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# LITTUP NEWS

A Collaboratorium newsletter, Faculty of Education, University of Pretoria

Make today matter

**Photo**  
LLITUP's robot family is expanding. Meet them in our next issue!



LLITUP NEWSLETTER

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## NEWSLETTER TEAM

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## DREAM 2 RESEARCH

In 2022, LLITUP is research-focused as we "Dream to research". LLITUP is excited to present the Faculty Research Day on 3 October 2022. The theme of the day is *Sharing (educational) research across silos*. More details will follow in our next issue.

In this issue, we look back at LLITUP's 3rd Year OPV workshops, innovative teaching approach presentations, the permanent appointments of two LLITUPians, and taking Bee-bots to a whole new level in *Froggy's Tech Corner*.

AUGUST 2022 | ISSUE 1

LLITUP Collaboratorium, Natural Sciences Building 3-9, Groenkloof Campus, University of Pretoria

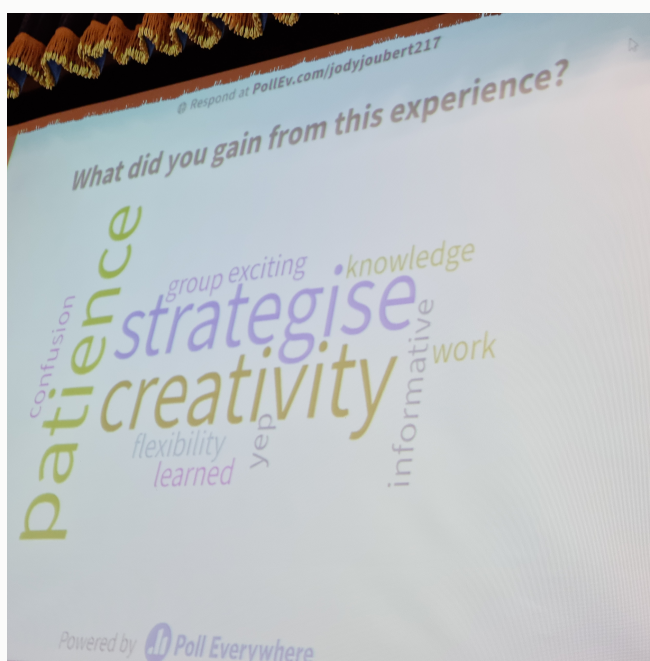
# EDTECH WORKSHOPS FOR OPV312 STUDENTS

Providing students with hands-on experiences of applications as well as Coding and Robotics in education

~By Annèl van Rooyen and Gontse Mthelebofu~

Annually, the LLITUP team participates in the presentation of OPV312, the Education module focusing on globalisation in education. Our section, Theme 3 of this module, is called *Technology for 21st century education in a globalized and socialised world*. During our seven week long interaction with the students, they design lessons using five applications suitable for their chosen subject and topic. Students are also engaged in effective teaching practices that need to facilitate such teaching with technology.

To support our online teaching interactions, the class of 2022 had the opportunity to join face to face workshops in the Normaal hall. During May and the start of June 2022, the LLITUP team (Gontse Mthelebofu, Jody Joubert, Annèl van Rooyen and Fariyah Jaffer), under the guidance of module coordinator, Gontse Mthelebofu, presented eight Edtech workshops to these 3rd Year Education students. The first four workshops, presented as four repeat sessions of which students could attend one, focused on the use of applications in education. For two hours, students were practically engaged in the use of various applications (including QR codes, videos, and Google Forms) whilst collaboratively engaging on the topic of the Sustainable Development Goals. The main aims of this workshop were learner-centered content creation and assessment, and for students to realise that proper planning of an intervention/ lesson using technology allows for learners to be the drivers of their own learning. In this way, a teacher can act as a facilitator. These workshops tied nicely into the module's outcomes and 173 students attended these workshops.



## Record of Participation

hereby awarded to

[Name of Student]

for attending the OPV 312

Apps Workshop

This record of participation proves that the abovementioned student attended and participated in an OPV 312 Apps Workshop presented by the LLITUP Collaboratorium.

The Apps Workshop showcased different applications and their possible uses in an education environment while also demonstrating different grouping and teaching strategies.



Prof P Callaghan (HOD SMTE)

Date: May & June 2022

### Photos

Left: Students' gains from the workshops

Right: Record of participation for students who attended the course

# EDTECH WORKSHOPS FOR OPV312 STUDENTS

The second set of four repeated workshops was focused on Coding and Robotics. This field is gaining momentum in South Africa with the recent publication of draft curricula for Grades R - 9. During these workshops, students engaged in computational thinking activities which involved little problems that needed solving through some discussion and critical thinking. Then, students participated in a quick 30-minute competition to see which level of Tanks, a South African app that teaches learners the basic principles of coding, they could reach. The highest level achieved across all groups, was level 15 of 35. For every session, one group was appointed as the winners. Each team member then received a 3D printed frog, courtesy of LLITUP. Students also played with the Bee-bots to design activities that could cover content of two subjects, while Bee-bot had to move across obstacles and follow student-designed rules. The students were creative in their plans and also gained a great deal on the understanding of the basic directional movements of robots. 75 students attended this workshop.

These workshops were voluntary and students could register for either one or both. While fun photos and memorable experiences form part of students memories of attendance, records of participation were also sent to students. With more than a quarter of our students attending these sessions, we as lecturers could clearly see how enjoyable and valuable they found these workshops to be!



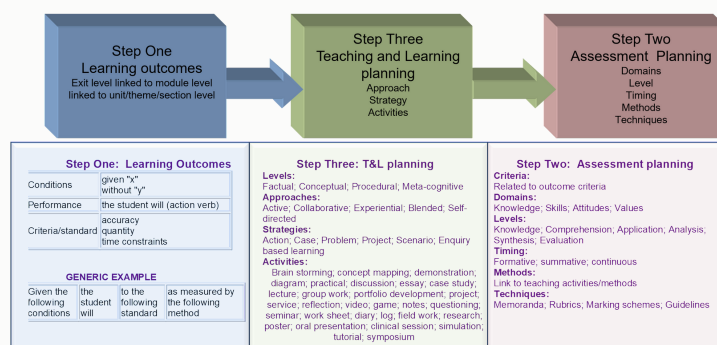
## Photos

3rd Year OPV students actively involved in constructing their Bee-bots mats and stories

# INNOVATIVE TEACHING IN LLITUP

Veterinary specialists in a consultative educational discussion with LLITUP's Prof Callaghan

~By Prof Ronel Callaghan and Annèl van Rooyen~



## Photos

**Left:** Attendees of the 2A2E-V strategic meeting included VIPs, office bearers, 2A2E-V executive committee members, and other guests

**Right:** A visual representation of the Backward Design Process

## Introducing Backward Design to the African Association of Veterinary Education Establishments

The African Association of Veterinary Education Establishments (2A2E-V) held a strategic meeting of the executive committee from 31 May to 3 June 2022, at the Faculty of Veterinary Science's Onderstepoort campus. The meeting included discussions on the establishment of continental quality assurance in veterinary education and training through the collaborative harmonization of veterinary curricula in Africa.

During 2021, a set of *Day 1 Competencies for African veterinarians* was developed. These competencies form the outcomes of the African Veterinary curriculum. Prof Holm (Deputy Dean Academic) requested Prof Callaghan to share thoughts in a discussion with the group on the utilization of a Backward Design Process that can be followed for curriculum development at institutions, utilizing these outcomes. This was a very interesting and meaningful discussion. The participants agreed to promote this process, supported by broad guidelines from the 2A2E-V, to also allow for differences in institutions.

*"It was inspiring to meet participants from across Africa, with a collective aim to improve veterinary education on the continent." -Prof Ronel Callaghan*

# INNOVATIVE TEACHING IN LLITUP

Educators in the Western Cape province are trained annually by LLITUP

~By Prof Ronel Callaghan and Annèl van Rooyen~



## Photo

Back, from left to right: Ms Fariyah Jaffer (tutor), Ms Gontse Mthelebofu (tutor), Mr Christo Davids (CTLI), Prof Ronel Callaghan (lecturer), Ms Fikile Machimana (ETDP SETA), Ms Gaironesa Daniels (CTLI) and Mr Andre van Zyl (previous student)

Front, from left to right: Mrs Annèl van Rooyen and Mr Jody Joubert (both lecturers)

**Presenting the Advanced Short Course in CIE in collaboration with the Western Cape Education Department (WCED), Enterprises at UP (EUP) and the ETDP SETA**

Since 2018, the LLITUP team has been presenting two of the Computer-Integrated Honours modules to Western Cape educators. On average, 50 to 100 participants attend these courses. The participants are hand-picked by the WCED, based on their previous experience with and participation in courses on educational technology. All are in full-time employment by the department - either as teachers, subject advisors, educational technology experts, or other office-based roles.

The two modules are the two accredited electives in the CIE Honors course, namely *Educational Technology and E-Learning*, as well as *Computers as Cognitive Tools*. The first module (CTM710) introduces participants to the potential of using computers as instructional tools. The second module (CIT720) enables participants to discover the intriguing possibilities of using computers as cognitive tools. It is presented as a Advanced Short Course in CIE in collaboration with the WCED, EUP, and the ETDP SETA. The course is the highest level course of an extensive and impressive training program on education technology presented at the Cape Teaching and Learning Institute (CTLI) of the WCED.

"It is interesting to present these two modules to (mostly) experienced educators. They do bring a wealth of contributions to the course, and are actively participating in the modules. Their input impacts on the re-design of the course for each iteration presented. The fact that we have been selected to present the course for the past five years is probably an indication that the WCED and the ETDP SETA, as well as participants, find the course valuable. Feedback indicated that many of the educators find the impact of the course to be transformative on their general practice as educators."

-Prof Ronel Callaghan

# INNOVATIVE TEACHING IN LLITUP

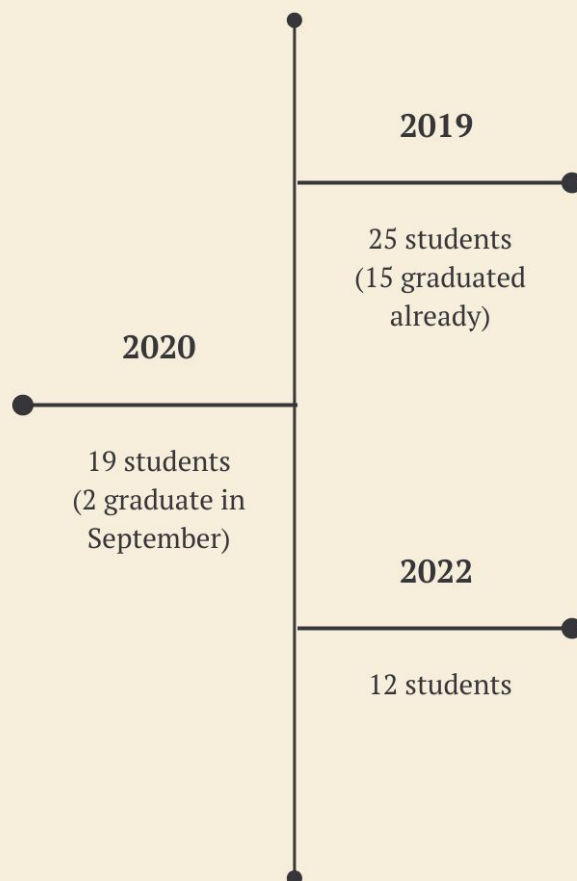
During June 2022, the whole LLITUP team went to Cape Town to meet the Western Cape educators who attended the training presented by LLITUP

The entire LLITUP team joined in the fun during our face to face presentation to the participants at the CTLI in Cape Town. Since Covid-19 prevented our lecturer-team from visiting the CTLI, it was a pleasure to see the participants again. After these sessions, the remainder of the course is presented in a hybrid fashion with online classes and some more face to face sessions.

On 27 and 28 June 2022, Prof Callaghan and Annèl took the lead in introducing the CIT720 course contents to the participants. Jody, Gontse, and Farihah supported the participants who had some complex theory to come to terms with. The team enjoyed meals together, and had a good time during the flight and quick trips to the beach. It was a wonderful opportunity to see what the CTLI is and witness its work. Mr Andre van Zyl also encouraged current course attendees to enjoy the learning journey that they are embarking on through these CIE electives.



## PROGRESSION TO CIE HONOURS



### Photos

**Top left:** Prof Callaghan, Farihah, Jody, and Gontse on the beach

**Top right:** CIE Honours progression

**Bottom left:** CTLI student Kashiefa Ferrus kissing Froggy, hoping he will turn into a prince

# GAINING SOME PERMANENCY IN SMTE

We explore the prospects for Jody Joubert and Gontse Mthelebofu who are now full-time UP staff members  
~Compiled by Annèl van Rooyen~



Jody joined LLITUP in 2016 and was part of the establishment of the Collaboratorium. Gontse joined LLITUP in 2018. Jody and Gontse's involvement in LLITUP stems from their research foci that are closely linked to the work of LLITUP, and focused on innovative teaching. This relates to the innovative integration of various educational technologies in teaching at all levels. Jody's interest in alternative approaches to teaching and teachers' associated transformation links well to LLITUP's vision of innovative teaching. Gontse's research focus is the development of teachers' digital competencies. Her involvement and research of the UP badges initiative is managed under LLITUP and her research-focus developed organically from this initiative. This illustrates how LLITUP serves as a driver for researchers to identify and develop in their research interests.

For Jody and Gontse, the transition from part-time to full-time employment was quite smooth. Both are responsible for undergraduate and postgraduate modules and research supervision, for contact and distance education students. One big difference is that they now have a stronger research-based focus. Of course, they would like to follow the academic progression route.



A core question to both requires emphasis: *What are your hopes and dreams for this new position?* Gontse indicated that she wants to be known for collaboration. She is also someone who likes to get things done and would like to see the Badges4Edu initiative progress well within the Faculty and beyond. Jody hopes to see that educators at all levels will not simply jump on the technology bandwagon, but instead have a purposeful approach to this. Jody likes being a technical consultant. He believes in giving people a recipe. "I do not eat with you, but I love to see you who made it, enjoy it." All in all, they both believe that working as a team and involving team members actively from the start is a secret to success. They believe that working with others garners more ideas and opinions. It is also ideal, because the Computer Integrated Education field is too rich to know it all or to want to know it all. Get a team and get the best of all worlds embedded in that team, they believe.

Jody articulated his and Gontse's commitment to LLITUP and the SMTE department in saying: "The idea of LLITUP must progress, through research, teaching, and community engagement. The idea of purposeful technology integration should continue. LLITUP is well-situated to influence all spheres of education from where we are."

## Photos

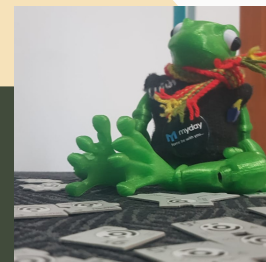
Top: Jody Joubert

Bottom: Gontse Mthelebofu

# FROGGY'S TECH CORNER

The computational thinking associated with Bee-bots

~By Annèl van Rooyen~



## Photos

**Top:** The Bee-bot mat with two robots ready to move simultaneously

**Bottom:** The coinciding code: The bottom line (Bumble's code) is the code that is repeated by Buzz from command 8 in the top code

A vital skillset associated with educational robotics (ER) is computational thinking. Computational thinking (CT) is applied when learners identify and reorganise problems into smaller, manageable and solvable parts (Wing, 2006). The seven key CT concepts are *sequencing*, *looping*, *events*, *conditional statements*, *parallelism*, *data*, and *operators* (Brennan & Resnick, 2012). LLITUP's famous Bee-bots are most often applied to explore sequencing, one of the more fundamental CT concepts. Learners and older students who are new to ER, can explore how a series of instructions can be provided to and executed by this floor robot, thereby illustrating *sequencing*.

During an activity-based lecture for Honors students in Distance Education, Bee-bots once again featured as the stars. Farihah Jaffer took our use of Bee-bots a step further. She decided to use two Bee-bots to tell a story while the robots move across the story mat simultaneously. With carefully planned codes, the bots managed moved without bumping into one another.

Here's the story: *Bumble and Buzz were playing on the playground. Bumble, to the left of the mat, was already on the playground, whereafter Buzz joined in the fun. They decided to play a game of tag. Bumble took the lead, while Buzz was chasing her. At some stage in the game, every robot followed a segment of exactly the same sequence of movements, only executed at different times.*

By following exactly the same movements, and by moving simultaneously, Farihah has succeeded in illustrating the computational thinking concept of *parallelism* through Bee-bots. This extends Bee-bot's original design and adds a wonderful concept to the spectrum of activities made possible by Bee-bots.

## References

- Brennan, K., & Resnick, M. (2012, April 13 - 17). New frameworks for studying and assessing the development of computational thinking. American Educational Research Association, Vancouver, Canada.
- Wing, J. M. (2006). Computational thinking. *Communications of the ACM*, 49(3), 33-35.