



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

LITTUP NEWS

A Collaboratorium newsletter, Faculty of Education, University of Pretoria

Make today matter

LLITUP 2023



NEW YEAR

NEW LOOK

NEW CONNECTIONS

LLITUP: WHERE POSSIBILITIES IGNITE

In 2023, we welcomed Kabelo as LLITUPIan, and we reflect on LLITUP's ability to ignite new possibilities in terms of research focus, module planning, events, and the use of tools. This edition is filled with stories of creativity and enthusiasm that celebrate the new things that often erupts from LLITUP.



LLITUP NEWSLETTER

TABLE OF CONTENTS

LLITUP 2023 • P. 1

Introducing new LLITUPIAN • P. 2

LLITUP realises dreams • P. 3

Literature and practice • P. 4 - 7

ICT module redesign • P.8 - 9

Let's Chat(about)GPT • P. 10 - 12

AI AI workshop • P. 13 - 14

Froggy's Tech Corner • P. 15- 16

NEWSLETTER TEAM

Editor: Annèl van Rooyen

Contributors: Annèl van Rooyen, Ronel Callaghan, Jody Joubert, Farihah Jaffer and Kabelo Mahlase

Proofreading: Sonja van Putten

Photographers: LLITUP team

JULY 2023 | VOLUME 4, ISSUE 1

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

FROM OUR SIDE

Introducing our newest LLITUPian, Kabelo Mahlase

With insights shared by Kabelo



With 2023 almost halfway through, Kabelo Mahlase has found her feet in the LLITUP Collaboratorium. Annèl van Rooyen inquired into her background, aspirations, and study focus to introduce and welcome her to the team formally.

What is your teaching and postgraduate background?

I am an Economics, Business and Accounting teacher. I started teaching at an under-resourced school and could not imagine integrating technology in my classroom other than through a projector and Google Classroom maybe. This changed when I started doing my CIE Honours at UP. I was exposed to a world of apps and mobile learning that I could not even think existed. The course forced me to ask:

- Why are you not integrating technology into your classroom?
- Are you doing it effectively?
- Is it engaging learners?
- Are they learning as well as having fun?
- Are they motivated to learn?
- How does it connect what they are learning to the larger context, the real world?

Then I worked at an online school and the same questions persisted. I found this to be truly intriguing – a mind explosion moment. It occurred to me that the issue was around the technological confidence of educators and how they felt the technology contributed to their practice, and of course the adjustment from a physical classroom to an online classroom.

How did you become involved in LLITUP?

I saw an opportunity to be part of a unit that changed my perspective of what teaching could be. I imagined it to be a learning opportunity that would greatly contribute to my future teaching as well as research in education.

What do you hope to contribute to LLITUP?

I had never thought of my possible contribution. I went into LLITUP as an empty vessel, hoping to learn as much as I can. If I had to contribute, it would be an awareness of how much ordinary South African classrooms could benefit from the ideas of technology that solves classroom-level problems. This is such an underappreciated perspective. Often teachers, pressured of time, have to give up their creativity and sometimes the quality they bring in order to get through the year.

How has your research focus developed during your Honours, and being busy with your Masters?

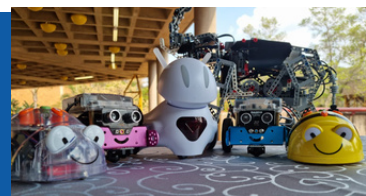
In my Honours I was interested in the experiences of online teachers. It was the environment I was working in and it was such a novel experience for me. I wondered if my colleagues shared my thoughts or whether I was overthinking my experience. In my research, it turned out I was not.

In my Masters, my focus is relatively the same. I want to determine what online teachers ‘do’ with the issues of engagement; how they do it; and hope that it can enlighten other online teachers, but my deep drive is not necessarily that. I wanted to find out what happens with engagement in online classes and how lessons from online teaching can help teachers in physical spaces navigate technology. My thought was that online teachers interact with technology all the time and they build their skills and knowledge faster than educators who do not. So, their current skills and knowledge can help other educators in physical classes to find interesting ways to teach learners. I am looking forward to seeing what my Master’s study will reveal.

FROM OUR SIDE

Reflecting on how LLITUP realises dreams for innovative teaching with technology

With insights shared by Annèl



I have the privilege of being part of LLITUP since 2020. I love how everything the LLITUPians do, is done as team effort. Our modules, from planning, preparing and presenting, are a team effort. I love how we team-teach, the younger colleagues together, and especially with Prof Callaghan who brings rich experience and expert knowledge to the mix. I love how doing things together gives us wings to fly.

Being part of LLITUP provides us with opportunities to expand our knowledge, understanding and experiences related to innovative teaching with the support of technological devices, amongst others. What LLITUP does well, is to ignite possibilities. Our involvement in the lab guides us in discovering and experiencing so many new and exciting things. It also has the wonderful ability to help us identify a niche for ourselves, specifically related to our research interests. Thanks to the Honours module CIT720 presented by LLITUP, I was introduced to Bee-bots in 2019. Soon after, the world of Coding and Robotics started to reveal itself as an intriguing, educationally rich field that interested me tremendously.

Being a LLITUPian has further sparked and nurtured my growing interest. I have particularly befriended the Bee-bots. Yet, LLITUP also sustains my appetite with new robotics tools added to the collaboratorium's collection. With apps like Boats and Tanks, the cute Coding Critter floor robot, board games like Scotty Go, other apps and software (like Scratch), there is so much to play with. This playing is built on inquiry-based learning; on making one's own discoveries; on constructing one's knowledge while designing; on sharing and thinking collaboratively; on working through ill-structured problems.

LLITUP has stimulated my Coding and Robotics interest all the way. We had the privilege of presenting the Coding and Robotics symposium in 2022. The connections made with people and experts in the field at this event, opened up new connections and collaborative opportunities for us. LLITUP further hosts coding club events, one of my favourite events to guide staff and students in their personalised journeys into the world of Coding and Robotics. LLITUP was also involved in the development of the Early Childhood Education department's module development aimed at third year students' experiences of the teaching and learning of Coding and Robotics. All of these opportunities provide us with hands-on experiences to apply our belief in the educational value of integrating Coding and Robotics for the sake of the Coding and Robotics learning, but also for the sake of problem-solving; for the development of 21st century skills; for resilience building; and for a growing attitude that is willing to try, perhaps fail and not give up, but to rather try again.

With Coding and Robotics as my focus, the variety of wonderful encounters with people, tools, events, and opportunities initiated by LLITUP excites me. I thoroughly enjoy my exploration into the training of Foundation Phase teachers for the integration of Coding and Robotics in their classrooms. I have encountered the intriguing network of aspects that constitute such teaching and learning. This includes an understanding of who the Coding and Robotics teachers are; how they acquire their knowledge; how and which Coding and Robotics tools suit the Foundation Phase context; and what the process of play can entail. I hope to contribute valuable building blocks required for an innovative approach to the teaching and learning of Coding and Robotics. I am deeply impressed by the way LLITUP deepens my field of interest and sparks my enthusiasm and further learning. This truly is a space that fosters innovative teaching and learning at the University of Pretoria, and far beyond its borders.

DREAM2TEACH

ICT310 module redesigned for 2023's PGCE programme

With insights shared by Jody and Farihah



ICT310 is a PGCE module that equips postgraduate students with relevant knowledge and skills to implement and effectively utilise digital tools and resources in their teaching practice. This module was redesigned by Jody and Farihah in 2023. Starting in January, Jody and Farihah headed the module redesign process as the module lecturers. In the process, they also had Gontse Mthelebofu and Nelé Loubser on board with their respective computer-integrated education and curriculum design expertise.

The module designers were cognisant of the module requirements, but also added their own desired outcomes. Specifically, this meant that the teacher digital competencies as presented in the current Professional Development Framework for Digital Learning of South African teachers was foregrounded in the PGCE programme. The module is designed to increase future teachers' employability. The focus of the module was transformed so that it not only equips aspiring teachers with basic Information and Communication Technology (ICT) skills, but also creates competent, employable teachers. These teachers' competence is built during the module's self-development programme, where students have the opportunity to address their weaknesses and work at attaining all thirteen teacher digital competencies.

The learning endeavour is called *The journey to digital competency and beyond*. The road markers include the following:

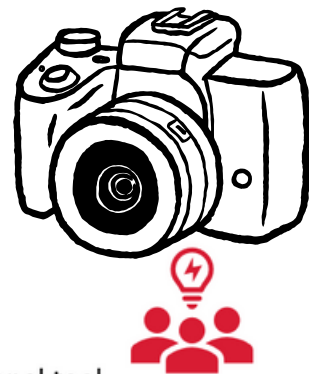
1. Arriving at evaluation
2. On the way to integration
3. Stopping for social media integration
4. Exploring assessment and records
5. Exploring ICTs for professional duties
6. To competency and beyond

Student teachers compile an evidence-based portfolio. It is format free, and students can choose which of their assignments adequately demonstrate all thirteen of their digital competencies and then include these in the portfolio. This is seen in students' skills, knowledge and values as envisioned in the framework. Students complete six assignments, all mapped to match and address the various teacher digital competencies. Assignment topics include a professional biography, students' design of a relevant educational technology evaluation tool and the design of a how-to video guide of edtech for teachers. An innovative assignment includes the use of Pinterest as a Learning Management System. This entails that student teachers curate resources that are shared in a central place, and then share these in a planned educational pathway. The two final assignments focus on assessment and professional duties of teachers and then require students to consider tools fit for these purposes.

The module follows *Teaching the UP way*, with its Prepare-Engage-Consolidate approach. Teacher digital competencies are initially introduced in lecture-style, but students soon consider their own goals and current stance through a SWOT-analysis. Reflection, in a journal and at the end, plays a key role in supporting students to keep track of their learning and progression. Students are also encouraged to develop and participate in a professional development community.

For Farihah, module design for the first time felt like swimming in the deep end, but she enjoyed to "learn by doing". For Jody, the required generic nature of the module was a challenge and a motivator.

PHOTO PAGE



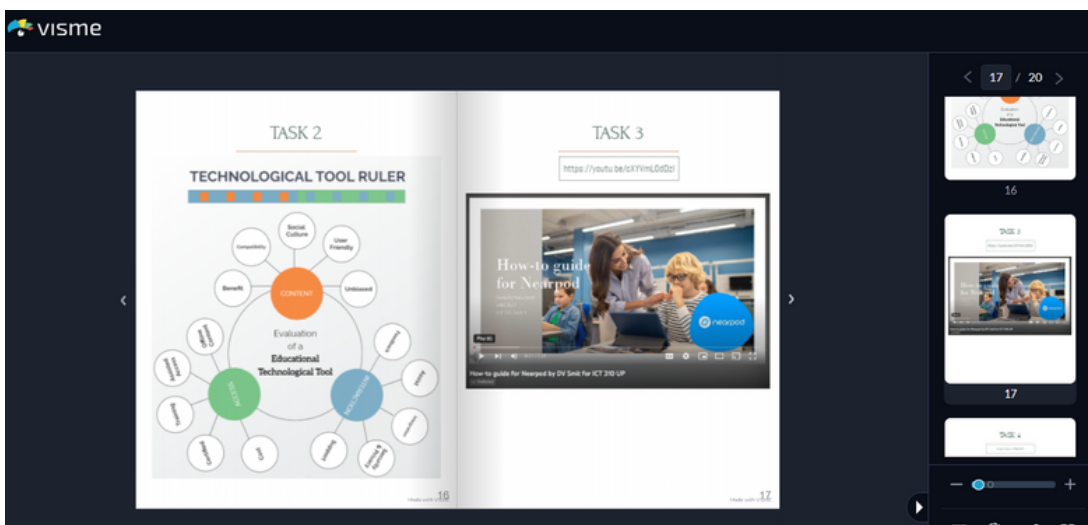
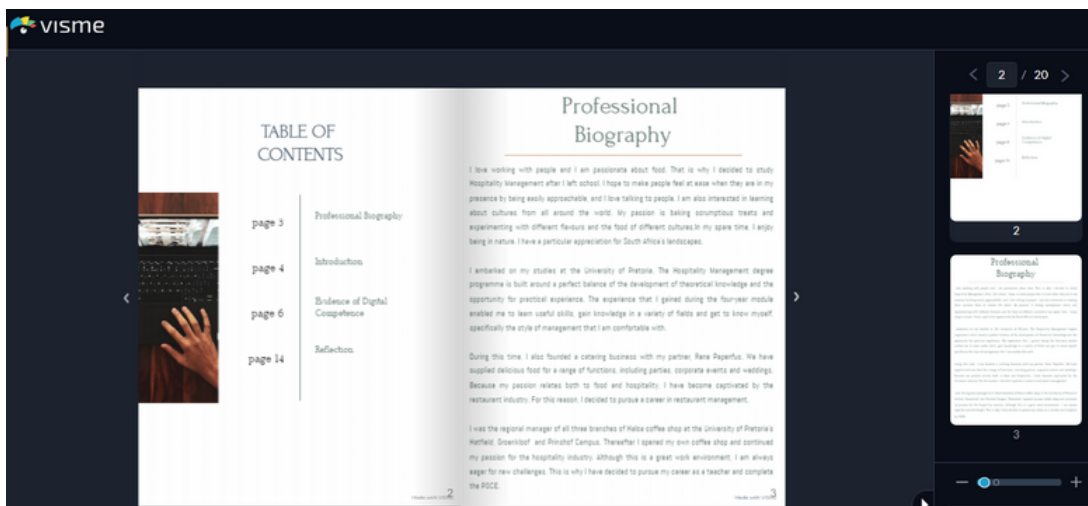
UNIT TWO

	Prepare: Identify areas for integration
	Engage: Share ICT tools for integration
	Consolidate: Create a short training session

In groups of 4:

- Investigate Pinterest as an educational tool
 - ✓ What educational resources are out there of your interest?
 - ✓ How are they presented?
 - ✓ How can you use these educational resources? Can you edit them?
 - ✓ Can you make them subject specific?
 - ✓ What are the limitations?
 - ✓ How can you add to this knowledge pool?
 - ✓ Anything else?

LO 2 & LO 4



Photos

- TOP LEFT: Teaching the UP way as visually illustrated for ICT310
- MIDDLE: A proficient student showcases her digital portfolio using Visme
- BOTTOM: Activities captured in the digital portfolio

LET'S CHAT(ABOUT)GPT

LLITUP adds its voice to the ChatGPT conversation

With insights shared by Jody and Kabelo

CHATGPT

OpenAI



Already towards the end of 2022, Jody started investigating the use of AI in education. Academics are worried, but also excited and nervous. Plagiarism and letting the machine work for you are some of the reasonable concerns. Perhaps we should assess differently now. Consider designing assessments in such a way that Google or ChatGPT cannot provide the answer. Another aspect to consider is the hands into which the tool will fall. While its use can be advantageous, will it not further widen the digital divide?

Before we Chat(about)GPT, first read this AI-generated formal letter of resignation to coffee.

- The prompt: "Write a formal letter with the correct formatting to inform coffee that I will no longer be drinking it."
- The output:

Dear [Coffee Company Name],

I am writing to inform you that I have made the decision to no longer consume coffee. While I have enjoyed the taste and energy boost that coffee has provided me in the past, I have come to realize that it is no longer a drink that I would like to continue to have in my life.

I have appreciated the convenience and quality of your coffee products and have been a loyal customer for many years. However, it is time for me to move on and try new things.

I would like to express my gratitude for the memories and experiences that I have had with your coffee and for the role it has played in my life. I will always look back fondly on my time as a coffee drinker.

Thank you for your understanding and for the great products that you have provided to me and to many others.

Sincerely, [Your Name]



Photos

ABOVE Formal letter of resignation to coffee

After seeing the initial output, Jody prompted ChatGPT to "make it much shorter", "Do it in Sepedi", "Afrikaans this time" and "French?" with varying success levels.

In speaking on the topic in both the SMTE and Humanities departments, Jody tried to guide staff through the unfamiliar, possibly threatening terrain of AI. He did this by breaking down the unfamiliar into familiar parts. His questions to address included: *What is AI?*; *What is GPT?*; *How does it work?*; *Why is AI a threat?* (from literature and in his opinion); and *How can AI be a mindtool?*

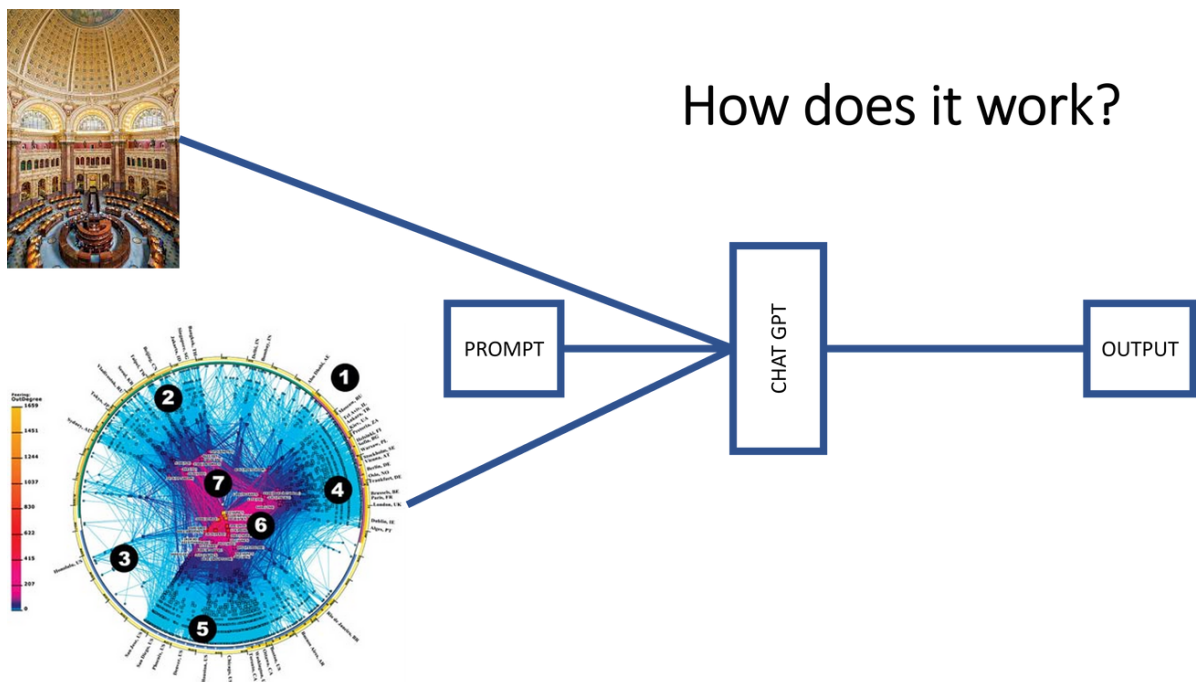
Let's chat about the questions.

1. What is AI?

AI is defined as intelligence displayed by machines (hardware and software) that can interact by perception, synthesis, inference and /or prediction. Jody states that AI answers from its big memory, without deep understanding and cognition.

2. How does it work?

Jody explains it in clear terms: AI has a memory of many, many knowledge sources. Once prompted, it can generate a response from memory. The more it is used, the more the system is trained (i.e. machine learning). While it is "not necessarily intelligent, it remembers more than we can." Below is a simple flow diagram depicting the workings of ChatGPT as designed by Jody.



Photos

ABOVE How does ChatGPT work?

3. Why is AI a threat?

Jody focused on the dangers of plagiarism associated with the tool, deep faking, information security, and lethal autonomous robots. To counteract its threats, Jody believes that the tool needs to be used ethically and as a mindtool.

4. What can we do with AI as a mindtool?

Using ChatGPT as a mindtool, requires that three characteristics of mindtools need to be adhered to as defined by Pakdaman-Savoji, Nesbit, and Gajdamaschko (2019). The first is *interaction*: The quality of the inputs, and the thinking behind the inputs provided by the user while interacting with ChatGPT, determines the type of output generated. Secondly is *representation*. In this regard, the tool has the ability to produce products as per the user's request. The question, however, is whether the tool manages to represent the user's own thinking, which is often not the case. In this way, the use of ChatGPT needs to be approached with care to see whether it really can be used by people as a mindtool to represent their thinking. The last mindtool characteristic is that of *distributed cognition*. This tool carries many aspects of the task burden, with specialisation in memory tasks and format. The extent to which the tool supports the user's cognition, thereby allowing for distributed cognition, can be further explored.

Jody is of the opinion that ChatGPT is, after all, a type of chatbot, making it more social and effective in a conversational sense. It avoids explicit language because it has been ethically trained, and will also not provide risky information like how to commit suicide or a murder. Since the tool is open for public use, people's use is adding to the tool's training as they explore different topics and ideas. Users can teach the system, especially because it does not have a mind of its own. It functions on the lowest levels of Bloom's taxonomy, combining things from memory without true cognition or higher-level thinking. There is not application, for it only remembers without understanding. It cannot analyse because someone provided it with its limitations. Even when it synthesises, it is without understanding and without making its own inferences. It simply uses people's inputs to function.

5. How can we remove the threat?

Think of it in this way, Jody suggests: This is like the synonym finder in MS Word. It simply requires a right click, and the choosing of a synonym. With every human interaction, the tool is developing. We humans need to keep on doing what we do best: Thinking, and then at a metacognitive level. While ChatGPT can compose a resignation letter to coffee, we have the ability to decompose what inputs the tool used to actually compile the letter: From the correct tone of voice, to letter formats, to knowledge about people's feelings about coffee...we have the ability to consider the thinking behind the thinking. Then we can decide whether we agree with it, how it can be changed and used, and whether it can be accepted or not. That human autonomy no machine can replicate!

What is our message and current stance about ChatGPT then?

"If it were intelligent, it could fly a plane" - ChatGPT, that is, said Jody. Don't blindly embrace or reject the tool. Be critical on the use of *any* technology, ChatGPT included. Ask yourself: What can ChatGPT do? Is that ethical, safe, and based in good educational principles?

Dr Fru Akuma from the SMTE department, as retold by Jody, describes it well: Humans are still in cave mode. Anything new entering the cave opening, is at first regarded as dangerous. Sometimes it is a non-threatening turtle; sometimes it is a bear." Explore ChatGPT, consider its possibilities and limitations, and keep on learning! Soon enough, you will come to know whether you have met a turtle or a bear.

E-VENTS

Exploring Artificial Intelligence through Appreciative Inquiry (AI through AI)

With inputs shared by Prof Callaghan



On Thursday, 15 June 2023 LLITUP presented a campus-wide event focused on ChatGPT and its text outputs. We were excited to welcome round about 70 attendees, representing most of UP's faculties, and even support services. We enjoyed the company of our Dean, Prof Chika Schoole, and also appreciated the attendance of staff from legal services and IT support.

Prof Callaghan, as host of the event, indicated that the aim was to introduce attendees to the possibilities of using ChatGPT and Artificial Intelligence as a mindtool. This allowed for a hands-on exploration to discover how we can learn *with* the tool, and not *from* it (which would tread in dangerous plagiarism waters).

The workshop was guided by Appreciative Inquiry. During 30 minute sessions, participants were allowed to Define, Discover, Dream, and even Design with their own contexts in mind. Prof Gerrit Stols was the guest speaker for the day and focused on the Destiny of a tool such as ChatGPT. During the **Defining** stages, Prof Callaghan introduced attendees to "five seconds of some big words", focused on the theory of using computers as mindtools. Attendees **discovered** ChatGPT with the help of a LLITUP-designed how-to-guide, while also answering to teaching-related questions.

The **Dream** session gave attendees the chance to "share their mad possibilities for education", said Prof Callaghan, and indeed, many mind-blowing thoughts were shared. Attendees then **designed** an activity for use in their own classes. This design was supported by a few ChatGPT prompt ideas, and the Backward Design process of Outcome - Assessment - Teaching.

In conclusion, Prof Stols formally provided lecturers with guidance for teaching, and provided some practical ideas of how ChatGPT can be incorporated e.g. making the tool's settings safer and considering practicalities such as study guide plagiarism guidelines.

Since those who attended this workshop in general wanted to know "What can I do with this tool?", it was LLITUP's drive to not focus on the bad, the fears, or ways of outsmarting the students that is often associated with such technological advancements. Instead, we aimed for a hands-on session that moved beyond the issues. By playing with the tool, people's fears of the unknown were removed. In general, the mood of the workshop was very positive, and the room was filled with laughter and enjoyment.

Programme

08:30	Registration and Chat GPT tea-ing	
09:00	Define: Introductions and orientation	Prof Ronel Callaghan (LLITUP)
09:15	Discover: What is AI and what can it do?	Jody Joubert (LLITUP)
09:45	Dream: If we know this about AI – What are the possibilities? All participants	
10:15	Design: My module – My AI	All participants
11:00	Destiny: In this world with AI, what should we keep in mind? Prof Gerrit Stols (EI)	
11:45	Conclusions	Prof Ronel Callaghan

Photos

LEFT Programme for the AI AI workshop

RIGHT Flowchart to determine whether a tool can be used as a mindtool

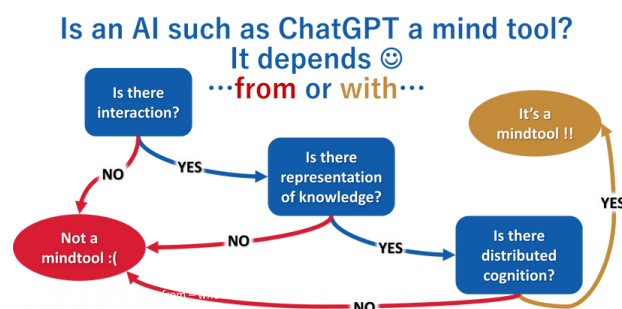
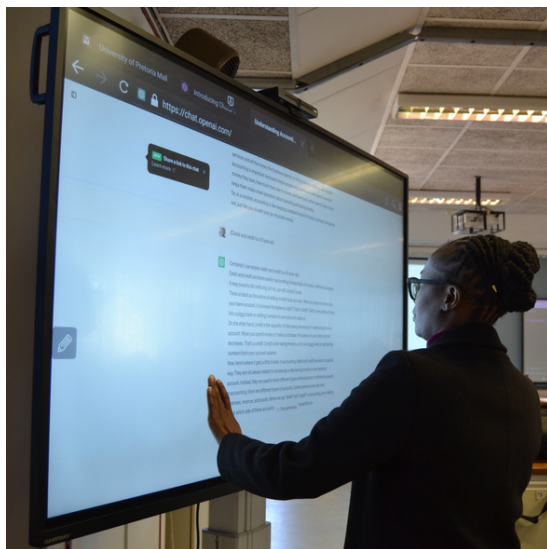
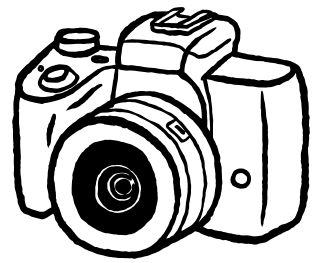


PHOTO PAGE: E-VENTS



Photos

TOP: Exploration of Artificial Intelligence through Appreciative Inquiry in our F-lab filled with attendees
SECOND ROW: ChatGPT How to guide prepared by LLITUP; Prof Chika Schoole joined us too; joyful interaction among attendees
THIRD ROW: Many different technologies allow for F-lab interactions; LLITUP's host, Prof Ronel Callaghan
FOURTH ROW: The value of computers as mindtools was explored; guest speaker Prof Gerrit Stols in conversation

FROGGY'S TECH CORNER

Farihah explored apps for OPV312 teaching and learning

With inputs shared by Farihah



Farihah is the newest lecturer member of the OPV312 teaching team in 2023. Inspired by her own OPV312 experiences in 2018, she realised that this module stimulated her interest in 4D, Augmented Reality (AR) and Virtual Reality (VR) apps. In the same vein, she wanted to inspire students to pursue a Computer-Integrated Education postgraduate journey as she herself experienced while having the module. Her main aim was to help students realise the following: "Not just using technology in class, but incorporating it within your lessons, and not just as an extra piece of stuff just lying there."

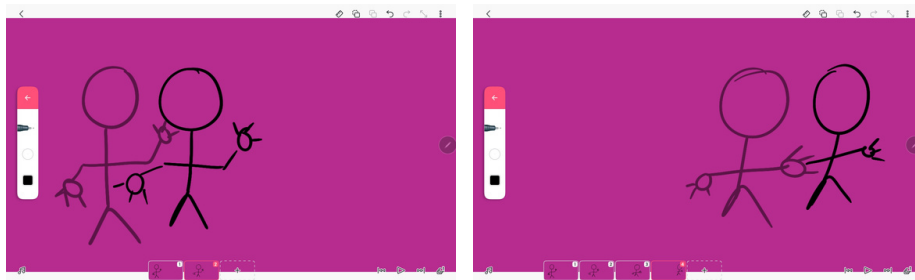
She decided to explore some apps to use in class. It was ideal to have students in the class venue, as this allowed for a real-life experience of the apps. By dimming the lights, students' visual experience of the apps was improved. The students really enjoyed the experience as a whole!

Farihah's focus was on finding 3D, 4D, VR and AR apps. After a thorough and enjoyable exploration, she decided to use FlipaClip, Anatomy 3D Atlas, Magic Plan, Bacteria Interactive Education, The Sun Interactive Educational and ARLoopa. These are all plug-and-play apps. She connected the tablet to Aldoel 1's camera which allowed students to experience real-time exploration of the app.

Farihah showcased different aspects with different apps

1. FlipaClip

She showed the students some examples and then made a simplified animation of a stick figure for the sake of the class demonstration. Some students already downloaded the app in class and started doodling on their own. Farihah found this to be inspiring.



Photos
LEFT: Stick figures used for FlipaClip animations

2. Bacteria Interactive Education

This germ app showcases types of germs, and different cells. Indeed, this is a strange topic. "It just looked freaky, but they enjoyed it," Farihah commented.

3. Anatomy 3D Atlas

Farihah enjoyed using some skeleton apps. Students could explore the human nervous system. She did, however, also challenge students' thinking in terms of application possibilities beyond Life Sciences. Students suggested that the app can be used for Physical Education as well as English where students tell a story about the nervous system.

FROGGY'S TECH CORNER

Farihah explored apps for OPV312 teaching and learning



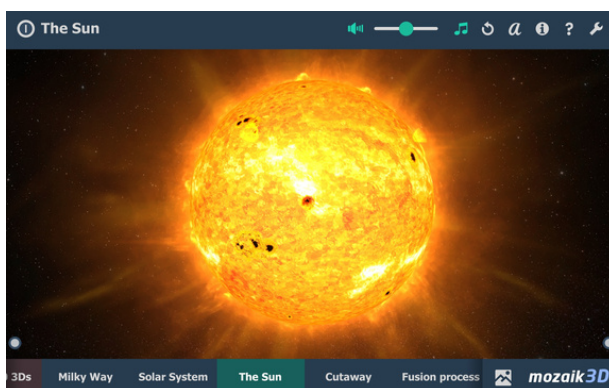
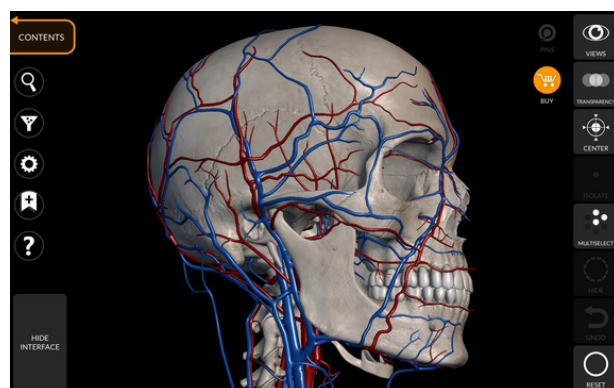
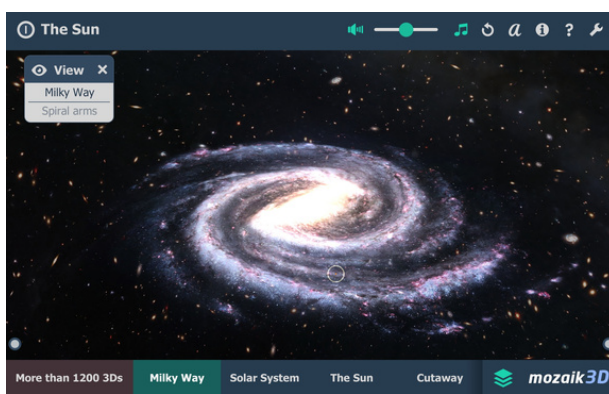
While reflecting on her lecturer and app exploration experience, Farihah indicated that she would place the tools in learners' hands in future for them to download and play with. She would like to involve students by using their own devices, while being involved in the entire app exploration process (from finding, to downloading and finally playing with the apps). As students engage in the process, they can also explore additional apps based on the app store's suggestions. Farihah will make use of the same apps in future.

Overall, Farihah's teaching experience is summarised as inspiring. "Seeing the students light up when they make connections with things" inspires her to design even more activities.

What does the app exploration process entail?

It was interesting to also explore Farihah's app exploration process. Here's how she went about it:

1. Do an app store search with the search term 'educational VR apps' for example
2. Consider the options provided by reading about the apps' number of in-app purchases. She tries to avoid this entirely.
3. Download quite a few viable options
4. Choose apps to explore. While exploring, Farihah then identifies the apps' possibilities and limitations
 - The playing process involves a consideration of the app's ease of use. The app should not be complicated or figured out first, otherwise learners will not be able to easily use the app. Otherwise, effective tutorials need to be readily available on the app.
 - For the AR and VR apps, an important consideration is the on-screen appearance of the graphics.
 - The amount of interaction with the AR characters like a frog needs consideration too
5. Go back to delete unnecessary apps e.g. those with paid versions that limits the amount of free content



Photos
 TOP LEFT: Germs in Bacteria app
 TOP RIGHT: Galaxy in Sun app
 BOTTOM LEFT: Human face in Anatomy app
 BOTTOM RIGHT: Sun in sun app