An analysis of relationship between research, innovation, and teaching in Higher Education in readiness for the 4IR

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Background

- Universities have long been seen as places to train people who can then advance a nation's development through the creation of human capital.
- They have been identified as "major agents of economic growth" and "key drivers of innovation" due to their roles in knowledge production (Rinaldi et al., 2018).
- This study is timely because it emphasizes the need for students to become familiar with 4IR technologies and their applications before graduating.

- Developing countries like Namibia are constantly looking for ways to develop a skilled future workforce that will take advantage of the opportunities presented by the 4IR.
- The research presented in this article has implications for Namibia and international educational systems, particularly about developing and implementing 4IR courses (modules), policies, and philosophies for both private and public institutions of higher learning.

- More importantly, the results of this study will give academic institutions the chance to plan their curricula with knowledge in mind, ensuring that students are well-versed in 4IR while pursuing industry partnerships.
- Therefore, the purpose of this study is to analyse the relationship between research, innovation and teaching in higher education to readying students and lecturers for the 4IR.

- The future generation's skill development is where the role of higher education institutions (HEIs) comes into play.

Problem statement

- In the rapidly evolving landscape of the Fourth Industrial Revolution (4IR), higher education institutions face a critical challenge: ensuring that students are adequately prepared with the skills, knowledge, and adaptability required to thrive in a technology-driven and constantly changing job market.
- The interplay between research, innovation, and teaching within higher education institutions is essential for addressing this challenge.

- However, there is a need to assess and optimize this relationship to effectively bridge the gap between academic preparation and 4IR readiness.
- Studies have shown that the main barriers to closing the digital divide in emerging economies are a lack of digital infrastructure, affluence, and skills (Duffy & Ney, 2015).
- Considering these challenges, this study seeks to address the following key issues:

- How can the relationship between research, innovation, and teaching in higher education be optimized to better prepare students for the demands of the 4IR job market?
- What strategies can higher education institutions employ to foster a culture of lifelong learning and adaptability among students in the context of the 4IR?
- To what extent and in what ways can collaboration with industry and society be enhanced to ensure that higher education remains aligned with the rapidly evolving needs of the 4IR?

Methodology

- A desktop study is used, by reviewing and analysing qualitative research articles that were carried out on higher education institutions and their research and innovation especially in the global south.
- The articles were reviewed, findings were obtained and analysed by establishing themes.
- The themes were interpreted and discussed to produce eventual analysis of the relationship between research, innovation and teaching in higher education in readiness of 4IR.

Findings

- **Current state of research, innovation, and teaching within higher education institutions**
- Boosting 4IR adoption and, as a result, making sure that 4IR skills and traits necessary for the successful implementation of the 4IR are well integrated into the curriculum.
- Organizational aspects like infrastructure, programs, and others are crucial for putting students in a position to succeed in the future.
- HEIs should encourage their staff to conduct research projects on 4IR-related subjects by giving them access to modern research resources and a conducive research environment.

- **Optimizing the relationship between research, innovation, and teaching.**
- The results revealed that effective curriculum design, according to Suskie (2018), concentrates on the learning objectives rather than just the content.
- The fourth industrial revolution will be propelled by artificial intelligence (Xing and Marwala, 2017).

- The fourth industrial revolution is giving rise to a new kind of higher education that creatively blends teaching, research, and service.
- **Collaboration between higher education institutions, industry, and society.**
- Collaboration between industry and universities is a well-liked idea around the world.
- It permits students to spend a certain amount of time in industry, where they are exposed to the "nitty-gritty" of working in an industrial setting.
- Collaboration between universities and industry has many benefits such as businesses benefit from highly qualified individuals, such as researchers, and they have access to technology and knowledge that they can use.
- In exchange, universities receive more funding, have access to equipment used in industry, and can license or patent innovations (Rybnicek and Königsgruber, 2019).

Implications for future learning and teaching practice

- **Universities must make sure that they are guided by two guiding principles as they enter the fourth industrial revolution:**
- Students must be given the knowledge and skills necessary to participate in the fourth industrial revolution.
- The knowledge students acquire must distinguish them from the "robots" (i.e., artificial intelligence, machine learning, mechanization, automation, etc.) by emphasizing their capacities for problem-solving, critical thinking, empathy, creativity, questioning, and dredging.
- Graduates must not leave college having only learned the skills that technology will eventually be able to perform for them.
- Graduates will also need to adopt a mindset that encompasses a lifelong learning approach given the rapid rate of change that technology brings to the forefront.

- Thank you!!

References

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