Local synthesis of 1st and 2nd waves of societal discussions

Kenya - Education

In 2023, discussions on what it means to be human in the time of neuroscience (NS) and AI have been facilitated by NHNAI partners in 9 different countries. In each country, 3 lines of discussions have been opened to explore this question in the **3 thematic fields of education, health, and democracy**. Each partner then produced **3 local syntheses** reporting on the content of discussions in these 3 fields in the corresponding countries.[1]

This document presents **ideas of the local synthesis in Kenya**, about discussions on **education**, organized by Catholic University of Eastern Africa.

[1] For an exact total of 8*3 + 2 local syntheses. In Canada (Québec), Cégep Sainte-Foy organized discussions focused on Democracy and Education, but not on Health.

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Part 1: Salient ideas of 2023

Technology promotes laziness (6 extracts)

Description of the idea: AI technologies can promote laziness; for instance, we have major challenge of exam irregularities where students rely on AI/ChatGPT without much effort, reduces creativity due to over reliance on AI, dehumanization of human beings, and lack integrity in the learning process.

In tension with:

- Salient idea: AI creates dependence
- Undesirable: Technology promotes laziness (which results into lack integrity, reduces creativity and dehumanizes).
- Automation of uninteresting tasks (Technology is important for learning but it requires stakeholders to ensure that AI is implemented equitably and responsibly in education)

Corresponding extracts (click on the arrow on the left to unfold/fold)

- Schools and Institutions are facing a major challenge of exam irregularities where students rely their answers from AI without their own effort.
- It may promote laziness among students
- It may also reduce creativity due to overreliance of AI models
- Integrity in the learning Process: intellectual Laziness-Chat GPT
- Dehumanisation of human beings
- The integrity in the learning process can be easily compromised, use of software to generate learning assignments. It cultivates laziness, for instance with the use of ChatGPT

Monitoring and evaluation (6 extracts)

Description of the idea: Monitoring of the teaching and learning activities should be done through plagiarism, fraud detection, monitor the teaching and learning spaces, use of biometrics for school, teacher's attendance. To assist in the monitoring and evaluation of efficient learning outcomes to all stakeholders in education that are expected to perform. Regarding evaluation, AI technologies App provide on stakeholder's feedback on educational activities like sign language.

In tension with:

- Salient idea: AI enhances learning for the deaf.
- Undesirable: Deaf students are taught at the individual level and not based on the cohorts.

Corresponding extracts (click on the arrow on the left to unfold/fold)

- AI can be employed to refugee education. Chatbots with AI capabilities can give migrants access to instructional materials and online courses, for instance. AI Chatbots can respond to quires, offer advice and assistance, and put refugees in touch with tutors and mentors. AI can also be used to asses and understand information about refugees 'educational requirements and outcomes. This information may be used to guide programs and policies that works to increase refugee students access to and success in school. AI has the potential to significantly aid in boosting refugee's education and many organizations are already investigating and putting AI based solutions to use in this regard.
- it would assist in the monitoring of efficient learning outcomes to all stakeholders in education
- elp with the monitoring of the student's progression as per the cohorts
- Tutoring Plagiarism checking Fraud detection Monitor teaching and learning activities. Proposing relevant titles for books and articles to students. Biometrics for school and teachers attendance
- Signs Tv offer 2. AssistALL app 3. The Uhai Festival (an outreach program that enables the company to reach out to their users and receive feedback)
- I would help in more concise real-time reporting of the behavior of learners

Opportunity to learn other languages (3 extracts)

Description of the idea: AI presents a tremendous opportunity to facilitate language learning in various ways: learning new languages translation, and enhancing learning skills.

Corresponding extracts (click on the arrow on the left to unfold/fold)

- Translation of languages to the learners even in real time
- Enhance the writing skills of all learners (preparation of books, assignments, reports, language and communications – non proficiency in one language does not prevent communication);
- in terms of language, AI can reach more people as it is a universal language and once programmed, it can reach many people in their own language. It provides opportunities for learning other languages.

AI must be context-driven (10 extracts)

Description of the idea: AI should be shaped to fit the African educational context that is holistic; to address to their needs. AI-powered content should be culturally sensitive and should consider the unique cultural contexts of different vulnerable groups, the different languages and the values that come from society.

Corresponding extracts (click on the arrow on the left to unfold/fold)

1. The holistic nature of African education can be promoted by filtering out the contents of this syllabus to match the holistic practices
2. Is the language being used in the AI culturally and contextually sensitive
3. The education should also be made contemporary contextually to meet the needs of the Africa as well, as they have not completely left their cultural setup. So AI is also bringing the African into the contemporary society, but also it is capturing their traits

4. Cultural Sensitivity: AI-powered content should be culturally sensitive and consider the unique cultural contexts of different vulnerable groups.
5. AI will embody the values of the programmer hence it is necessary for the values to be those appreciated by the society
6. Values should be infused within the individual AI applications, that is, they should be anthropocentric and contextual
7. Yes,Language Deficiencies: Keep in mind that some deaf students' first (or second!) language may not be English. Be sure to provide an appropriate interpretation service that will effectively communicate the lesson in their primary language. This may not be provided by AI. Inadequate Knowledge and Awareness about AI : Every child learns differently. Even if teachers are given instruction on how to best assist one of their deaf students, it could be completely different for the next, resulting in an academic gap. Lack of Resources: Often schools are not capable of supplying their deaf or hard-of-hearing students with the proper technology that could significantly increase the learning development process. This could be any form of assistive technology – interactive whiteboards, VRI, chat rooms, strobe lights, digital pen technology, closed captioning on all movies and videos, infra-red systems – hearing aid compatible
8. Whether the language is sensitive to gender
9. The loss of language is also another issue, with learners writing in code instead of full words. This causes distortion of language using short forms;
10. n addition, several languages are being capture using AI and these can be translated but there is the aspect of accuracy of the translations in terms of meaning and context. However, as it is now, AI is more skewed to the west, but is growing and has the capacity to accommodate each individual, though for Africa few of the languages are available.
11. AI can help tailor educational content to individual students' needs and learning styles, including non-academic skills. This can promote a more holistic education by addressing each student's strengths and weaknesses.

Conflicting spiritualities (3 extracts)

Description of the idea: AI and education in Africa has conflicting spiritualities; this should not compromise spirituality; AI should enhance education in Africa while fostering a respectful and inclusive environment that values diverse spiritualities and cultural perspectives.

In tension with:

- Salient idea: The cultural setting of the Africans does not completely blend comfortably with AI because as it is at the moment, it is more of the contemporary society
- Undesirable: AI may be perceived to be more intelligent than what God created, and this will conflict with the African spirituality

Corresponding extracts

- The cultural setting of the Africans does not completely blend comfortably with AI because as it is at the moment, it is more of the contemporary society.
- n regard to the spiritual aspect, AI may be perceived to be more intelligent than what God created, and hence how will the African perceive it in context to his / her culture
- Spirituality can be compromised when people think that AI is very intelligent and that it can create instead of leaving that domain to God

Deaf and Hard of Hearing Supported by AI App (7 Extracts)

Description of the idea: AI App access has improved on the life of the deaf, and hard hearing, making them to be included; it is also used as a tool for evaluation, social connections. It raises issues of unethical practices.

In tension with: ubiquity and unethical practices.

Corresponding extracts

1. AI has benefited the Deaf and Hard of Hearing Community: In today's modern society, technology is all around us and part of everyday life. Although some may feel that technology and artificial intelligence (AI) raises questions of ethics or argue our world may be too dependent on them, there is no denying the progress AI has made in accessibility. As AI continues to improve and expand in its capabilities, it offers an increasing benefit to the deaf and hard of hearing community.
2. Signs Tv offer 2. AssistALL app 3. The Uhai Festival (an outreach program that enables the company to reach out to their users and receive feedback)
3. I took time to look for partnerships with like-minded television stations requesting them to air sign language programmes to benefit the deaf community. At this time, few had sign interpreters during news time. Television stations he approached were not comfortable airing programmes that had no voice, as it would not augur well with marketers/advertisers and majority of their audience (hearing population). The refusal was a blessing in disguise because it pushed me into thinking of starting my own station. I embarked on the journey to look for frequency for sign language television stations. Along the way I met people who discouraged him and few partners, but this was not sustainable since there weren't immediate returns. I was convinced to continue pursuing his dream. Since I was still employed as a banker, I decided to take a loan plus own savings, constructed a studio, and purchased some equipment.
4. AI can enhance the accessibility of educational materials for learners with disabilities. For example, text-to-speech and speech-to-text technologies can assist visually impaired or hearing-impaired students
5. AI has benefited the Deaf and Hard of Hearing Community: In today's modern society, technology is all around us and part of everyday life. Although some may feel that technology and artificial intelligence (AI) raises questions of ethics or argue our world may be too dependent on them, there is no denying the progress AI has made in accessibility. As AI continues to improve and expand in its capabilities, it offers an increasing benefit to the deaf and hard of hearing community. AI makes the world more accessible for individuals who are deaf and hard of hearing through services like captioning and speech recognition to positively impact how they consume media, learn and communicate in person and over the phone or internet. s artificial intelligence capabilities continue to expand, there are more applications to help facilitate communication between individuals who are deaf and hard of hearing and hearin
6. AI-powered online platforms and educational apps can enable access to education for those who are geographically isolated, have limited mobility, or face other barriers to attending physical schools.
7. I applications need to be created such that it includes all people in mind. There should also be awareness creation and sensitization in relation to vulnerable groups and how the systems are made to suite their use as well. It should be made to avoid its use to take advantage of vulnerable individuals

Technology supplements education (7 extracts)

Description of the idea: AI is an integral part of education that supplements the traditional teaching methods by providing opportunities for both educators and learners, that responds to the needs of the teacher in cases where teachers are affected by fatigue or health.

Integrating technology into teaching can offer numerous benefits for African teachers and their students; could leverage technology through access to information, personalized learning, and teachers' professional development. For the purposes of supplement, cooperation, complementarity and blending for quality education.

In tension with:

- Salient idea: AI support for quality education
- Desirable: African teachers could try to leverage AI in their daily teachings to supplement their knowledge and to utilize the diverse knowledge of AI

Corresponding extracts (click on the arrow on the left to unfold/fold)

- On the other hand, African teachers could try to leverage AI in their daily teachings to suppliment their knowledge and utilise the diverse knowledge of AI.
- To some extent, a teacher cannot be fully replaced but we can probably blend the AI with the human agen
- AI can only complement the African teacher but it can't fully replace the African teacher. This is because while AI can be a valuable tool for enhancing education in Africa by providing resources, automating administrative tasks, and enabling personalized learning, it should be viewed as a complement to human teachers rather than a replacement. Collaborative efforts involving AI and human educators can help address some of these challenges while striving to provide quality education for all students in Africa.
- Yes the holistic nature of the African education can be promoted by addressing each student's strengths and weaknesses.
- AI can help tailor educational content to individual students' needs and learning styles, including non-academic skills. This can promote a more holistic education by addressing each student's strengths and weaknesses.
- Showing of simulated illustrations to enables learning in multiple locations (amateurs and apprentices can learn through these simulations);
- This is because while AI can be a valuable tool for enhancing education in Africa by providing resources, automating administrative tasks, and enabling personalized learning,

AI related challenges in education (10 extracts)

Description of the idea: AI technologies provide promising opportunities for the enhancement of education. However, it also comes with some challenge; over dependence, exam irregularities, high cost, and lack of infrastructure and electricity.

In tension with:

- Salient idea: AI enhances learning opportunities for all students
- Undesirable: Potential risks and drawbacks that come with education and technology

Corresponding extracts (click on the arrow on the left to unfold/fold)

1. High Cost: Drones can be expensive, both in terms of purchasing and maintaining them. Funding for such educational programs may be a challenge for pastoral communities with limited resources.
2. Lack of Infrastructure and Electricity: Many vulnerable areas may lack reliable electricity and infrastructure, making it challenging to implement AI-powered educational solutions.

3. AI can have employed to support the nomadic communities' education. Due to their mobile of life, the creation of mobile learning platforms should be encouraged that are user friendly and flexible to the requirements of the pastoral communities. Pastoral communities face unique challenges in line with education, for instance they are not able to access the formal schooling and thus, this bring about the challenge of maintaining continuity in their education due to their mobility. Drones have also been used to drop teaching and learning materials to facilitate the teachers and learners.
4. AI creates overdependence, hence learners get lost. Simple tasks which human being could easily do, if for instance power goes off, the human being is left incapable of functioning. How can these challenges be controlled, so that at the end of the day, AI is able to benefit the African learner as it should;
5. Schools and Institutions are facing a major challenge of exam irregularities where students rely their answers from AI without their own effort.

Technology risks (3 extracts)

Description of the idea: There are risks that come with AI in education that include a hazard in environmental, and lack of privacy and confidentiality, that may require collaboration among stakeholders, including policymakers, technologists, ethicists, and the public, to develop frameworks, standards, and practices that promote the responsible and ethical use of AI and technology while mitigating potential harms.

Corresponding extracts (click on the arrow on the left to unfold/fold)

- hazards to the environment
- here is a hazard in environmental, example, the 5G antennas have high level of radiation emissions
- The fear for lack of privacy and confidentiality, even in the education sector. People may be able to hack into systems and change the integrity of its data, as the confidence is in the system

Desirable / Undesirable

Undesirable: Human replacement by machines (6 extracts)

Description of the idea: AI complements teachers, to provide quality education and addresses some challenges for all students; however, AI can replace some roles like in education like support staff, teachers. Replacement can lead to job displacement by machines. Although AI surpasses human beings, but they it cannot teach values/virtue, dehumanizes human beings. AI should remain a tool which complement, help, reinforce, enrich or support an activity or a task but this tool should not replace the person in relation to the two persons, teacher and student.

Corresponding extracts (click on the arrow on the left to unfold/fold)

- Concerns exist about AI potentially replacing some roles in education, including administrative and support staff, leading to job displacement.
- es AI can replace the African teacher because of it's potentials that has proven this.
- AI can help complement learning, but doesn't not replace the teacher
- Dehumanisation of human beings
- It is not easy to use robots to teach values/virtues. Though it is easy to use to robots to teach skills and knowledge
- it should be viewed as a complement to human teachers rather than a replacement. Collaborative efforts involving AI and human educators can help address some of these challenges while striving to provide quality education for all students in Africa.

Undesirable: exclusion of African indigenous knowledge (5 extracts)

Description of the idea: Artificial intelligence and neurosciences is a challenge to the African indigenous knowledge, they cannot teach African values, nor pass culture to the next generation. Where does the African diviners and herbalist who had specialized knowledge in their trade go with the advent of AI? The cultural setting of the Africans does not completely blend comfortably with AI & N and the contemporary society.

In tension with:

- Desirable: personalizing learning and creativity with AI and NS

Corresponding extracts (click on the arrow on the left to unfold/fold)

1. In addition, several languages are being capture using AI and these can be translated but there is the aspect of accuracy of the translations in terms of meaning and context. However, as it is now, AI is more skewed to the west, but is growing and has the capacity to accommodate each individual, though for Africa few of the languages are available.
2. The African values may not be properly transmitted using AI to the future generations, also noting that those with this values and information are in the rural areas, where AI may not be accessible to these groups of people.
3. The cultural setting of the Africans does not completely blend comfortably with AI because as it is at the moment, it is more of the contemporary society.
4. In response to the question on whether AI takes cognizance of the nature of the African society it was noted that it may not because it needs to take care of all the faculties
5. In African traditional society, there were traditional healers, diviners and herbalist who had specialized knowledge in their trade. With the advent of AI where will these people go? How will such knowledge be harnessed so that it is not lost;

Undesirable: Humans as robots (2 extracts)

Description of the idea: The relationship between humans and machines, is broader questions about the essence of humanity itself. In exploring the relationship between humans and

machines, we are confronted with profound philosophical and existential questions about the essence of humanity itself. These inquiries challenge us to reconsider the issue on identity, consciousness, and morality in light of technological advancements and their implications for humanity.

In tension with:

- Salient idea: Robots are not sensitive human touch
- Undesirable: Human beings can be replacement by machines

Corresponding extracts

It is not easy to use robots to teach values/virtues. Though it is easy to use to robots to teach skills and knowledge

iHuman touch is absent in AI models, which is crucial in delivering content to students

Desirable: more resources and financial costs for vulnerable people (15 extracts)

Description of the idea: AI is necessary for the education for the vulnerable people (refugees, People with Disabilities-PWDs, and pastoral communities). However, the following resources are required; access to AI Technology, Monitoring and Evaluation Systems prepared human resource, financial support, educational content, data infrastructure, AI models and Algorithms, reliable electricity (notably for drones), community support, policies, and procedures, among others.

In tension with:

- Undesirable: Automation of uninteresting tasks
- Salient idea: Accepting AI and blending it with the African teacher

Corresponding extracts (click on the arrow on the left to unfold/fold)

1. High Cost: Drones can be expensive, both in terms of purchasing and maintaining them. Funding for such educational programs may be a challenge for pastoral communities with limited resources.
2. Can information in AI be used to promote education of those in vulnerable groups? Yes, however, it needs a conducive and secure environment. It has made some people more vulnerable because of the issue of available resources, for instance, online learning requires, power, internet connectivity, and the hardware to be used
3. The cost of AI is expensive to install
4. AI can have very prohibitive costs and its installation may be difficult in certain areas hence limiting its use
5. At the beginning, the company broadcasted in 14 counties reaching 300 persons with disabilities and so far in 37 countries with a general audience of 1.5 million with 550,000 persons with disabilities. Signs TV revenue stream includes advertisements, documentaries, and general partnerships to organizations at very affordable rates.

6. he Signs Media Kenya Limited is a social enterprise that propagates the social, economic and political and talent development of People With Disabilities (PWDs) through Assistive Technology.
7. AI can assist teachers and students in their daily tasks such as grading, personal mentor, lesson planning and providing insights to student's progress also the lecturer's teaching abilities.
8. UNESCO collaborated with the Kenyan government to train teachers in remote areas of Kenya to use AI-powered educational tools. This helped bridge the educational gap by empowering teachers to enhance their teaching methods with technology.
9. Lack of Infrastructure and Electricity: Many vulnerable areas may lack reliable electricity and infrastructure, making it challenging to implement AI-powered educational solutions.
10. AI-powered online platforms and educational apps can enable access to education for those who are geographically isolated, have limited mobility, or face other barriers to attending physical schools
11. reation of educational programs and use of drones in education Especially among the pastoral communities
12. AI can have employed to support the nomadic communities' education. Due to their mobile of life, the creation of mobile learning platforms should be encouraged that are user friendly and flexible to the requirements of the pastoral communities. Pastoral communities face unique challenges in line with education, for instance they are not able to access the formal schooling and thus, this bring about the challenge of maintaining continuity in their education due to their mobility. Drones have also been used to drop teaching and learning materials to facilitate the teachers and learners.
13. AI can be employed to refugee education. Chatbots with AI capabilities can give migrants access to instructional materials and online courses, for instance. AI Chatbots can respond to quires, offer advice and assistance, and put refugees in touch with tutors and mentors. AI can also be used to asses and understand information about refugees 'educational requirements and outcomes. This information may be used to guide programs and policies that works to increase refugee students access to and success in school. AI has the potential to significantly aid in boosting refugee's education and many organizations are already investigating and putting AI based solutions to use in this regard.
14. Lack of Infrastructure and Access: Rural and pastoral areas may lack the necessary infrastructure, including reliable electricity and internet connectivity, which are essential for operating drones and accessing educational content online.
15. Issues with Funding and Sustainability: Implementing AI solutions in refugee education requires financial resources for development, maintenance, and ongoing support. Sustainability and long-term funding are crucial to ensure the continued availability of these resources

Desirable: taking account of AI bias for more inclusivity (3 extracts)

Description of the idea: Addressing biases in AI systems, particularly those impacting the vulnerable people (deaf, albinos, the blind, and PWDs) is crucial for ensuring fairness and inclusivity in the community.

Corresponding extracts (click on the arrow on the left to unfold/fold)

- n the other hand, African teachers could try to leverage AI in their daily teachings to suppliment their knowledge and utilise the diverse knowledge of AI.
- AI continues to evolve, hence there is need to ensure continued training and learning for it to be used properly and avoid people being taken advantage of
- The focuse is on the Deaf, Albinos, the Blind, and People with Physical Disabilities. These people seem to be excluded from the society. i took a path that most of my family members had opposed, a journey that has resulted into Artificial intelligence and machine learning for the inclusion of deaf people and other people with disabilities. I happy to be part of this journey.

Part 2: Salient ideas of 2024

Technology can help bridge the gap in access to educational resources for the Vulnerable groups (66 extracts)

Description of the idea: AI and NS has to significantly aid in boosting education for vulnerable groups, but it must be approached with care to ensure inclusivity and effectiveness.

Corresponding extracts (click on the arrow on the left to unfold/fold)

1. Yes, Language Deficiencies: Keep in mind that some deaf students' first (or second!) language may not be English. Be sure to provide an appropriate interpretation service that will effectively communicate the lesson in their primary language. This may not be provided by AI. Inadequate Knowledge and Awareness about AI: Every child learns differently. Even if teachers are given instruction on how to best assist one of their deaf students, it could be completely different for the next, resulting in an academic gap. Lack of Resources: Often schools are not capable of supplying their deaf or hard-of-hearing students with the proper technology that could significantly increase the learning development process. This could be any form of assistive technology – interactive whiteboards, VRI, chat rooms, strobe lights, digital pen technology, closed captioning on all movies and videos, infra-red systems – hearing aid compatible
2. The platform broadcasts in Kenyan sign language with voice as an override airing films/movies, music-both gospel, and secular and Bible interpretation. Its main objectives being to educate, inform and entertain in sign language by extension enhancing disability and the deaf culture, where 80% of the programmes are hosted by persons with disabilities. Their target audience includes but was not limited to the deaf, persons with albinism, persons with visual impairment and persons with mobility challenges. At the beginning, the company broadcasted in 14 counties reaching 300 persons with disabilities and so far in 37 countries with a general audience of 1.5 million with 550,000 persons with disabilities. Signs TV revenue stream includes advertisements, documentaries, and general partnerships to organizations at very affordable rates.
3. Signs Tv offer 2. Assist ALL app 3. The Uhai Festival (an outreach program that enables the company to reach out to their users and receive feedback)
4. The focus is on the Deaf, Albinos, the Blind, and People with Physical Disabilities. These people seem to be excluded from the society. i took a path that most of my family members had opposed, a journey that has resulted into Artificial intelligence and machine learning for the inclusion of deaf people and other people with disabilities. I happy to be part of this journey.
5. I took time to look for partnerships with like-minded television stations requesting them to air sign language programmes to benefit the deaf community. At this time, few had sign interpreters during news time. Television stations he approached were not comfortable airing programmes that had no voice, as it would not augur well with marketers/advertisers and majority of their audience (hearing population). The refusal was a blessing in disguise because it pushed me into thinking of starting my own station. I embarked on the journey to look for frequency for sign language television stations. Along the way I met people who discouraged him and few partners, but this was not sustainable since there weren't immediate returns. I was convinced to continue pursuing his dream. Since I was still employed as a banker, I decided to take a loan plus own savings, constructed a studio, and purchased some equipment.
6. I was motivated by the experience I had growing up with a deaf sister. My sister had been left out in the entertainment, while the rest of the family enjoyed watching television programmes such as news, movies, music, and other local entertainment. The challenged situation of my sister, moved me to the persuade the television stations to air sign language programmes, even if only for a few minutes so that people who are deaf like his siter could enjoy entertainment and news
7. The Signs Media Kenya Limited is a social enterprise that propagates the social, economic and political and talent development of People with Disabilities (PWDs) through Assistive Technology. *(KE-E)*

8. Since schools/institutions have been facing a challenge of outdated information, they can use AI to review the school syllabus and make it up to date.
9. AI can assist teachers and students in their daily tasks such as grading, personal mentor, lesson planning and providing insights to student's progress also the lecturer's teaching abilities.
10. AI can help tailor educational content to individual students' needs and learning styles, including non-academic skills. This can promote a more holistic education by addressing each student's strengths and weaknesses. *(KE-E, context-driven, individual differences, holistic education, challenge, strength)*
11. Issues with Funding and Sustainability: Implementing AI solutions in refugee education requires financial resources for development, maintenance, and ongoing support. Sustainability and long-term funding are crucial to ensure the continued availability of these resources
12. Lack of Infrastructure and Access: Rural and pastoral areas may lack the necessary infrastructure, including reliable electricity and internet connectivity, which are essential for operating drones and accessing educational content online.
13. High Cost: Drones can be expensive, both in terms of purchasing and maintaining them. Funding for such educational programs may be a challenge for pastoral communities with limited resources.
14. Lack of Digital Literacy: Many individuals, especially in underserved communities, may lack the digital literacy skills needed to navigate online platforms effectively. This can hinder their ability to benefit from online education.
15. Presence of Technological Barriers: While online education can be a great equalizer, it's important to recognize that not everyone has access to the necessary technology and reliable internet connections. This digital divide can accelerate educational inequalities.
16. Lack of teacher training: Teacher Training involves equipping educators with the skills to use AI tools effectively in the classroom
17. Lack of Infrastructure and Electricity: Many vulnerable areas may lack reliable electricity and infrastructure, making it challenging to implement AI-powered educational solutions.
18. Cultural Sensitivity: AI-powered content should be culturally sensitive and consider the unique cultural contexts of different vulnerable groups.
19. AI can enhance the accessibility of educational materials for learners with disabilities. For example, text-to-speech and speech-to-text technologies can assist visually impaired or hearing-impaired students
20. AI-powered online platforms and educational apps can enable access to education for those who are geographically isolated, have limited mobility, or face other barriers to attending physical schools
21. AI can tailor educational content to the specific needs and learning styles of individual students. This is particularly valuable for vulnerable learners who may have diverse educational needs or learning disabilities.
22. Tutoring Plagiarism checking Fraud detection Monitor teaching and learning activities. Proposing relevant titles for books and articles to students. Biometrics for school and teachers' attendance.
23. reaction of educational programs and use of drones in education Especially among the pastoral communities
24. AI continues to evolve, hence there is need to ensure continued training and learning for it to be used properly and avoid people being taken advantage of
25. AI can be used to record, store and disseminate information in regard to the data of certain communities. This can be used for the benefit of these communities. In addition, it can be used for security purposes, example, helping with airport and transport security
26. AI should also be made with the needs of the local people in mind/context, including, how they can be accessed and used.
27. AI applications need to be created such that it includes all people in mind. There should also be awareness creation and sensitization in relation to vulnerable groups and how the systems are made to suite their use as well. It should be made to avoid its use to take advantage of vulnerable individuals
28. Can information in AI be used to promote education of those in vulnerable groups? Yes, however, it needs a conducive and secure environment. It has made some people more vulnerable because of the issue of available resources, for instance, online learning requires, power, internet connectivity, and the hardware to be used
29. Human beings are vulnerable persons at different levels. Therefore, the definition that the group came up with for vulnerable people is that they are those who might be, emotionally, psychologically, physically, mentally, and socially excluded. It can also include individuals who lack important and pertinent, information, or people who lack access to do what they need to do or go where they want to

go. It should be noted that vulnerability does not only refer to those individuals who are physically challenged

30. AI can have employed to support the nomadic communities' education. Due to their mobile of life, the creation of mobile learning platforms should be encouraged that are user friendly and flexible to the requirements of the pastoral communities. Pastoral communities face unique challenges in line with education, for instance they are not able to access the formal schooling and thus, this bring about the challenge of maintaining continuity in their education due to their mobility. Drones have also been used to drop teaching and learning materials to facilitate the teachers and learners.
31. AI can be employed to refugee education. Chatbots with AI capabilities can give migrants access to instructional materials and online courses, for instance. AI Chatbots can respond to quires, offer advice and assistance, and put refugees in touch with tutors and mentors. AI can also be used to asses and understand information about refugees 'educational requirements and outcomes. This information may be used to guide programs and policies that works to increase refugee students access to and success in school. AI has the potential to significantly aid in boosting refugee's education and many organizations are already investigating and putting AI based solutions to use in this regard.
32. Spirituality can be compromised when people think that AI is very intelligent and that it can create instead of leaving that domain to God
33. In conferences, AI assists participants to understand the presentations and thus enhances their participation;
34. The loss of language is also another issue, with learners writing in code instead of full words. This causes distortion of language using short forms;
35. I create overdependence; hence learners get lost. Simple tasks which human being could easily do, if for instance power goes off, the human being is left incapable of functioning. How can these challenges be controlled, so that at the end of the day, AI is able to benefit the African learner as it should; *(KE-E)*
36. AI also depends on the programmer and what he / she is programming into the system, will it capture, analyze and synthesize accurately enough to pick the content and place it in its right context, hence mimicking what the programmer intended;
37. n example was given of the African languages being taught in the Competency Based Curr
38. n addition, several languages are being capture using AI and these can be translated but there is the aspect of accuracy of the translations in terms of meaning and context. However, as it is now, AI is more skewed to the west, but is growing and has the capacity to accommodate each individual, though for Africa few of the languages are available.
39. In terms of language, AI can reach more people as it is a universal language and once programmed, it can reach many people in their own language. It provides opportunities for learning other languages.
40. today, AI has mechanisms that can analyze, predict and prescribe for example, hospital machines.
41. The African values may not be properly transmitted using AI to the future generations, also noting that those with these values and information are in the rural areas, where AI may not be accessible to these groups of people.
42. indigenous education for prosperity also came up, where it was questioned if AI can enhance or promote this. *(KE-E, African Indigenous Knowledge I, technological progress).*
43. AI able to bring out an individual who is in touch with nature, this is concerning because AI does not seem African.
44. The cultural setting of the Africans does not completely blend comfortably with AI because as it is at the moment, it is more of the contemporary society.
45. African education also had an aspect of emotional education, the consideration of one human person to another
46. in regard to the spiritual aspect, AI may be perceived to be more intelligent than what God created, and hence how will the African perceive it in context to his / her culture
47. In response to the question on whether AI takes cognizance of the nature of the African society it was noted that it may not because it needs to take care of all the faculties
48. Mentally it will
49. It will encourage lifelong learning as people will be compelled to use AI in many spheres of their lives and the sharing of knowledge
50. AI a
51. Values should be infused within the individual AI applications, that is, they should be anthropocentric and contextual

52. AI will embody the values of the programmer hence it is necessary for the values to be those appreciated by the society
53. Data analysis will be quicker and more efficient when AI is used hence the enhancement of research
54. Showing of simulated illustrations to enables learning in multiple locations (amateurs and apprentices can learn through these simulations);
55. Translation of languages to the learners even in real time
56. Enhance the writing skills of all learners (preparation of books, assignments, reports, language and communications – non proficiency in one language does not prevent communication);
57. It would enhance the inclusion of all learners
58. It would assist in the monitoring of efficient learning outcomes to all stakeholders in education
59. help with the monitoring of the student's progression as per the cohorts
60. It will address individual life learning that will be remedial in nature as per special needs of each learner (i.e., giving relevant interventions);
61. Where infrastructure (electricity and internet coverage) is available AI enhances the access of knowledge to the masses
62. It enhances the learning experience of students through prerecorded lessons shared with learners in vast locations
63. it reduces the labour intensity of grading the learners
64. I would help in more concise real-time reporting of the behavior of learners
65. reaction of educational programs and use of drones in education
66. Improved data collection & usage, & data storage

AI assisted education (13 extracts)

Description of the idea: Integrating AI into education provides opportunities to improve learning, increase accessibility, and promote inclusivity while reducing disparities. However, its effectiveness relies on tracking issues such as infrastructure deficiencies, sustainable funding, and limited resources.

In tension with :

- Salient idea: Focusing on AI's transformative power in education, along with the key obstacles that must be addressed to ensure its successful integration.
- Undesirable: Creating ethical frameworks is essential, but there is a significant risk of exploitation if people with disabilities are unaware of how their data is being used. AI driven assessment that misinterprets students' capacities, leading to inaccurate evaluations and misinformed educational decisions.

Corresponding extracts (click on the arrow on the left to unfold/fold)

6. AI-driven assessments may not accurately measure student understanding or capabilities, leading to misinformed educational decisions.
7. he Signs Media Kenya Limited is a social enterprise that propagates the social, economic and political and talent development of People with Disabilities (PWDs) through Assistive Technology.
8. AI can assist teachers and students in their daily tasks such as grading, personal mentor, lesson planning and providing insights to student's progress also the lecturer's teaching abilities.
9. Issues with Funding and Sustainability: Implementing AI solutions in refugee education requires financial resources for development, maintenance, and ongoing support. Sustainability and long-term funding are crucial to ensure the continued availability of these resources

10. UNESCO collaborated with the Kenyan government to train teachers in remote areas of Kenya to use AI-powered educational tools. This helped bridge the educational gap by empowering teachers to enhance their teaching methods with technology.
11. UNESCO collaborated with the Kenyan government to train teachers in remote areas of Kenya to use AI-powered educational tools. This helped bridge the educational gap by empowering teachers to enhance their teaching methods with technology.
12. Lack of Infrastructure and Electricity: Many vulnerable areas may lack reliable electricity and infrastructure, making it challenging to implement AI-powered educational solutions.
13. AI-powered online platforms and educational apps can enable access to education for those who are geographically isolated, have limited mobility, or face other barriers to attending physical schools
14. reaction of educational programs and use of drones in education Especially among the pastoral communities
15. Can information in AI be used to promote education of those in vulnerable groups? Yes, however, it needs a conducive and secure environment. It has made some people more vulnerable because of the issue of available resources, for instance, online learning requires, power, internet connectivity, and the hardware to be used
16. AI can have employed to support the nomadic communities' education. Due to their mobile of life, the creation of mobile learning platforms should be encouraged that are user friendly and flexible to the requirements of the pastoral communities. Pastoral communities face unique challenges in line with education, for instance they are not able to access the formal schooling and thus, this brings about the challenge of maintaining continuity in their education due to their mobility. Drones have also been used to drop teaching and learning materials to facilitate the teachers and learners.
17. AI can be employed to refugee education. Chatbots with AI capabilities can give migrants access to instructional materials and online courses, for instance. AI Chatbots can respond to quires, offer advice and assistance, and put refugees in touch with tutors and mentors. AI can also be used to asses and understand information about refugees 'educational requirements and outcomes. This information may be used to guide programs and policies that works to increase refugee students access to and success in school. AI has the potential to significantly aid in boosting refugee's education and many organizations are already investigating and putting AI based solutions to use in this regard.
18. proficiency in one language does not prevent communication);

AI and educational exclusion (10 extracts)

Description of the idea: the integration of AI in education presents both opportunity and challenges, particularly for vulnerable groups.

In tension with :

- Salient idea: The promise of AI in education is often at odds with the realities of unequal access and support.

Corresponding extracts (click on the arrow on the left to unfold/fold)

1. Yes, Language Deficiencies: Keep in mind that some deaf students' first (or second!) language may not be English. Be sure to provide an appropriate interpretation service that will effectively communicate the lesson in their primary language. This may not be provided by AI. Inadequate Knowledge and Awareness about AI: Every child learns differently. Even if teachers are given instruction on how to best assist one of their deaf students, it could be completely different for the next, resulting in an academic gap. Lack of Resources: Often schools are not capable of supplying their deaf or hard-of-hearing students with the proper technology that could significantly increase the learning development process. This could be any form of assistive technology – interactive whiteboards, VRI, chat rooms, strobe lights,

digital pen technology, closed captioning on all movies and videos, infra-red systems – hearing aid compatible

2. The focus is on the Deaf, Albinos, the Blind, and People with Physical Disabilities. These people seem to be excluded from the society. I took a path that most of my family members had opposed, a journey that has resulted into Artificial intelligence and machine learning for the inclusion of deaf people and other people with disabilities. I happy to be part of this journey.
3. took time to look for partnerships with like-minded television stations requesting them to air sign language programmes to benefit the deaf community. At this time, few had sign interpreters during news time. Television stations he approached were not comfortable airing programmes that had no voice, as it would not augur well with marketers/advertisers and majority of their audience (hearing population). The refusal was a blessing in disguise because it pushed me into thinking of starting my own station. I
4. Lack of Digital Literacy: Many individuals, especially in underserved communities, may lack the digital literacy skills needed to navigate online platforms effectively. This can hinder their ability to benefit from online education.
5. Presence of Technological Barriers: While online education can be a great equalizer, it's important to recognize that not everyone has access to the necessary technology and reliable internet connections. This digital divide can accelerate educational inequalities.
6. For example, think about students with visual impairments who may not have the technology needed for AI-based learning tools. Inclusivity would involve providing them with specialized tools like braille displays or tactile materials instead of relying solely on AI. Similarly, for students without access to technology due to economic or remote location reasons, alternative methods like printed materials or community-based learning centers might be necessary to ensure they receive an education.
7. Lack of Inclusivity: Inclusivity in AI-driven education means making sure that education is available to everyone, including those with severe disabilities or limited access to technology.
8. AI can have employed to support the nomadic communities' education. Due to their mobile of life, the creation of mobile learning platforms should be encouraged that are user friendly and flexible to the requirements of the pastoral communities. Pastoral communities face unique challenges in line with education, for instance they are not able to access the formal schooling and thus, this brings about the challenge of maintaining continuity in their education due to their mobility. Drones have also been used to drop teaching and learning materials to facilitate the teachers and learners.
9. The African values may not be properly transmitted using AI to the future generations, also noting that those with these values and information are in the rural areas, where AI may not be accessible to these groups of people.
10. Thus, there may be some of this virtual information that is not being passed to African people in terms of these values;

AI and teacher training (8 extracts)

Description of the idea: Training initiatives are important for leveraging to improve educational experience and outcome for all students.

In tension with :

- Salient idea: Technology has both benefits and risks.
- Undesirable: Technology may bring unwanted implication in education.

Corresponding extracts (click on the arrow on the left to unfold/fold)

1. Provide training for teachers on the implications of AI and neuroscience, ensuring they understand both the benefits and potential risks.

2. Changing Skill Requirements: Educators may need to adapt to new technologies, which could create stress and require ongoing professional development.
3. Additionally, the integration of AI into the educational system will mean that teachers will need to be adequately trained and well-prepared for the purpose to be actualized. However, this will not be as easy as it seems; some demands will have to be met.
4. AI can assist teachers and students in their daily tasks such as grading, personal mentor, lesson planning and providing insights to student's progress also the lecturer's teaching abilities.
5. UNESCO collaborated with the Kenyan government to train teachers in remote areas of Kenya to use AI-powered educational tools. This helped bridge the educational gap by empowering teachers to enhance their teaching methods with technology.
6. Lack of teacher training: Teacher Training involves equipping educators with the skills to use AI tools effectively in the classroom
7. Hence such training initiatives can play a crucial role in ensuring that teachers can leverage technology to enhance the educational experiences of their students
8. AI can be employed to refugee education. Chatbots with AI capabilities can give migrants access to instructional materials and online courses, for instance. AI Chatbots can respond to quires, offer advice and assistance, and put refugees in touch with tutors and mentors. AI can also be used to asses and understand information about refugees 'educational requirements and outcomes. This information may be used to guide programs and policies that works to increase refugee students access to and success in school. AI has the potential to significantly aid in boosting refugee's education and many organizations are already investigating and putting AI based solutions to use in this regard.

AI and individual differences in Education (extracts 8)

Description of the idea: Technology should enhance the individual differences in education.

In tension with :

- Salient idea: Interplay between salient ideas and human autonomy is complex. While salient concepts can drive progress and societal wellbeing, they can also pose challenge to individuals' freedom and decision making.

Corresponding extracts (click on the arrow on the left to unfold/fold)

8. Misapplying neuroscience research can lead to ineffective teaching strategies that do not consider individual learning differences
9. Differentiated Learning By leveraging AI-powered tools, teachers can design customized learning paths for their students based on their individual strengths, weaknesses, and learning preferences. These tools can analyze student data such as assessment scores, attendance records, and even behavioral patterns to recommend targeted resources and learning activities that cater to each student's needs.
10. By leveraging AI-powered tools, teachers can design customized learning paths for their students based on their individual strengths, weaknesses, and learning preferences. These tools can analyze student data such as assessment scores, attendance records, and even behavioral patterns to recommend targeted resources and learning activities that cater to each student's needs.
11. Differentiated Learning
12. AI can help tailor educational content to individual students' needs and learning styles, including non-academic skills. This can promote a more holistic education by addressing each student's strengths and weaknesses.
13. Cultural Sensitivity: AI-powered content should be culturally sensitive and consider the unique cultural contexts of different vulnerable groups.
14. s AI able to bring out an individual who is in touch with nature, this is concerning because AI does not seem African.

15. t will address individual life learning that will be remedial in nature as per special needs of each learner (i.e., giving relevant interventions);

Vulnerable people (8 extracts)

Description of the idea: Inclusivity in education, particularly for the vulnerable populations, is important to ensure equitable access to learning opportunities.

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In tension with:

- Salient idea: Taking care of not reducing persons to categories Inclusivity in education highlights the need for more nuanced approach that considers diverse needs of all learners.

Corresponding extracts (click on the arrow on the left to unfold/fold)

1. In some v
2. For example, think about students with visual impairments who may not have the technology needed for AI-based learning tools. Inclusivity would involve providing them with specialized tools like braille displays or tactile materials instead of relying solely on AI. Similarly, for students without access to technology due to economic or remote location reasons, alternative methods like printed materials or community-based learning centers might be necessary to ensure they receive an education.
3. Inclusivity means recognizing that not all vulnerable groups c
4. Lack of Inclusivity: Inclusivity in AI-driven education means making sure that education is available to everyone, including those with severe disabilities or limited access to technology.
5. AI can enhance the accessibility of educational materials for learners with disabilities. For example, text-to-speech and speech-to-text technologies can assist visually impaired or hearing-impaired students
6. I applications need to be created such that it includes all people in mind. There should also be awareness creation and sensitization in relation to vulnerable groups and how the systems are made to suite their use as well. It should be made to avoid its use to take advantage of vulnerable individuals
7. AI can be employed to refugee education. Chatbots with AI capabilities can give migrants access to instructional materials and online courses, for instance. AI Chatbots can respond to quires, offer advice and assistance, and put refugees in touch with tutors and mentors. AI can also be used to asses and understand information about refugees 'educational requirements and outcomes. This information may be used to guide programs and policies that works to increase refugee students access to and success in school. AI has the potential to significantly aid in boosting refugee's education and many organizations are already investigating and putting AI based solutions to use in this regard.
8. It helps education of the vulnerable, for instance, hard of hearing, visually impaired .

Undesirable: collaboration (6 extracts)

Description of the idea: Collaborative efforts among governments, educational institutions and communities are vital for establishing a safe and effective learning environment that should guide ethical implantation to foster international standards in response to the context needs, improve teachers' data analysis skills, and empowering educators through focused training initiatives.

In tension with :

- Desirable: Conflicts between various factors, highlighting the need for resolution or balance.

Corresponding extracts (click on the arrow on the left to unfold/fold)

1. Collaborative efforts among governments, educational institutions, and communities are essential for creating a safe and effective learning environment.
2. Should have a collaboration with stakeholders to create ethical frameworks that guide the development and implementation of AI technologies in education in African countries
3. Collaborate with international bodies to adopt global standards while tailoring solutions to local needs
4. They can work together to achieve results. Computers help teachers to analyze data quickly but the teacher must input the data to be analyzed.
5. UNESCO collaborated with the Kenyan government to train teachers in remote areas of Kenya to use AI-powered educational tools. This helped bridge the educational gap by empowering teachers to enhance their teaching methods with technology.
6. AI applications should enhance collaborations in sharing knowledge, skills and attitude among educators and learners to spearhead inter-rationalism;

Desirable: Evaluation and Technology (5 extracts))

Description of the idea: The importance of collaboration and innovation tools in education to enhance monitoring and evaluation and to report the outcomes. This will better support for learners' progression.

Corresponding extracts (click on the arrow on the left to unfold/fold)

12. We are encouraged to partner with other organizations and educational institutions to share and evaluate on the best practices and resource
13. Signs Tv offer 2. AssistALL app 3. The Uhai Festival (an outreach program that enables the company to reach out to their users and receive feedback)
14. It would assist in the monitoring of efficient learning outcomes to all stakeholders in education
15. help with the monitoring of the student's progression as per the cohorts *)*.
16. I would help in more concise real-time reporting of the behavior of learners

Desirable: Social consequence and Technology in education (5 extract)

Description of the idea: AI in education can create more equitable learning space that addresses diverse needs of the learners.

Corresponding extracts (click on the arrow on the left to unfold/fold)

1. For example, think about students with visual impairments who may not have the technology needed for AI-based learning tools. Inclusivity would involve providing them with specialized tools like braille displays or tactile materials instead of relying solely on AI. Similarly, for students without access to technology due to economic or remote location reasons, alternative methods like printed materials or community-based learning centers might be necessary to ensure they receive an education.
2. Inclusivity means recognizing that not all vulnerable groups c
3. AI can enhance the accessibility of educational materials for learners with disabilities. For example, text-to-speech and speech-to-text technologies can assist visually impaired or hearing-impaired students
4. I applications need to be created such that it includes all people in mind. There should also be awareness creation and sensitization in relation to vulnerable groups and how the systems are made to suite their use as well. It should be made to avoid its use to take advantage of vulnerable individuals
5. AI can be employed to refugee education. Chatbots with AI capabilities can give migrants access to instructional materials and online courses, for instance. AI Chatbots can respond to quires, offer advice and assistance, and put refugees in touch with tutors and mentors. AI can also be used to asses and understand information about refugees 'educational requirements and outcomes. This information may be used to guide programs and policies that works to increase refugee students access to and success in school. AI has the potential to significantly aid in boosting refugee's education and many organizations are already investigating and putting AI based solutions to use in this regard.

Desirable: Exploitation (4 extracts)

Description of the idea: Technology involvement should have the consent to avoid exploitation of the learners.

- Partner with universities and research institutions to explore innovative solutions to widen perspectives.
- The issue of informed consent of PWDs may not fully understand how their data is being used, leading to potential exploitation
- Any society keen on passing knowledge without question, dehumanizes the persons and makes them subservient and ready for exploitation.
- AI continues to evolve, hence there is need to ensure continued training and learning for it to be used properly and avoid people being taken advantage of

Desirable: social exclusion (4 extracts)

Description of the idea: Lack of representation can lead to social exclusion, where African perspectives are overlooked in virtual spaces.

Corresponding extracts

- Thus, not all students have equal access to technology, which can widen the educational gap between different socioeconomic groups.
- Lack of Infrastructure and Access: Rural and pastoral areas may lack the necessary infrastructure, including reliable electricity and internet connectivity, which are essential for operating drones and accessing educational content online.
- Human beings are vulnerable persons at different levels. Therefore, the definition that the group came up with for vulnerable people is that they are those who might be, emotionally, psychologically, physically, mentally, and socially excluded. It can also include individuals who lack important and pertinent, information, or people who lack access to do what they need to do or go where they want to go. It should be noted that vulnerability does not only refer to those individuals who are physically challenged
- Thus, there may be some of this virtual information that is not being passed to African people in terms of these values;

Desirable: ethical/ legal guidelines (3 extracts)

Description of the idea: AI in education requires collaboration to create ethical frameworks to guide development and implementation.

Corresponding extracts (click on the arrow on the left to unfold/fold)

1. Should have a collaboration with stakeholders to create ethical frameworks that guide the development and implementation of AI technologies in education in African countries
2. Stakeholders should manage the risks associated with AI and neuroscience in education, ensuring that they enhance learning outcomes while safeguarding ethical standards and equity across Africa.
3. To establish national policies that define the ethical use of AI in educational space in Africa.

Desirable: Time saving (3 extracts)

Description of the idea: Technology tools like Exam Soft not only streamline the preparation process but also support language translation and writing skills enhancement. By leveraging this technology, educators can save time and provide more effective learning experience for their students.

Corresponding extracts (click on the arrow on the left to unfold/fold)

- One example of an AI-powered test prep tool that teachers can use is ExamSoft. ExamSoft uses data analytics to help teachers create targeted practice exercises that focus on the areas where their students need the most support. This can help to reduce the amount of time that teachers spend on test prep while ensuring that students are well-prepared for their exams.
- Translation of languages to the learners even in
- Enhance the writing skills of all learners (preparation of books, assignments, reports, language and communications – non proficiency in one language does not prevent communication);

Desirable: dehumanization and Technology (3 extracts)

Description of the idea: The banking model of education and its implications for dehumanization and oppression.

Corresponding extracts (click on the arrow on the left to unfold/fold)

- There are many ways the banking model of education aligns with oppression. Essentially, it dehumanizes the student. If they are raised to learn to be blank slates molded by the teacher, they will never be able to question the world if they need to.
- This form of education encourages them to just accept what is thrust upon them and accept that as correct. It makes the first step of humanization very difficult. If machines are used to read out information without discussion, students could be dehumanized
- ny education that merely passes knowledge and skills without reason or interaction with other persons is dehumanizing.

Empowerment of PWDs (extracts 3)

Description of the idea: Empowerment of PWDs should be tailored towards educational experiences that meet the unique needs of each learner.

Corresponding extracts (click on the arrow on the left to unfold/fold)

- The focus is on the Deaf, Albinos, the Blind, and People with Physical Disabilities. These people seem to be excluded from the society. i took a path that most of my family members had opposed, a journey that has resulted into Artificial intelligence and machine learning for the inclusion of deaf people and other people with disabilities. I happy to be part of this journey.
- It helps education of the vulnerable, for instance, hard of hearing, visually impaired
- It will address individual life learning that will be remedial in nature as per special needs of each learner (i.e., giving relevant interventions);

Desirable: underdeveloped AI infrastructure (3 extracts)

Description of the idea: High Cost: Drones can be expensive, both in terms of purchasing and maintaining them. Funding for such educational programs may be a challenge for pastoral communities with limited resources.

Corresponding extracts (click on the arrow on the left to unfold/fold)

- High Cost: Drones can be expensive, both in terms of purchasing and maintaining them. Funding for such educational programs may be a challenge for pastoral communities with limited resources.
- Lack of Digital Literacy: Many individuals, especially in underserved communities, may lack the digital literacy skills needed to navigate online platforms effectively. This can hinder their ability to benefit from online education.

- Presence of Technological Barriers: While online education can be a great equalizer, it's important to recognize that not everyone has access to the necessary technology and reliable internet connections. This digital divide can accelerate educational inequalities.

Desirable: AI bias/ non inclusivity (2 extracts)

Description of the idea: Technology has an Algorithmic Bias as there is need for training on Datasets that do not adequately represent the PWDs.

Corresponding extracts (click on the arrow on the left to unfold/fold)

- The technology has an Algorithmic Bias as AI systems may be trained on datasets that do not adequately represent PWDs, leading to biased outcomes and reinforcing existing inequalities.
- AI systems may perpetuate existing biases if trained on biased data, leading to unfair treatment of certain groups of students.

Desirable: vulnerability (2 extracts)

Description of the idea: Increased reliance on technology can make educational institutions vulnerable to data breaches and cyberattacks.

Corresponding extracts (click on the arrow on the left to unfold/fold)

- Increased reliance on technology can make educational institutions vulnerable to data breaches and cyberattacks.
- Human beings are vulnerable persons at different levels. Therefore, the definition that the group came up with for vulnerable people is that they are those who might be, emotionally, psychologically, physically, mentally, and socially excluded. It can also include individuals who lack important and pertinent, information, or people who lack access to do what they need to do or go where they want to go. It should be noted that vulnerability does not only refer to those individuals who are physically challenged

Desirable: social participation (2 extracts)

Description of the idea: Increased use of AI in the classroom may diminish face-to-face interactions, which are crucial for social and emotional development.

Corresponding extracts (click on the arrow on the left to unfold/fold)

- Increased use of AI in the classroom may diminish face-to-face interactions, which are crucial for social and emotional development
- in conferences, AI assists participants to understand the presentations and thus enhances their participation;

Desirable: Over dependence (2 extracts)

Description of the idea: Over depending on AI in education for Decision-Making on AI for educational decisions (e.g., student assessments) can raise ethical questions about accountability and transparency.

Corresponding extracts (click on the arrow on the left to unfold/fold)

- Decision-Making: Relying on AI for educational decisions (e.g., student assessments) raises ethical questions about accountability and transparency.
- nability of students to explore and reach their full potential Furthermore, if students become overly dependent on artificial intelligence, it would limit their abilities critical thinking skills and cognitive abilities.

Desirable: Ethical dilemma (2 extracts)

Description of the idea: Manipulation of Learning process by the use of AI to manipulate student behavior or learning preferences in ways that may not align with ethical educational practices. Creates ethical dilemma.

Corresponding extracts (click on the arrow on the left to unfold/fold)

- Decision-Making: Relying on AI for educational decisions (e.g., student assessments) raises ethical questions about accountability and transparency.
- Ethical Concerns, Manipulation of Learning: AI could be used to manipulate student behavior or learning preferences in ways that may not align with ethical educational practices

Desirable: Inaccuracy of AI in education (2 extracts)

Description of the idea: AI-driven assessments may not accurately measure student understanding or capabilities, leading to misinformed educational decisions.

Corresponding extracts (click on the arrow on the left to unfold/fold)

- inaccurate Assessments due to Reliability of AI Assessments: AI-driven assessments may not accurately measure student understanding or capabilities, leading to misinformed educational decisions
- AI-driven assessments may not accurately measure student understanding or capabilities, leading to misinformed educational decisions.

Desirable: automation in education (2 extracts)

Description of the idea: The integration of AI in education may lead to concerns about job displacement for educators, as some tasks become automated.

Corresponding extracts (click on the arrow on the left to unfold/fold)

- Job Displacement on the Teacher Roles: The integration of AI in education may lead to concerns about job displacement for educators, as some tasks become automated.
- Auto Grading: For example, a teacher could use an AI-powered grading tool like Gradescope which allows teachers to upload assignments and assessments, and then automatically grades them using machine learning algorithms.

Desirable: digital divide in education (2 extracts)

Description of the idea: Humanism emphasizes the intrinsic value and dignity of every individual. In an educational context, it advocates for recognition of each child as a unique individual, emphasizes on the on the personal growth and self-actualization, and making learners to feel valued and respected.

Corresponding extracts (click on the arrow on the left to unfold/fold)

- Humanism is an essential and universal condition that confers dignity to any individual human being.
- Presence of Technological Barriers: While online education can be a great equalizer, it's important to recognize that not everyone has access to the necessary technology and reliable internet connections. This digital divide can accelerate educational inequalities.