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THE CHALLENGE OF IMPLEMENTING SMART LEARNING: LEARNING BEHAVIOR READINESS FOR INDONESIAN STUDENTS

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Abstract: Rapid technological changes have caused many changes, including in learning. The effects of information and communication technology (ICT) play a role in reshaping education increasingly emerging. ICTs that are integrated into the classroom have shifted from ICT to supporting traditional teaching to be the main factor that shapes re-teaching and learning. ICTs in education, not only enrich forms of teaching and learning, but also radically change the requirements for skills students must possess namely global awareness, communication and collaboration, critical thinking and problem solving, social and cross-cultural skills, and self-direction and interactive. Learning is understood not only understanding knowledge but cognitive skills, interpersonal skills, intrapersonal skills, and consideration. Smart learning is a learning activity that involves changes in the learner's mental system. The effectiveness of learning depends not only on the external environment but also on the suitability of the learning process with the mental features of students. Smart earning defined as self-directed, motivated, adaptive, enriched resources and the use of technology.

Keywords: Challenge, Smart Learning, ICT

INTRODUCTION

Smart learning is a learning activity that involves changes in the learner's mental system. An effective smart learning cycle consists of three factors: mental systems, learning behavior, and learning outcomes. The key components of the mental system are motivation for learning, meta-cognition, and independence. Efekt smart conditionlearning**if** is that learners have the motivation to accept the task of learning and want to participate in learning activities. Only when learners believe that learning activities have a positive value on their individual development will effective learning occur. Learning behavior is a two-way interaction between students and the learning environment, aimed at causing changes that are relatively stable in what students know and know what they can do. Students can decide on learning objectives and learning progress and choose an adequate learning strategy themselves. What's more, students can use interactive tools to communicate with each other in certain subjects, and learn through online or face-to-face collaboration. Learning behavior can be summarized as information retrieval behavior, information processing, information release, and interpersonal communication**.** The learning outcomes according to Gagne are five categories that include intelligent skills (procedural knowledge), verbal information (declarative knowledge), cognitive strategies (executive control processes), motor skills, and attitudes.

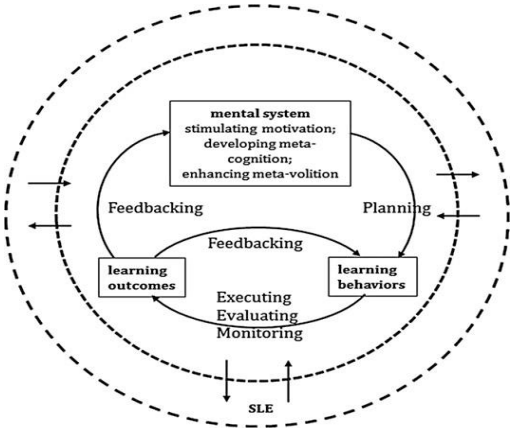
Associated with learning behavior in smart learning where students must decide on learning goals, learning progress and self-learning strategies. Here students must have good self-regulation. This condition is in stark contrast to students in Indonesia where in general students' independence in making decisions and taking responsibility is still in the sufficient category [2] [3], in other studies the level of student independence in the dimensions of desire and self-control is lacking [4]

THEORETICAL STUDY

Smart learning is a learning activity that involves changes in the learner's mental system. Smart learning is a learning mechanism that utilizes device intelligence, along with the

latest ICT for education that emphasizes devices used in intelligent learning (Jo, J., Park, K., Lee, D., & Lim, H., 2014).. smart learning is a learning activity that can enable high learning experiences, high content match, and high-efficient learning (Huang, R., 2014) [1].

A theoretical model for intelligent learning is proposed and shown in Figure 1, which takes effective interaction as the core of the intelligent learning cycle and is supported by SLE. **The smart learning cycle consists of three factors**, namely the mental system, learning behavior, and learning outcomes**. The four types of interactions between learners and SLE connect three factors**, which plan smart learning; implement, monitor, and evaluate intelligent learning behavior; feedback from learning outcomes for learning behavior, and feedback from learning outcomes for mental systems [1]



Gambar 1

An effective smart learning cycle consists of three factors: mental systems, learning behavior, and learning outcomes. **Mental System**. The key components of the mental system are motivation for learning, meta-cognition, and independence. Mental preparation for effective smart learning is arousing the mental system of students, developing meta-cognition, and increasing volition. To effectively arouse the mental system of students, we must inspire their motivation to learn, develop their meta-cognition, and increase their willpower. **Learning Behavior**. Behavior is a series of activities that aim and are motivated. **Learning behavior** is a two-way interaction between students and the learning environment, aimed at causing changes that are relatively stable in what students know and know what they can do. Students in SLE can decide on learning objectives and learning progress and choose an adequate learning strategy themselves. What's more, students can use interactive tools provided by SLE to communicate with each other in certain subjects, and learn through online or face-to-face collaboration. This study of behavior in SLE can be summarized as behavior of information retrieval, information processing, information release, and interpersonal communication.
Learning outcomes. Gagne classifies human learning outcomes into five categories that include intelligent skills (procedural knowledge), verbal information (declarative knowledge), cognitive strategies (executive control processes), motor skills, and attitudes. Each of these categories can cover a variety of people's activities. In this theoretical model, various learning outcomes result from different interactions in SLE

A different definition states that smart learning consists of several characteristics, namely

1. Knowledge - access to related information and the ability to add or modify that information;
2. Task support - the ability to do assignments or provide students with the tools and information needed to perform tasks;

3. Learner sensitivity - the ability to maintain and utilize student profiles in order to provide appropriate support and knowledge
4. Sensitivity context - the ability to recognize a particular situation, including situations where students might need help;
5. Reflection and feedback - the ability to criticize solutions or performance and / or provide timely meaning and feedback to learners based on progress and profile of participants and existing learning assignments. [5]

Zhu et al., 2016 [6] [7] define ten main features of Smart Learning:
1. Be aware of the location: in smart learning locations in real time is important data that the system needs to adjust the content and situation with students;
2. Conscious Context: explore various scenarios and activity information;
3. Social awareness: feeling social relations;
4. Interoperable: setting standards for various resources, services, and platforms;
5. Unlimited connections: provides continuous service when any device is connected;
6. Adapt: encourage learning resources according to access, preferences and requests;
7. Everywhere: predict student demands until clearly stated, provide visual and transparent access to learning resources and services;
8. All notes: record learning paths of data to mine and analyze in depth, then provide reasonable ratings, suggestions and encourage services on demand;
9. Natural interactions: transfer feelings to multimodal interactions, including the position and introduction of facial expressions;
10. High involvement: direct involvement in multi-direction interactive learning experiences in technology-enriched environments.

In another study it was stated that smart learning is a combination of various disciplines, and has several characteristics. In more detail can be seen in Figure 2

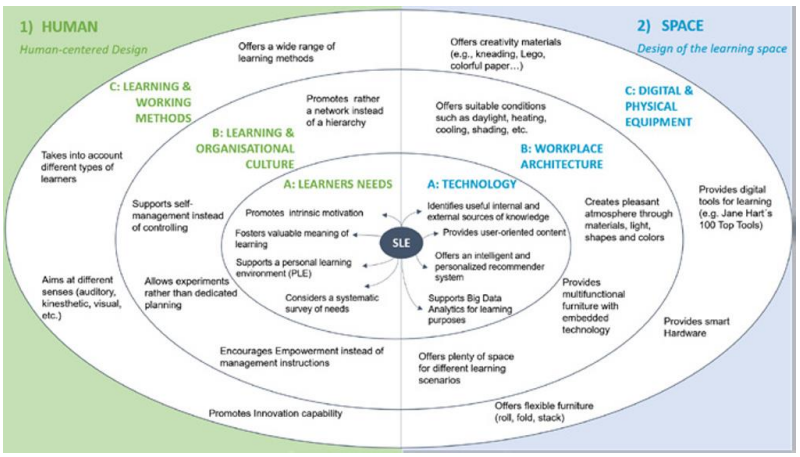


Figure 2

Characteristics in accordance with the picture above are
1. Needs of students
2. Learning and working methods
3. Learning and organizational culture
4. Technology
5. Digital and physical equipment
6. Architecture of the workplace [8]

RESULTS AND DISCUSSION

In discussing theoretical studies, several definitions are discussed regarding smart learning and characteristics of smart learning. In general, the characteristics described by some experts have the same or similar characteristics. some characteristics that in my opinion are students, context / environment, technology, interaction and feedback. For students, the main ability that must be possessed by a student to be able to be seen in smart learning is to encourage the growth of intrinsic motivation, help develop meaningful learning, develop PLE (personal learning environment) [8]; Learning behavior in smart learning is a two-way interaction between students and the learning environment, aimed at causing changes that are relatively stable in what students know and know what they can do. Students in SLE can decide on learning objectives and learning progress and choose an adequate learning strategy themselves [1]. Zhu et al., 2016 defines three characteristics of the ten main features of SLE are adaptability, learning anytime anywhere and unlimited connections [6] [7]. MEST (2011) presents its features of intelligent learning defined as self-directed, motivated, adaptive, enriched resources and use of technology [7], One of which is a major characteristic of smart learning is the ability of individuals to learn on their own, manage learning , set goals and use technology. This means that smart learning will occur if indeed students have the ability to manage personal learning (self regulated learning). Self regulated learning is defined as having the ability to control themselves, manage, and plan their learning actions (Ally, 2004). Such regulation processes have been referred to as self-regulated learning (SRL; Zimmerman, 2008). [9]

The application of smart learning in Indonesia is still difficult to do, based on the results of several studies in Indonesia showing the independence of students learning is still in the sufficient category [2] [3] and in using PhET (alearning software from the University of Colorado. The simulation provided by **PhET is** very interactive inviting students to learn by exploring directly the level of independence of students in the dimensions of desire in learning and self control is very lacking [4], meaning that if smart learning is implemented then the first thing that must be shaped is students' independence in learning. positive correlation between learning independence and student academic achievement [9] Learning independence is meant to control themselves, manage, and plan their learning actions Students must be able to plan when to learn, maintain consistency in learning and manage their own learning.

CONCLUSION

Smart learning can be applied by students in Indonesia if student learning behavior is improved. Learning behavior will be well formed if the things learned are something needed by students, and students believe that what they learn has a positive impact on their development. The implication is that educators must involve students from the beginning of the learning process from starting to set learning goals and targets, managing and selecting learning strategies, so that students understand that learning success is determined by the students themselves.

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