacological competencies needed for dietitians, nurses, and physiotherapists in South Africa. Prof W. Cordier, Prof D. Manning, Mr. P du Toit.
- Postgraduate training beyond the scope of the practice: A burnt-out student is not a competent one. Prof W. Cordier



STORAGE, DISSEMINATION, AND EXPLOITATION OF TEACHING MATERIALS

Operational Plan (Action Plan) for Dirisana+ 2021 to 2023							
Dissemination and exploitation							
Storage, dissemination, and exploitation of teaching materials (WP 4.2)							
Type of teaching material produced, e.g. Video	Title of teaching material produced	Type of dissemination portal, e.g. Outreach	Target group	Responsible staff member and university	Open for use by	Conditions of use	Storage
Videos	Anatomical structures; Research topics; Narrative videos Videos regarding SOPS, IPECP	Google Drive for partners only Youtube video Open day Outreaches	Scholars, undergraduate students, postgraduate students and their teachers, general public	Dr Jan Ackermann SMU Rikus Nieuwenhuis (Maastricht) Adele du Plessis	Decide whether only for institution/partner institutions/all?	No use, conditional use, unconditional use	If not on Youtube other storage should be indicated: e.g. Google Drive for partners



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	visual reports etc			(UNAM) Prof Scholastika (WHTC) and others			
Birthing simulator	Birthing simulator	Social media and Dirisana Plus website	undergraduate nursing students, postgraduate students and their teachers	Mr Skrywer WHTC	Only authorised staff are permitted to use the simulator	Only for use in Namibian institutions	Keys to the simulation room are kept by the Clinical instructors.
Question banks	Rogo: The Customisable eAssessment & eLearning Platform	ROGO portal controlled by contract to stimulate growth of question	Lecturers of undergraduate Anatomy students: Initially from the consortium	S van der Walt (SMU) D Kristen (SMU) P	Open source for consortium members	Sign an MOU	Rogo system





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		bank	and later from other institutions in South Africa and beyond	Hartman (SMU) L Prigge (UP) AN van Schoor (UP) EN L'Abbé (UP) R Human- Baron (UP) G Venter (UP)			
Multiple choice questions on all body	MBChB 2 assessments	Direct disseminatio n to partners by email	Lecturers of partner institutions	Prof AC Oettle, SMU	Open to all	None	Individual lecturers/students electronic storage preferences





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regions emanating from SMU							
Multiple choice questions on all body regions emanating from SMU forming part of the educational research study:	“The quality of multiple-choice based anatomy tests at a tertiary institution in South Africa”	Figshare	Anyone having access to Figshare	Prof AC Oettle, SMU	Open to all	None	Figshare
Electronic testing tool	Riddel Website	Website Conferences Youtube videos	Undergraduate and postgraduate students and	Anna Oettle (SMU) Leon du Plessis	Open for use by partner universities	No conditions, open for use by	Website: riddel.co.za https://youtu.be/yE73hsAmE Ws





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			their lecturers	(Wits) Lane Prigge (UP)		partner universities	
Models	3D anatomical structures/ Plastination models	Teaching, outreach and Youtube videos 3D printing workshop – conference, showcase	Scholars, undergraduate students, postgraduate students and their teachers, general public	Dr. Adele Du Plessis, Mr. Jan van Der Merwe, Mr. Joseph Lakanemo, and Hansbert Hamuteny a (UNAM) Jan Ackerman n (SMU) and others	Individual Institutions to confirm whether all may see models or view youtube videos	Individual institutions to confirm: Handled by staff members or students under supervision	Display areas of individual universities





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STL file database	Anatomical structures and others	Catalogue via Google on request	Interested individuals and institutions	UP	Open source	Sign an MOU	Internal server
Standard order of procedure (SOP) banks	E.g. Guidelines to use scanner, 3D printer and software etc.	<i>EU platform (not yet confirmed)</i> Youtube video	Interested individuals and institutions	UP SMU Dr. Jan Ackermann	Open source	Cite use of SOP	Catalogue via Google on request Youtube video
Workshops and training programme: Curriculum materials power-points, student and	Developing the attributes of cultural humility in the context of medical education and health care	Training of facilitators Workshop for students and sharing of curriculum materials as well as outreach to	First (or early programme) students in eleven (11) Health Professions Programmes at SMU	Gerda Botha (SMU)	Open source	Cite use of materials	Google Drive Youtube video





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facilitators guides	service delivery in a cohort of undergraduate students	other universities Future scientific publications could include the upload of additional material which can assist in the dissemination Youtube video					
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1. Development of the ROGO system for Question Bank uploads to store all questions. Digital flyers will possibly be sent out internally to universities part of the consortium and presentations on question banks at national (e.g. SAAHE) and international conferences
2. Ten educational videos created by SMU on various anatomical structures are currently being stored on the Dirisana+ youtube and disseminated through the various social media channels and internally to health science students.
3. Multiple choice questions created by SMU on various body parts that are being stored on Figshare. Not yet disseminated
4. Two videos have been created by WHTC on the demonstration of movements during labour and the management of postpartum haemorrhage. These teaching videos have been disseminated on Facebook.
5. IPECP roadshow video (a collaboration between UP, SMU, and WHTC created by Rikus Nieuwenhuis) discussing the need for IPECP principles in healthcare which has been added to the Dirisana+ youtube channel and disseminated through various social media platforms.
6. Video series created by UNAM focusing on the anatomy of the heart and lungs and disseminated to 200 students internally.
7. 3D anatomical and skeletal materials models have been created for teaching and learning by UP and UNAM to utilise in classrooms and workshops. Flyers and a website have been created and distributed for the sale of 3D skeletal material and disseminated across various social media platforms.
8. The STL database is being created by UP and UNAM and will be stored on an internal server. A catalogue will be created for STLs and will be accessible through a google drive link that will be disseminated via email and social media
9. SOP banks will be created by UP and SMU which will be added to the EU platform (confirmation still needed) for use by interested individuals and will be distributed via a hyperlink to the EU platform.
10. An electronic teaching tool tutorial has been developed by UP on how to use the Riddel platform. This video has been uploaded to YouTube and has been shared with 90 individuals in need of assistance.
11. 3D juvenile prints created by Wits for teaching students in anatomy and anthropology that will be utilised by students in the faculty. Dissemination of



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models used in teaching and learning will be shared on various social media platforms.

WORKPACKAGE 5: MANAGEMENT AND COORDINATION

COORDINATION OF THE CONSORTIUM, FINANCIAL AND RESOURCE MANAGEMENT

1. New project manager.
2. 25.01.22 One day Brainstorm with the UNAM team. 08.04.22 CILT meeting. Online meetings with Computer sciences on the logbook.
3. Financial Meetings @ UP: These meetings take place once a month and involve the project manager at UP with the financial officers to look at expenditures, changes in budget, and supporting documents required from various partners. After each meeting, we communicate with the partners as to what needs to be done with expenditures and supporting documents. Dates tend to be the 3rd Monday of each month, starting January 2023.

COORDINATION OF THE CONSORTIUM

Progress, Guidelines and Financials were discussed at the KSM (07/03/2021-11/03/2021), 1st (20/09/2021 to 23/09/2021) and 2nd Interim Meetings (07/03/2022 to 11/03/2022) (and Quality Assurance meetings (17/09/2023-23/09/2023)

Meeting minutes through virtual meetings with partners about financials, reporting and supporting documents – done on an ad-hoc basis when partners had questions about equipment, staff costs, mobilities and sub-contracting.

Committee meeting: analyse the progress of the year.

BIANNUAL ASSESSMENT REPORTS OF EACH WORK-PACKAGE

The second newsletter covers information from January of 2023 to August of 2023.

