PERSONALIZED LEARNING PATHWAYS USING AR TECHNOLOGY

THE AIM:

The research presents a method that harnesses Augmented Reality technology to create personalized learning pathways, considering VAK learning styles, the theory of Ebbinghaus' forgetting curve, Leitner space repetition system and Bartle's taxonomy. It involves the development of a mobile application employing marker-based AR technology. This app dynamically adjusts the learning path based on the user's experience and competencies, incorporating the principle of memory retention and accommodating the user's preferred learning style. As a result, learning becomes student-centric, and the suggested approach enhances its effectiveness.

Augmented reality technology:

Augmented reality integration within the realm of education offers students the opportunity to engage in immersive experiences, thereby enhancing the learning process by making it more interactive, efficient, and meaningful.

Personal Learning Pathways:

Our primary concept for designing personalized learning pathways revolves around delivering information to learners using diverse learning styles repeatedly, with gradually increasing time intervals between repetitions. This approach is aimed at enhancing learners' retention of information over extended periods. To achieve this, we plan to merge Ebbinghaus' memory models with Leitner's system.

Algorithm:

In terms of repetition scheduling, if a learner answers a task correctly on the 1st day, the next repetition is scheduled for the 3rd day. If the learner answers correctly again on the 3rd day, the repetition interval increases by one day, occurring on the 5th day. However, if the learner answers incorrectly, the repetition takes place the next day, see attached scheme.
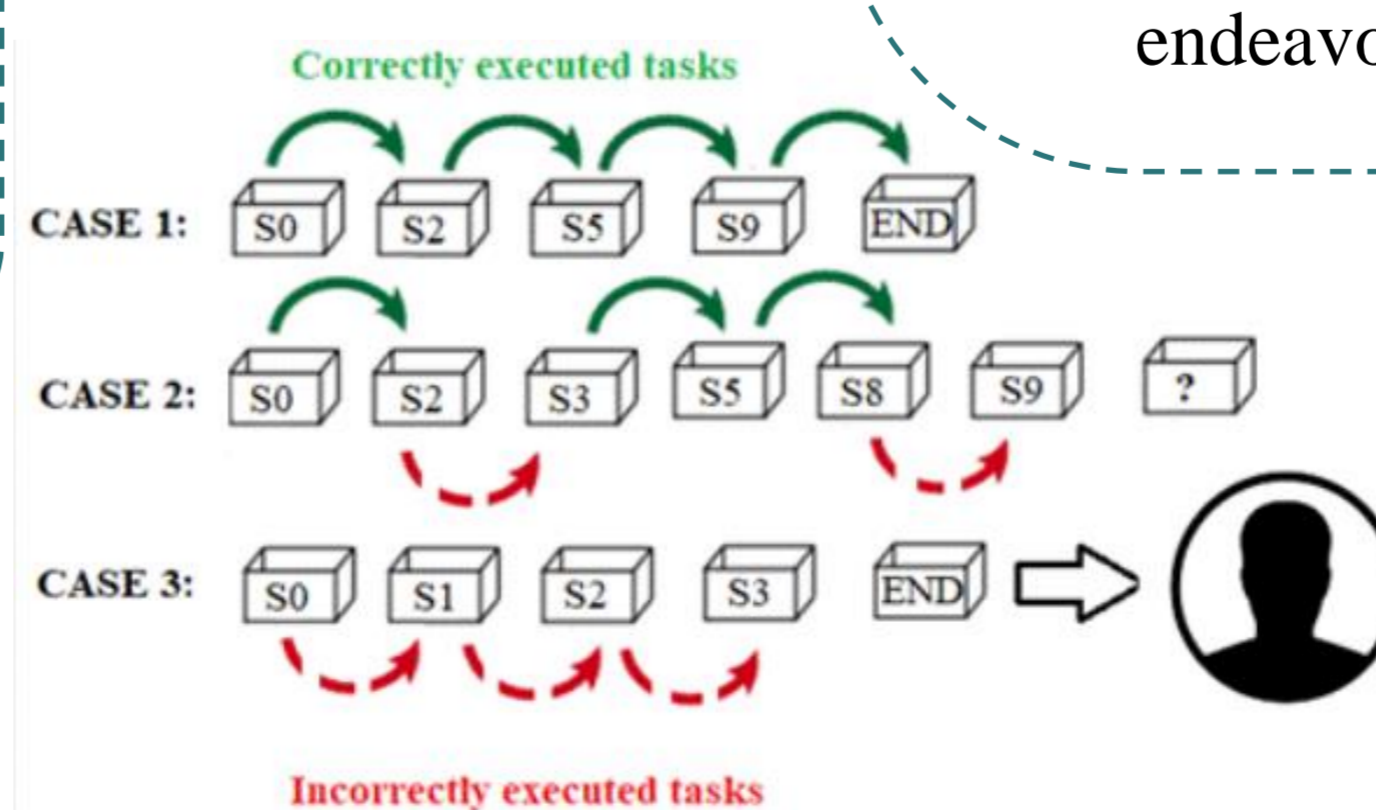
The social-economic impact:

The proposed approach has several significant social impacts:

1. **Innovation in Education**: This approach encourages innovative teaching methods, which can lead to the evolution of traditional educational systems, making them more engaging and effective.
2. **Inclusive Education**: By being applicable to all levels of education, it promotes inclusivity and equal access to educational opportunities. It can cater to a wide range of learners, making education more accessible.
3. **Reduced Educational Disparities**: The student-centered nature of the approach can help reduce educational disparities by tailoring learning experiences to individual needs, regardless of their socio-economic or cultural background.
4. **Cost-Efficiency**: Leveraging technology for learning can be cost-effective in the long run, reducing the financial burden on educational institutions and students. This can make education more affordable and sustainable.
5. **Entrepreneurship and Innovation**: Fostering a culture of self-directed learning and creativity can lead to a more entrepreneurial and innovative society. Individuals with digital skills are more likely to engage in entrepreneurial endeavors, potentially boosting economic growth

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