

DIGILEAC

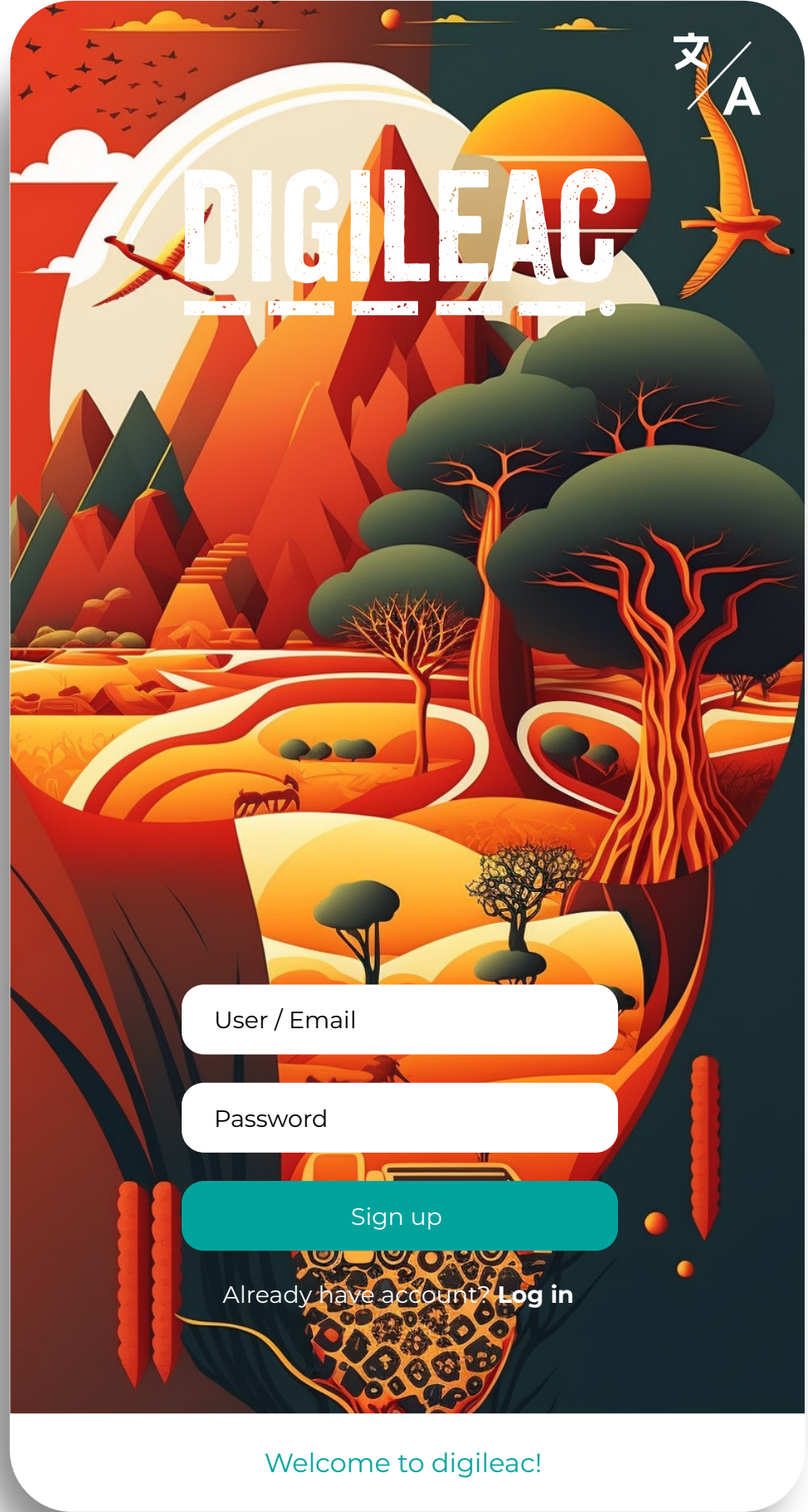
Digital Learning Environments
for the African Contexts

DIGILEAC / **NLP**

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and others

DIGILEAC PLATFORM

A presentation about addressing one of the most significant challenges for the next 10 years,



an educational platform, that will affect the lives of more than 400 million African children by 2030.

Co-creating education
with and for every community,
we are Digileac.

Digileac brings together **the best of various technologies for their optimal purpose**. A multi-modal AI-assisted platform that combines the **most effective pedagogical practices with the best psychological approaches for brain development, high-quality user experiences, and interfaces**.

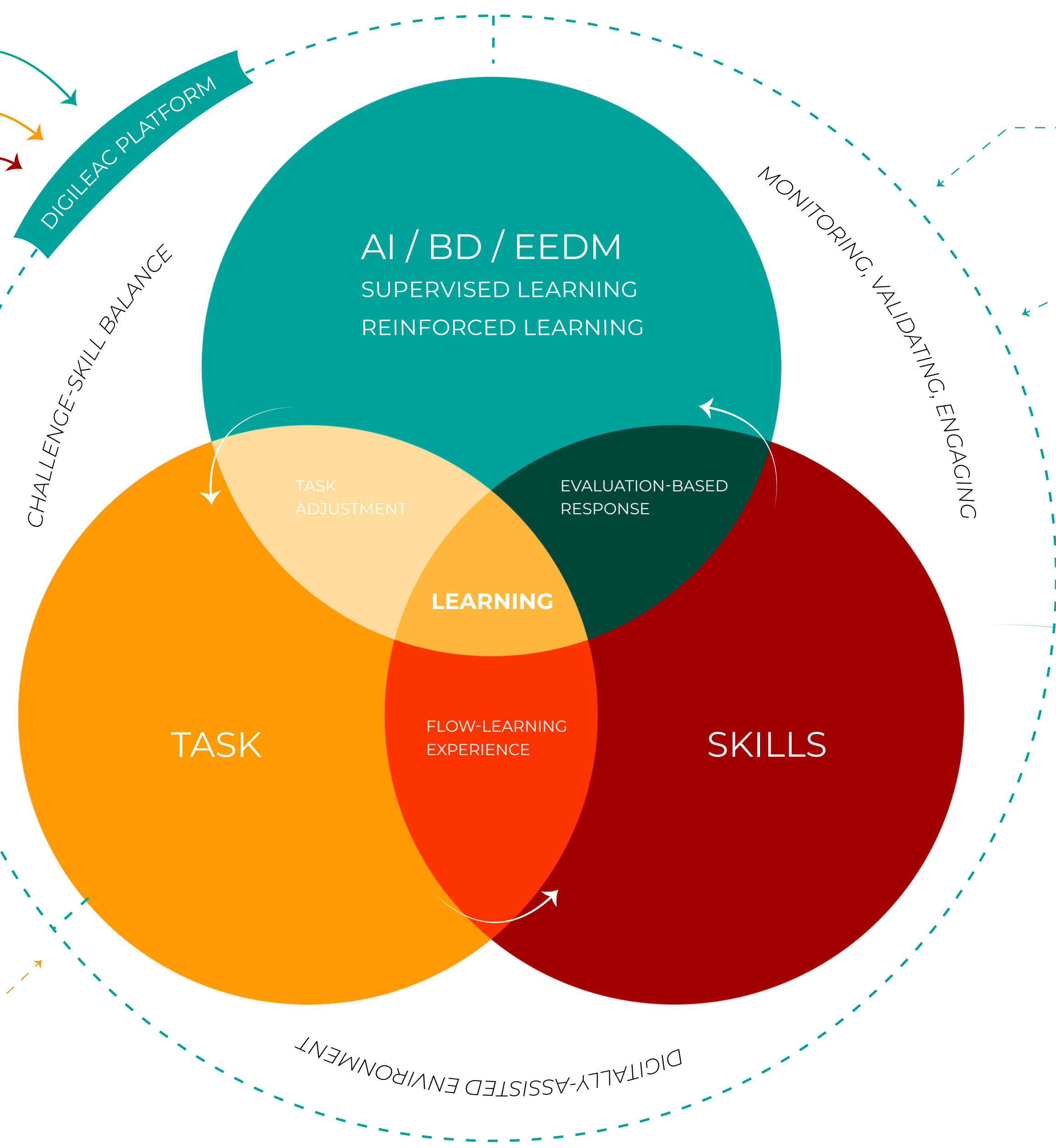
Utilizing multiple AI models, Digileac aims to provide every child in Africa with uninterrupted access to high-quality education. **For the first time, a highly scalable, sustainable solution can break cultural and language barriers.**

Digileac holistic digitally assisted learning

■ PSYCHOLOGY DOMAINS

● SERIOUS GAMES AND GAMIFICATION

▲ CURRICULA



QUALITY DATA ACQUISITION

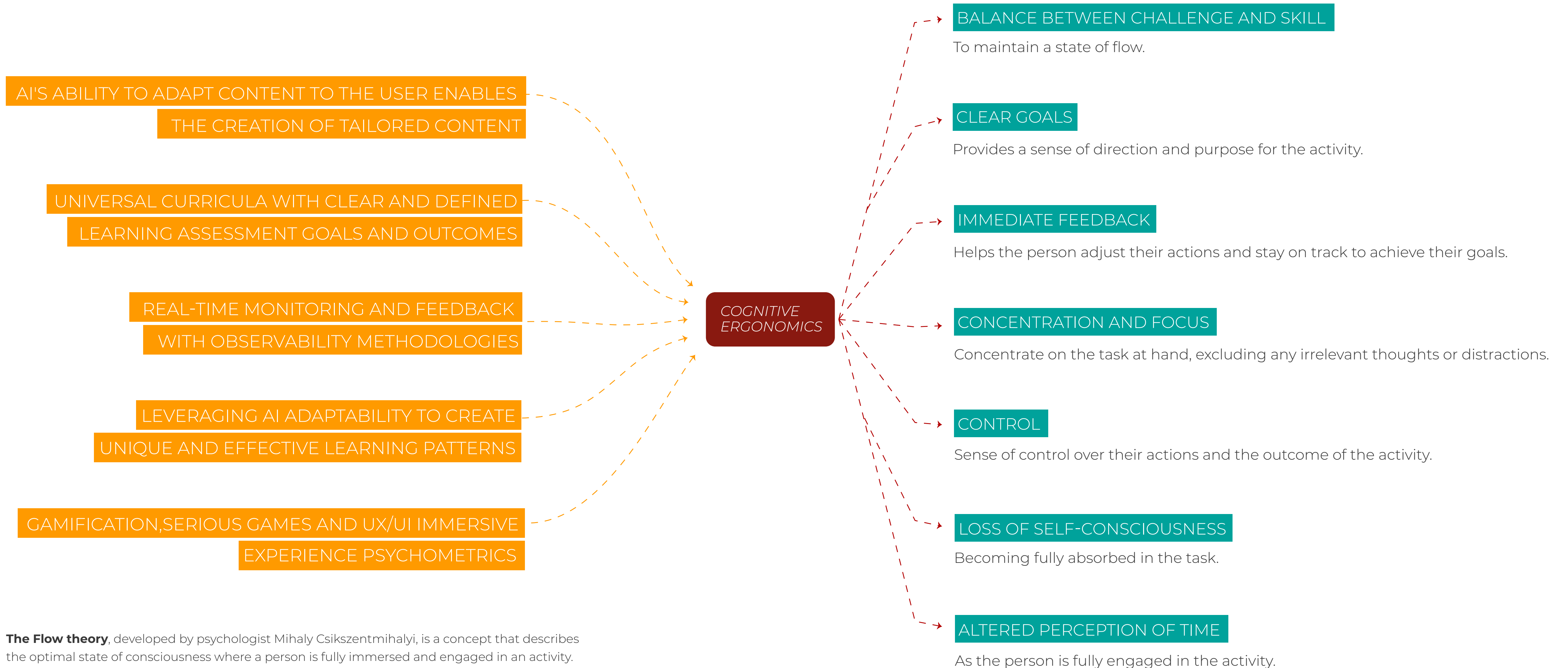
DATA SECURITY

SCALABILITY

PERSONALIZATION

COGNITIVE ERGONOMICS

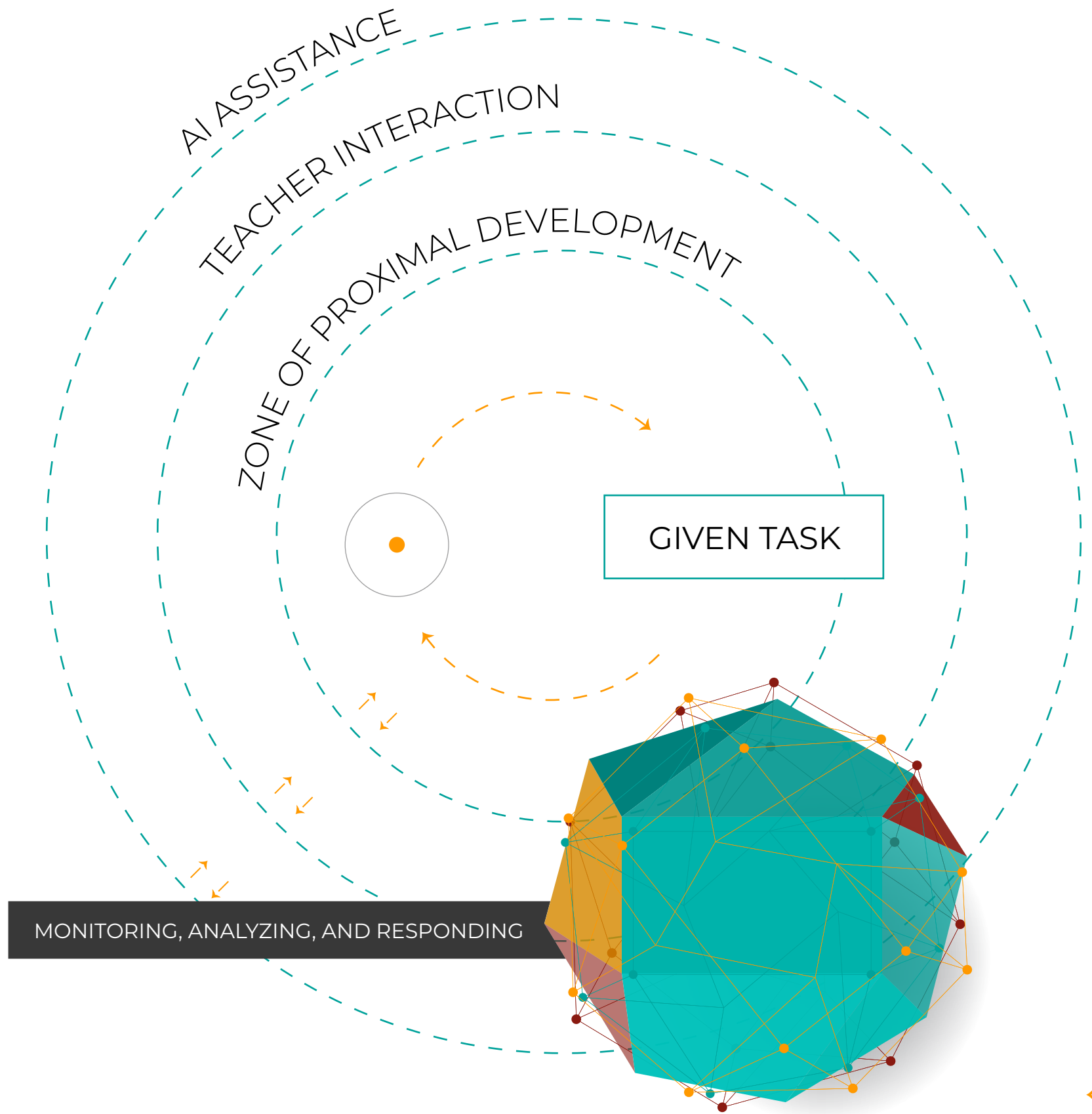
The Pedagogy on the Line of Flow AI Framework



The Flow theory, developed by psychologist Mihaly Csikszentmihalyi, is a concept that describes the optimal state of consciousness where a person is fully immersed and engaged in an activity.

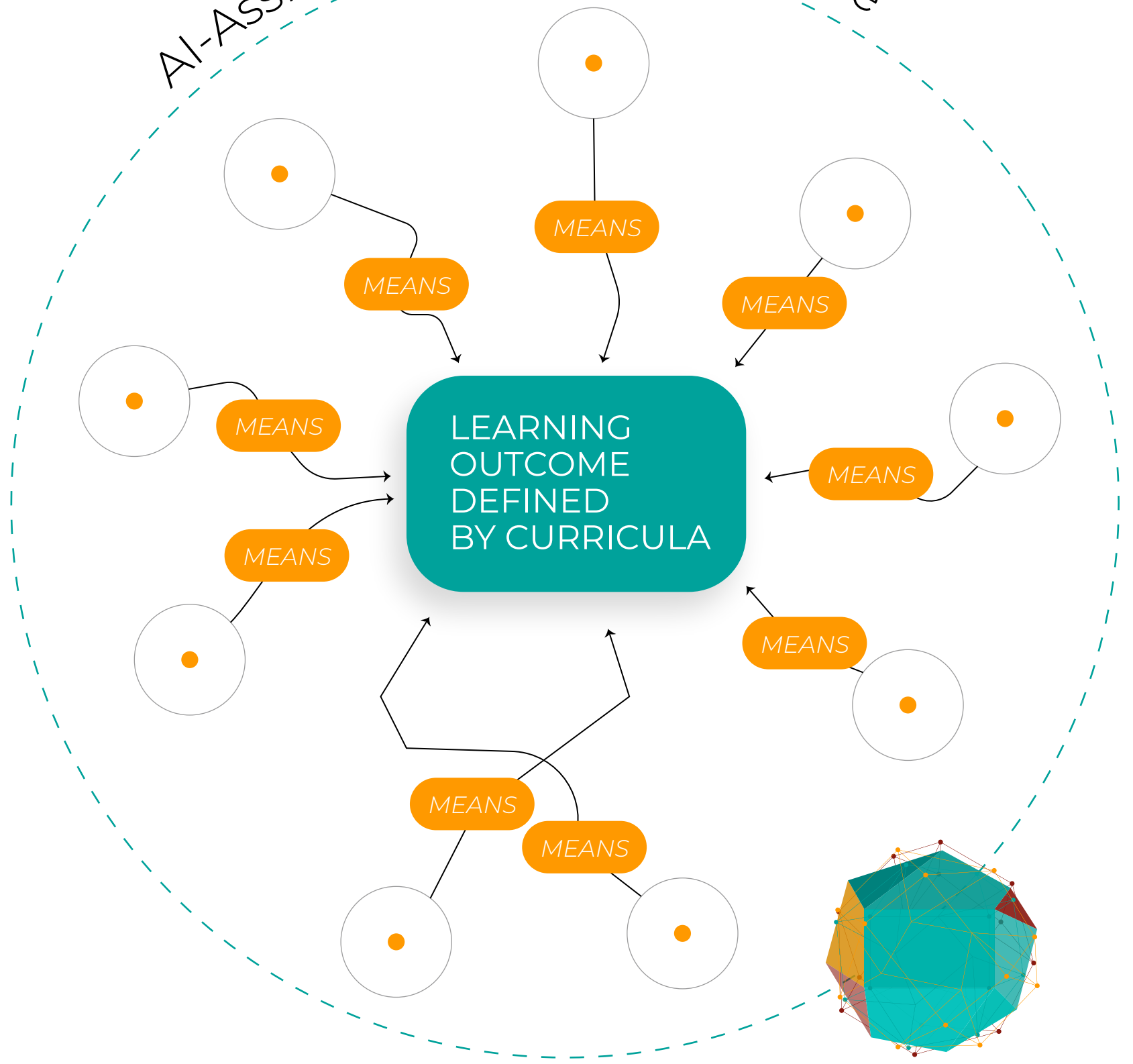
 PUPIL
 MULTILAYER OBSERVABILITY

GIVEN TASK = MEANS



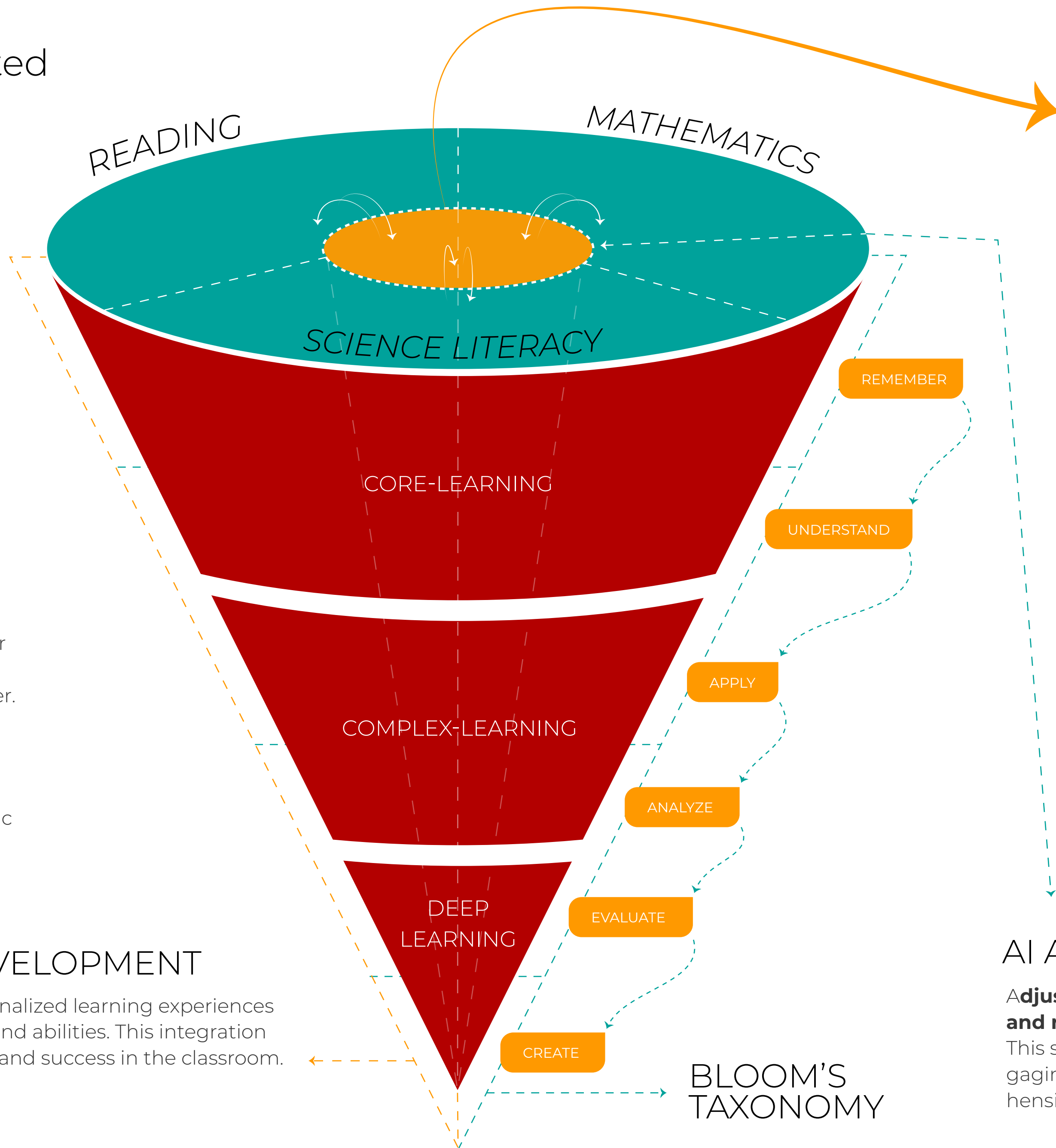
MICRO MACRO

AI-Assisted Equifinality Principle



NATURE OF MOTIVATION
 Energy
 Direction
 Persistence
 Equifinality

Digileac digitally-assisted curricula scheme



CORE-LEARNING

This stage provides a solid foundation for further learning and ensures that all pupils obtain a common understanding of the topic.

COMPLEX-LEARNING

Pupils explore the topic in detail, apply their skills to practical problems, and develop a deeper understanding of the subject matter.

DEEP-LEARNING

Opportunities for mastering the given topic and prepare for advanced studies. Inspired pupils reach their full potential.

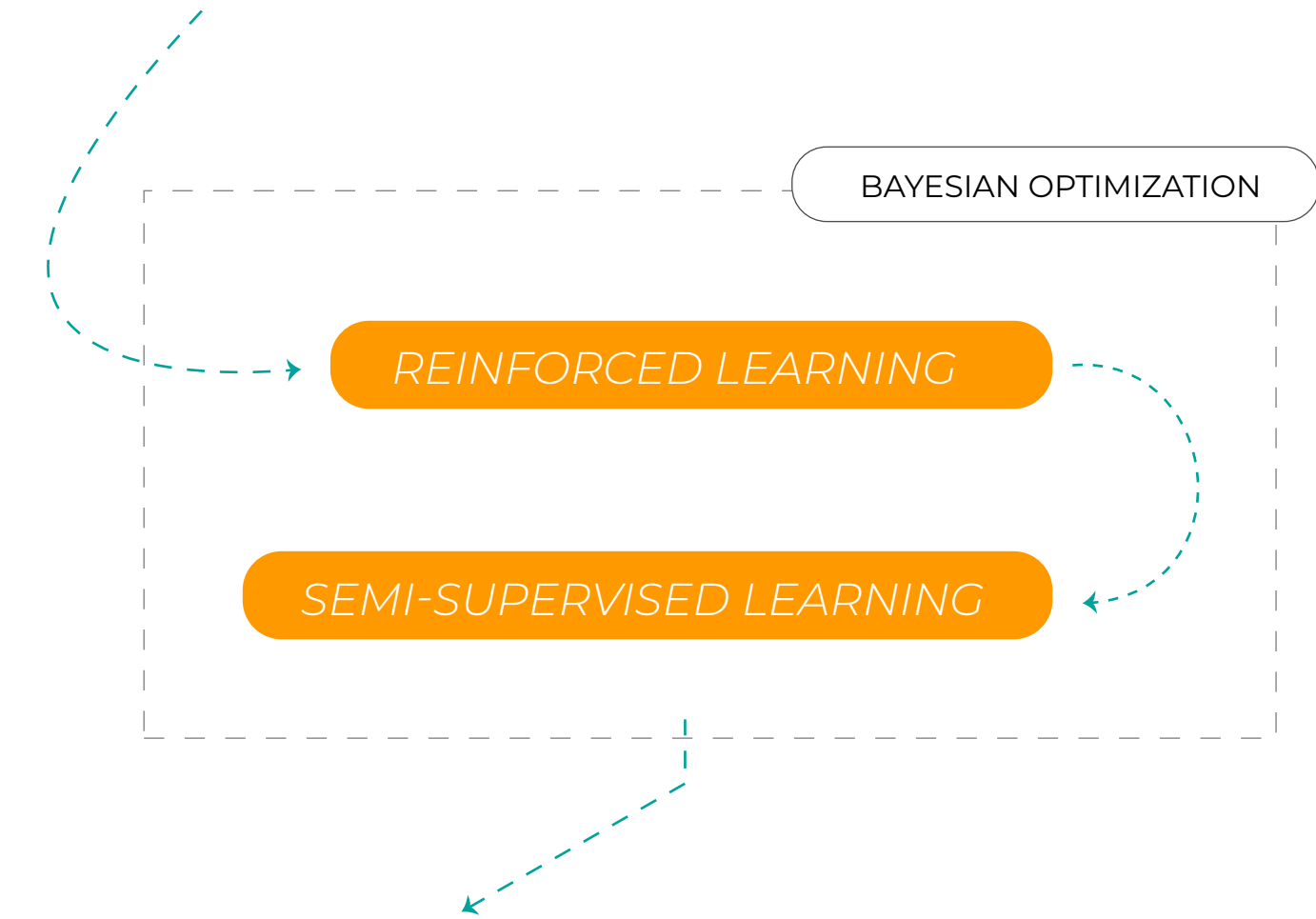
ZONE OF PROXIMAL DEVELOPMENT

ZPD can connect with AI by creating personalized learning experiences for pupils based on their individual needs and abilities. This integration can help to improve student engagement and success in the classroom.

BIG DATA AND ETHICAL EDUCATIONAL DATA MINING

Information will be provided to AI and ML systems to provide personalized exercises. The exercises will be adapted accordingly to align with pupils cultural standards, while maintaining the core educational objectives using AI.

The more exposure to AI, the more accurate and personalized exercises can be provided, as it identifies micro differences such as psychological developmental levels and adjust the content to the most efficient way of learning at that stage.



AI ASSISTANCE

Adjusting the level of difficulty based on their skills and recognizing when additional support is necessary. This self-tailored approach allows for an effective and engaging learning experience, leading to deeper comprehension and retention of each topic.

The state of art of African languages

The language selection is typically based on high-resource languages with a significant amount of digital content, such as: English, Chinese (Mandarin), Spanish, French, German, and Russian.

ORIGINAL CONTENT IN HIGH-RESOURCE LANGUAGE

TESTING NLP STATE OF ART IN AFRICAN LANGUAGE

EVALUATION OF OUTCOME

Assessment will be carried out by native speakers of the target language, who will evaluate the ease with which they can understand the concepts, as well as the grammatical and formal aspects of the content.

- LOW-RESOURCE LANGUAGE
- MEDIUM-RESOURCE LANGUAGE
- HIGH-RESOURCE LANGUAGE

RANKING



AI / ML INTERVENTION

HUMAN INTERVENTION

PROFESSIONAL HUMAN INTERVENTION

ADAPTER

RLHF BY VOLUNTEERS

RLHF BY PROFESSIONAL

CROSS-LINGUAL TRANSFER LEARNING

DIGILEAC NLP

LANGUAGE 1

LANGUAGE 2

LANGUAGE N

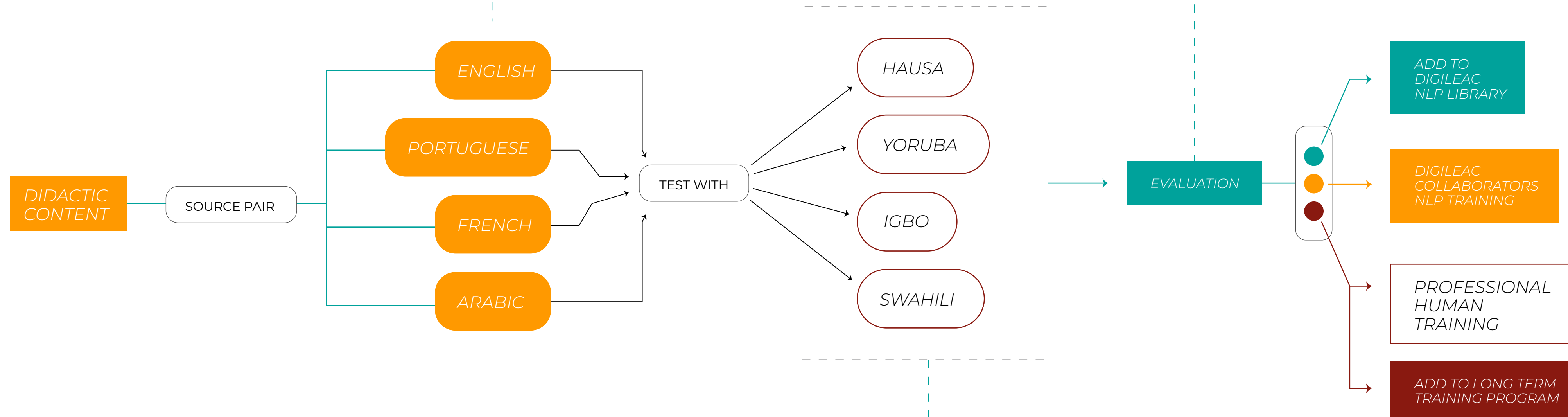
When collaborating with professionals and volunteers, data will be categorized according to mother tongue groups. This approach enhances the quality of cross-lingual transfer between languages that share regional similarities.

The ranking and measurement of languages will be grounded in the vocabulary necessary for student needs. Our focus isn't strictly on creating a vast inference model, but rather on developing a model that accurately understands and interprets curricular standards.

Finding the optimal pair

These languages, selected due to their status as official languages and widespread use in the region, already fall into the high-resource language category, which is the foundation for training major NLP models. By integrating these languages with regional influences, we increase the probability of achieving more accurate translations and text comprehension, as this accounts for cultural intersections.

During the evaluation process, the language that achieves the highest accuracy in relation to the tested pair will be incorporated into the Digileac NLP library and established as a benchmark. Should further training or fine-tuning be needed, these aspects will be addressed in collaboration with our AI professionals. If sufficient resources are available to handle most of the remaining languages, a team of professionals trained in AI models will be assigned. If resources are insufficient, the language will be designated for a long-term training program.

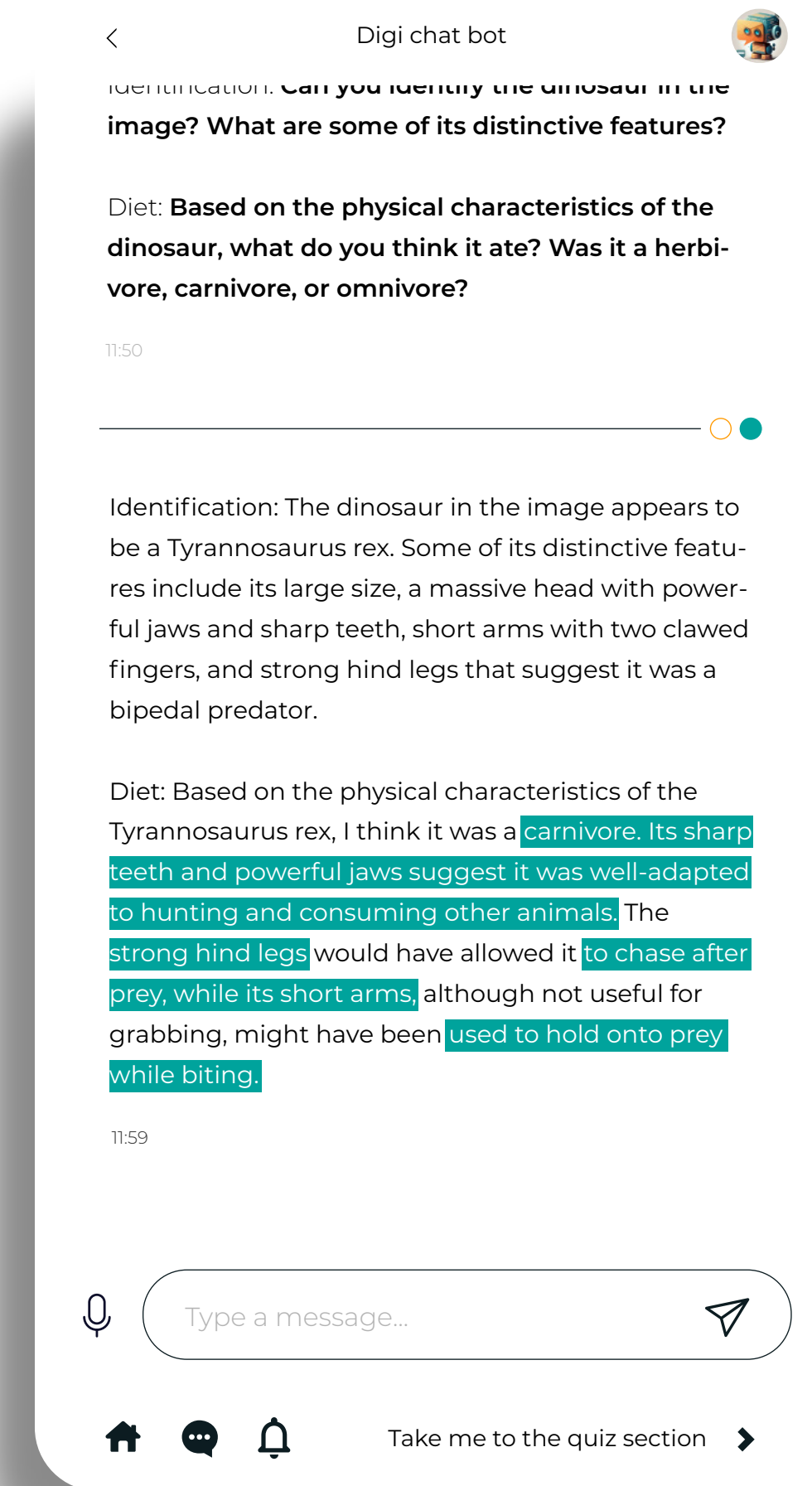
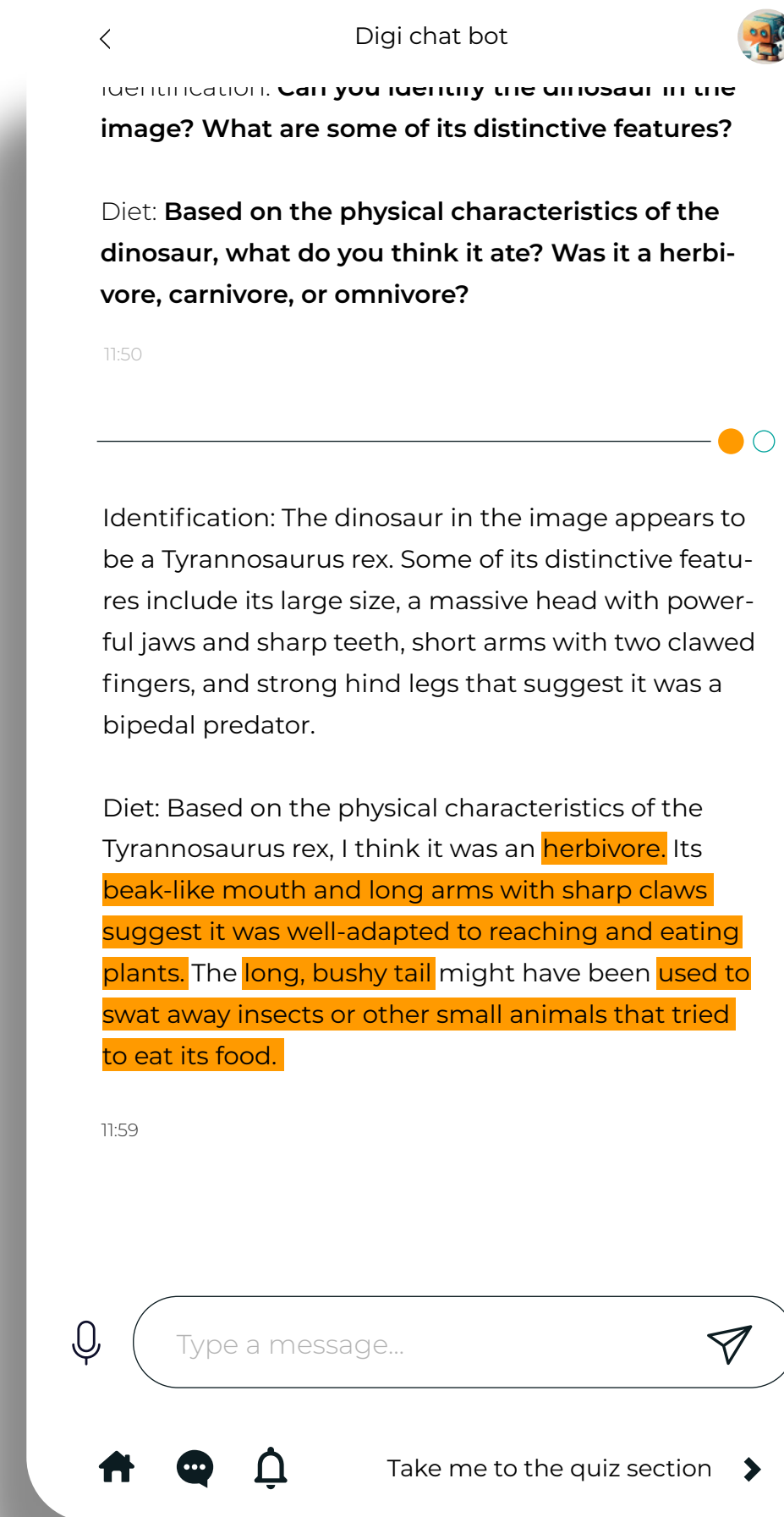
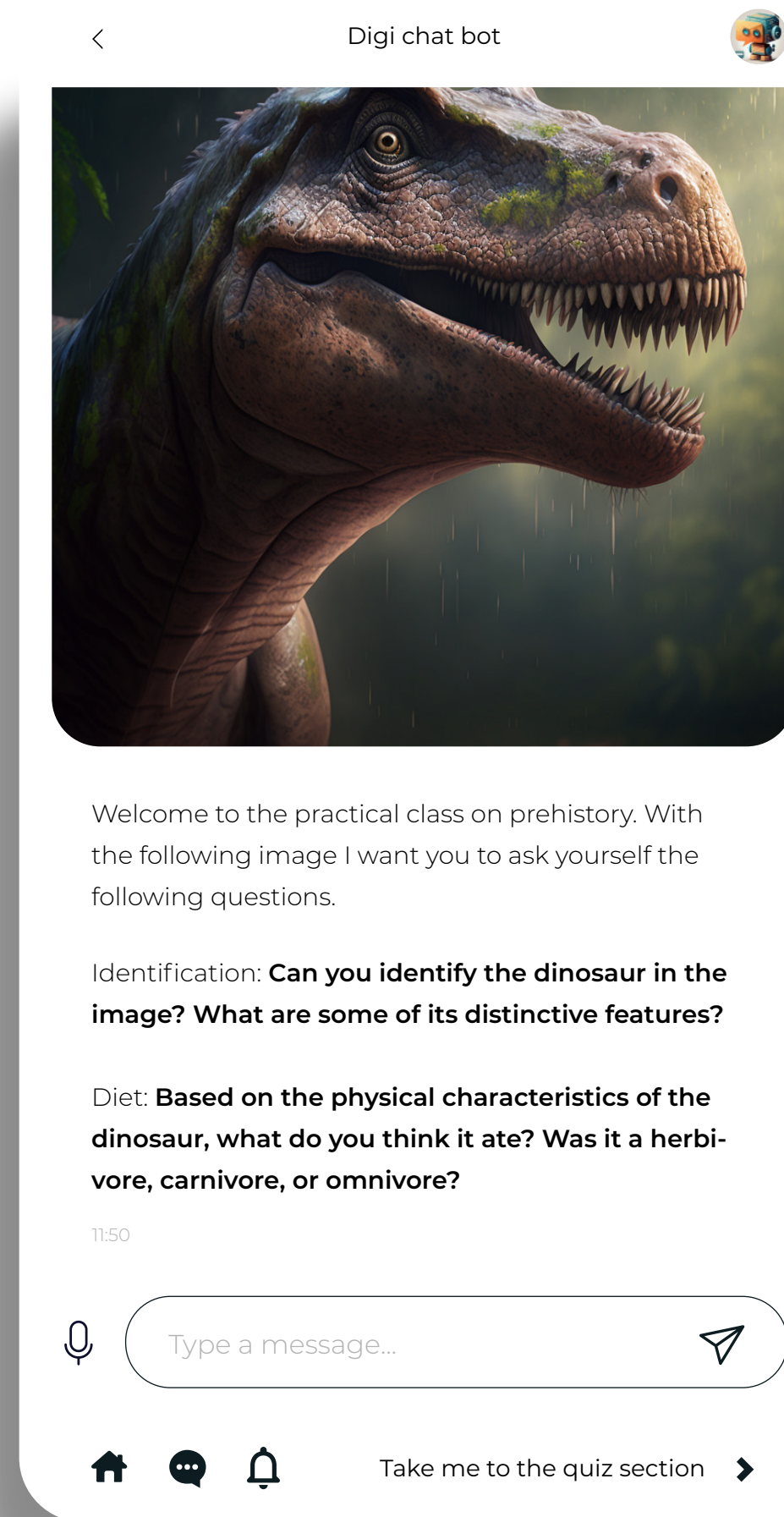


We initially propose pooling based on major languages in Africa. This approach allows us to test the feasibility of content adaptation and check for significant improvements between pairs, determining if multiple original pairs are necessary. In the process, we'll start building a robust foundation for cross-lingual transfer learning within our test pool of languages.



Ai chat INTERACTION 1

Pupils will have the opportunity to engage in a conversational learning experience with a trained AI that provides personalized exercises, offering a wide range of alternative activities. After the student submits their answers, the AI evaluates the responses and presents the correct version, allowing the student to compare both examples and internalize the new knowledge effectively.



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UNIVERSITY
OF TURKU

Join us in turning Digileac into **the next AI educational unicorn**. Together, we can redefine learning experiences, open up new horizons for every child, and illuminate a future where education knows no boundaries or limits.