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# Android Application Development of Student Learning Skills in Era Society 5.0

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**Abstract.** The aim of this paper is to discuss the android application development of student learning skills in the era 5.0. Era of society 5.0 is an era that requires every student and people to be able to have critical and constructive thinking skills, it tries to better prepare its human resources as a filter for the challenges posed by industry 4.0 which gave birth to various innovations and industrialization. With the coming of the era of Society 5.0, it is expected to be able to resolve problems and gaps in the virtual and social world systems. To realize or prepare era society 5.0 in the field of education especially in Indonesia, children need to be able to have critical, constructive and innovative ways of thinking and an appropriate understanding of their learning abilities. Therefore, from the above explanation, the development of android application of student learning skills in the era of 5.0 is needed, this is done to support the development of students in their education, especially in the era of society 5.0.

**Keywords:** android application, student learning skill, era society 5.0

## 1. Introduction

Student learning skills are a fundamental ability in the learning process of students at school. Learning ability can also be interpreted as learning achievement which is a fundamental competency that students need to have to study the scope of the material in a subject at a certain level. While learning is an activity carried out consciously of the goals. The goal in learning is the occurrence of a change in the individual. Changes in meaning lead to complete individual personal development [1]. Learning ability as well as learning achievement, is the learning achievement of students who have reached a certain point. The achievement of learning achievement or student learning outcomes, on cognitive, affective and psychomotor aspects [2]. The student's learning ability must necessarily be improved in accordance with the times, because basically humans are always proceeding towards the direction of its development [3]. Therefore, in the learning process at school, the ability possessed by each student can be used to find out how the level of development. The ability comes from the word "able" which means it can or can. Ability is ability, able or able to do something.

Departing from data obtained from the Program for International Student Assessment or commonly referred to as PISA, an international study of literacy achievements in reading, mathematics, and science of 15-year-old school students. In 2019 the results of student assessments that have been carried out show that Indonesian students' reading ability is ranked 72 out of 77 countries, then the math ability score is



ranked 72 out of 78 countries, and the science ability score is ranked 70 out of 78 countries. The three scores simultaneously dropped from the PISA 2015 test. At that time, Indonesia's reading score was ranked 65, science score was 64, and mathematics score was 66 [4].

The program consists of several assessments to measure students' abilities such as reading, mathematics, natural sciences and global abilities. One factor in the low PISA results is the lack of student understanding related to student learning skills possessed. Among Southeast Asian countries, Indonesia is at the bottom along with the Philippines which ranks last in reading and scores before last in two other fields.

Meanwhile, remembering the development of an increasingly dynamic era and entering the era of society 5.0, an era where social societies that have new views and values and are in the fifth stage and were first launched by the Japanese State [5].

So the Indonesian education system or curriculum must always be upgraded, bearing in mind that this era is also a process of globalization that is very fast, accompanied by the evolution of type technologies of digital, such as artificial intelligence (AI), the Internet of Things (IoT), and robotics that will bring significant changes to society, environment and community values [6]. In this era students are required to have constructive critical thinking skills and social skills, so that one day they will have the ability to think at a high level (HOTS).

This is done in order to build the quality of human resources, especially in terms of education. As well as remembering how the Minister of Education and Culture of the Republic of Indonesia who tried to change the learning system that is more free, with the concept of freedom of learning that is the concept of learning that focuses on developing superior potential possessed by each student with various other intelligences such as intellectual, emotional, social, spiritual, kinesthetic intelligence, and can learn life skills [7].

Where there are learning skills or learning styles that need to be understood and known by students in this era such as visual learners, auditory learners, read and write learners and kinesthetic learners. Because learning skills or style is one important and determining factor for each student in the learning process that is achieved, because basically every student has a different learning skill [8].

Therefore based on the above, the development of an android application about student learning skills is very necessary, this is done in order to present applications that can help and facilitate students in understanding student learning skills possessed especially in the era of society 5.0.

## 2. Research method

This research was conducted in several steps and the research method used was research and method, which is a research media that aims to develop a media that is based on research that has been done, in this study, we are still in the design and concept stage. Then, after creating the design and concept, we will continue with the application development step, we use the android application software to create and design applications for student learning skills. Then we conducted an initial trial and the mass trial continued. This research is based on the study of literature obtained from credible references such as books, journals and several other literatures. Then, we also analyze data derived from relevant literature studies. Here we try to find a correlation between every aspect and related indicators in developing this application.

### A. Student Learning Skills

A person's learning ability is shown by changes in the person as well as behavior or appearance, accompanied by other activities by reading, observing, listening, and others [9]. Experience and practice can also be part of the learning process carried out by individuals [10]. Based on the above it can be concluded that learning is the main process of the individual in making changes in behavior or appearance due to the process of experience and repeated exercises.

Meanwhile the ability to learn is a form of growth or change in a person expressed in new ways of behavior thanks to experience and practice and also explains that the new behavior for example from not knowing to knowing, the emergence of new understandings, changes in attitudes, habits, skills, ability to appreciate the development of traits [11]. Ability is also the result of a child's behavior change after learning. Ability is usually described by the value of numbers or letters social, emotional, and physical growth [12].

As we know that individuals have different brain with unique characteristics between the left brain and the human right brain. The right brain has the characteristics of long term memory while the left hemisphere is classified as short term memory. One of the characteristics of learning related to absorbing, processing, and conveying information is called the learning style of students or also known as student learning skills [13]. Other research says that 22 out of 30 students can learn on average effectively when their teacher can present learning process activities that seek to combine visual, auditory, and kinesthetic. [14].

The absorption of information in the learning process in class also depends on how people work on it. By giving instructions to children, we through the power of learning styles, will see a change in attitude quickly and a high level of success. Thus, it can be said that the characteristics of learning styles or the characteristics of student learning skills possessed by students are one of the most influential modalities [15].

In fact students' learning skills are a mixture of several learning styles carried out. There are three learning styles that need to be known and understood by a student, namely visual, auditory, and kinetic learning styles. Where each learning style is divided into two factors, namely internal factors (depending on the ability of individuals to manage thoughts and imagination) and external factors (depending on external media as a source of information) [16]. Following are the principles that need to be understood in understanding student learning skills in schools [17]

**Table 1.** Table principal of student learning skills

No	Principal of Student Learning Skills	Description
1	Balance	Balance planning between learning styles and activities from visual, auditory, read/write and kinesthetic learning styles
2	Planning	The teacher needs the characteristics of deep learning styles planning learning. If you need to make observations first first in learning.
3	Collaboratin	Learning style implementation will run well if the school gives flexibility to the teacher to involve all means and school infrastructure starting from the surrounding environment and adjusted with the characteristics of student learning styles
4	Differentiation	To produce good output you should need differentiation / grouping of students according to student learning styles for facilitate the teacher in teaching.
5	Learner Awareness	The need for student awareness and student clarity that he has a tendency for learning styles according to his.

<sup>17</sup>Reid (2015: 92)

The table above explains the principles that must be understood and mastered in theory and practice by each educator in providing the learning process in the classroom, one of which is by first identifying the student learning skills possessed by students in the class, so that this will facilitate the educators in achieve the output or learning objectives themselves, here are the characteristics of each student learning skill that needs to be understood and mastered in the era of society 5.0 [18].

**Table 2.** Table student learning skills

No	Student Learning Skills	Characteristics
1	Visual Learner	<ul style="list-style-type: none"> <li>• Information/lessons are easier to know and understand if in visual form has a strong sensitivity to color</li> <li>• Has advantages in a strong understanding of the artistic</li> <li>• Have a difficult understanding when following verbal recommendations</li> <li>• It is often wrong to interpret words or sayings</li> </ul>
2	Auditory Learner	<ul style="list-style-type: none"> <li>• Information is more easily digested and understood through hearing</li> <li>• Information absorbed in written form directly is difficult to understand</li> <li>• Having difficulty in the process of writing or reading directly</li> <li>•</li> </ul>
3	Read & Writer Learner	<ul style="list-style-type: none"> <li>• Receive information by rewriting the information.</li> <li>• They strengthen information by reading and summarizing it or by taking notes (sometimes word for word) and lists.</li> <li>• Similar to visual learners, they like to be taught scientific concepts with diagrams, pictures, graphs, and explained in written language.</li> <li>• They are a fast reader, and a skilled writer.</li> <li>• Children with read-write learning styles will be very difficult if directed or taught verbally and are easily distracted by minor disorders.</li> </ul>
4	Kinesthetic Learner	<ul style="list-style-type: none"> <li>• Placing hands as the main means of receiving information can keep remembering it</li> <li>• Information can be absorbed through the grip or touch</li> <li>• Can't stand sitting for too long in receiving lessons</li> <li>• Feeling able to study comfortably and better if accompanied with physical activities or practices</li> <li>• Has the ability to coordinate a team and</li> <li>• ability to control body movements (Athletic ability)</li> </ul>

<sup>19</sup>Surjono, H, D. 2011

The explanation above certainly explains and illustrates the character possessed by students about student learning skills. So based on the explanation table above, the teacher or educator in the school must be able to understand the role and the right strategy in understanding and implementing the learning process properly.

So the process will be more meaningful. An understanding of student learning skills for teachers and students will provide effective solutions in the learning carried out, so that the comfort of learning can be adjusted to student learning skills in school. Although it is necessary to consider factors that affect student learning skills of students in school such as physical, emotional, sociological, environmental and learning modality with their environment and type. The following are strategies or learning methods that can be done by teachers in schools to find out the right teaching or identification methods related to student learning skills:

**Table 3.** Strategy learning of student learning skill

No	Type/Method	Strategy/Role
1	Visual learning style strategies	<ul style="list-style-type: none"> <li>• Students more easily understand the lesson if the teacher provides learning styles using visual material such as drawing, writing, diagrams and maps</li> <li>• Give color to things that are important</li> <li>• Invite children to read books that have pictures</li> <li>• Utilizing visual media such as videos or computers</li> <li>• Use a variety of graphic forms to convey</li> <li>• Information or subject matter.</li> </ul>
2	Auditory Learning Style Strategies	<ul style="list-style-type: none"> <li>• Using sound media in learning like using</li> <li>• tape recorder as a medium for learning.</li> <li>• Conducting interviews or discussions while studying</li> <li>• Verbally review each end of the lesson friend or teacher</li> <li>• Encourage children to participate in every discussion that is carried out verbally</li> <li>• Invite children by reading subject matter loudly and regularly</li> <li>•</li> </ul>
3	Read & Writer Learning Style Strategies	<ul style="list-style-type: none"> <li>• The teacher needs to encourage them to write as many notes as possible, write them down according to their language, and learn from them. By way of rewriting this they can easily remember what writing he wrote.</li> <li>• The teacher needs to provide and organize all of his needs for writing. Ask him to write down important points from the lessons or books used at school.</li> <li>• The teacher needs to increase writing practice. Usually a child with this learning style is a hobby of writing and he will be happy with a variety of writing exercises compared to other practices that involve physical or numeracy.</li> <li>• The teacher needs to explain diagrams, graphs, or mathematical data using spoken language. Because if only explained through pictures, usually they will digest it ambiguously or there are some aspects that do not arrive.</li> <li>• The teacher needs to arrange the learning area so that it has as few distractions as possible. Children with this type will find it very difficult to learn or digest the information they read and write if there is interference.</li> <li>• Finally, it is necessary to make multiple choice questions or short questions. Because they think through reading, and prefer to be asked to choose or fill rather than answering case studies in the form of essays..</li> </ul>
4	Kinesthetic Learning Style Strategies	<ul style="list-style-type: none"> <li>• Invite students to study regularly and not for hours</li> <li>• Invite students to learn by exploring and exploring the environment, for example: learn to plant by practicing directly</li> <li>• Allow students to chew on something like candy when learn</li> <li>• Mark important things in reading by using colors</li> <li>• Invite students to learn by listening to music while moving the body according to the rhythm</li> <li>• Learning based on or through experience with using various models or models</li> <li>• Learn while playing</li> <li>• Learn by looking directly in the field</li> </ul>

<sup>18</sup>Hamzah (2012)

### B. Integration of Student Learning Skills in Era Society 5.0

The Japanese government has begun to develop the concept of society 5.0 as an effort to anticipate global trends as a result of the emergence of the industrial revolution 4.0. And is a solution to the challenges that arise as a result of the previous era, namely the era of the industrial revolution 4.0 which is followed by a process of obstacles that marked the world with turmoil, uncertainty, complexity, and ambiguity. [20].

Era of society 5.0 is a form of changing patterns and social systems of society that are able to solve and answer various social challenges and problems through the use of various innovations that were born in the era of the industrial revolution 4.0 as well as the Internet of Things (the internet for everything), Artificial Intelligence (artificial intelligence) , Big Data (large amounts of data), and robots to improve the quality of human life. So that one day they will be able to produce generations that can prosper other communities by utilizing technological developments [21]. In this era, the world seemed to be connected so quickly that there were no more demographic restrictions, especially in communication. The exchange of information becomes very rapid, and becomes a new change for the community [22]. Therefore, the integration of student learning skills in the era of society 5.0 is very necessary especially to support the potential of students, the potential includes knowledge of skills, creativity, abilities and attitudes towards work [23]. Given the challenges that emerged in the era of the industrial revolution 4.0, guidance and counseling teachers are required to be creative and innovative in providing career guidance services to students. Effective and efficient career information services can help students improve career planning [24]. Following is a table in understanding the differences in the era of integrating student learning skills in the era of society 5.0.

**Table 4.** The Development of Era Society 5.0

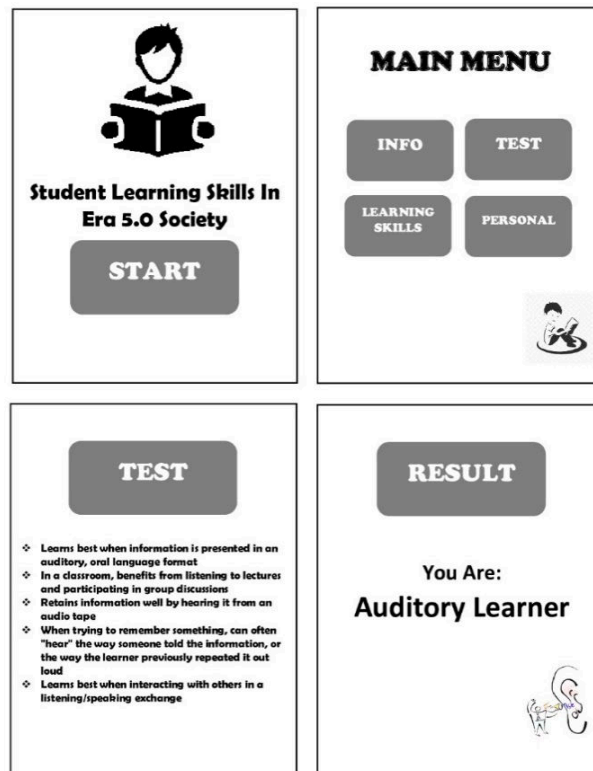
Aspect	Era Society 4.0	Era Society 5.0
Economies of Scale	Liberation from focus on efficiency	<b>Problem Solving &amp; Value Creation</b> “A Society where value is created”
Uniformity	Liberation from suppression of individuality	<b>Diversity</b> “A society where anyone can get opportunities anytime, anywhere”
Concentration	Liberation from disparity	<b>Decentralization</b> “A Society where anyone can get opportunities anytime, anywhere”
Vulnerability	Liberation from anxiety	<b>Resilience</b> “A Society where people can live and pursue challenges in security”
High environmental & Education System	Liberation from resource and environmental constraints	<b>Sustainability Education with Technology &amp; Environmental Harmony</b> “A Society where humankind lives in harmony with nature”

<sup>22</sup>Alfaruqi, U (2019)

### 3. Discussion

#### A. Student Learning Skill in Era Society 5.0 Application

Student learning skills in the era of society 5.0 is something that is really needed. In this case the authors compile and design an assessment tool SDS or called with Self-Directed Search, which is the development of student learning skills in the era of society 5.0 based on student learning style and integrated with the concept of society era 5.0. We developed this assessment tool using an android application. The following is an illustration or illustration of the application that will be developed:



**Figure 1.** Example Design of Student Learning Skill in Era Society 5.0

The android application of student learning skills in the era of society 5.0 has several main features in the application process, including information features, student learning skills tests and the results obtained. In this info section, students are given information about the purpose of the application, the benefits, the types of four student learning skills and their understanding, as well as the concepts and nature of society era 5.0. Then there is the test feature, the part that is filled out by students, in order to find out the student learning skills they have. The results of student answers will be known when completing the test. From here, all plans are well prepared and prepared features and application materials through this application.

This research is in the first step which is related to the preparation of designs and concepts, and tries to develop and strengthen basic concepts rather than student learning skills in the era of community 5.0 as the basis of the material that will be given in making applications. It is hoped that when this application can be utilized, guidance and counseling teachers or school teachers can assist in the process of identifying student learning skills at school, so that this can be a reference media application for each school.



#### 4. Conclusion

In conclusion, research and development of android application development about student learning skills in era society 5.0 is needed by students in schools, because by understanding and knowing the learning skills possessed especially in the era of society 5.0 will support the learning process in schools to be more effective, and able to optimize the abilities owned. It is hoped that this application can help teachers and educational institutions to detect and understand that students have unique and different learning skills.

In further research and development, efforts will be made to make the initial design forms of applications and use of applications in certain groups. And by considering various things such as time of manufacture, the material used, the media used, and the model to be patented. So, for further research, when the application has been designed and made will be tested by application test experts at the same time there will be a mass trial. From this trial, we will determine how effective the application is developed Authors and Affiliations

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#### References

- [1] Majid, A. "Perencanaan Pembelajaran: Mengembangkan Standar Kompetensi Guru", Bandung: Remaja Rosdakarya, 2012, pp. 73-74
- [2] Tohirin, "Psikologi Pembelajaran Pendidikan Agama Islam", Jakarta: PT.Raja Grafindo, 2014, pp. 151-152
- [3] Bhakti, "Bimbingan dan Konseling Komprehensif: dari Paradigma Menuju Aksi", Jurnal Fokus Konseling, vol 1, pp. 93-106, August 2015
- [4] OECD. "PISA 2019 Results: Executive Summary", New York: Columbia University, 2019, pp 1-2
- [5] Fukuda, K. "Science, Technology and Innovation Ecosystem Transformation Toward Society 5.0". International Journal of Production Economics, vol 220, pp 107460, February 2020
- [6] Fukuyama, M. "Society 5.0: Aiming For A New Human-Centered Society". Japan Spotlight, Vol 1, pp 47-50. 2018
- [7] Jahari, J, "Preparing Teachers in the Era of "Independence Learning" in Indonesia", International Journal of Psychosocial Rehabilitation, vol 24, pp 3990-3998, 2020.
- [8] Gohel, K, "Auditory Learning Style: Innovation in Teaching with Context of IQ". Studies in Indian Place Names (UGC Care Journal), vol 40, pp, 5148-5154, 6 March 2020
- [9] Sardiman, A. M, "Interaksi dan Motivasi Belajar Mengajar", Jakarta: PT. RajaGrafindo Persada, 2015, pp. 20-21
- [10] Sanjaya, W, "Strategi Pembelajaran Berorientasi Standar Proses Pendidikan", Jakarta: Kencana Prenada Media, 2011, pp. 112
- [11] Hamalik, O, "Kemampuan Belajar", Jakarta: PT. Bumi Aksara, 2015, pp 21-22
- [12] Conny, S, "Belajar dan Pembelajaran dalam Taraf Usia Anak Dini", Jakarta: PT. Prehallindo, 2018, pp. 25-26
- [13] Sari, A, K, "Analisis Karakteristik Gaya Belajar VAK (Visual, Auditorial, Kinestetik) Mahasiswa Pendidikan Informatika Angkatan 2014", Jurnal Ilmiah Edutic, Vol.1, No.1,

- Nopember 2014
- [14] Siberman, M, L, “Active Learning; 101 Cara Belajar Siswa Aktif”, Bandung: Nuansa Cendekia. 2014, pp 30
  - [15] Chatib, M, “Orangtuanya Manusia: Melejitkan Potensi dan Kecerdasan dengan Menghargai Fitrah Setiap Anak”, Bandung: PT Mizan Pustaka. 2014, pp 56-57
  - [16] Mardiana, M., Rosmawati, R., & Asyari, A. A. A, “Analisis Gaya Belajar Siswa SD Negeri 006 Tanjung Medan”, Jurnal Online Mahasiswa Fakultas Keguruan dan Ilmu Pendidikan Universitas Riau, vol 2 (1), pp 1-10, 2014
  - [17] Reid, Gavin, “Learning Style and Conclusion”. California:Paul Chapman Publishing, 2015, pp 92-93
  - [18] Hamzah B. U, “Orientasi Baru dalam Psikologi Pembelajaran”.Gorontalo: Bumi Aksara, 2012, pp 180-250
  - [19] Surjono, H. D, “The Design of Adaptive E-Learning System Based on Student’s Learning Styles”. International Journal of Computer Science and Information Technologies, vol 5(2), 2011, pp 2350-2353.
  - [20] Umro, J, “Tantangan Guru Pendidikan Agama Islam Dalam Menghadapi Era Society 5.0”. Al-Makrifat: Jurnal Kajian Islam, vol 5(1), pp 79-95, 1 April 2020
  - [21] Bhinekas, R. Y, “Integrasi Model Creative Problem Solving (CPS) dengan pendekatan Model Contextual Teaching And Learning (CTL) Dalam Pembelajaran Fisika di Era Society 5.0”. <https://doi.org/10.31219/osf.io/ewaz8>, 19 February 2020.
  - [22] Al Faruqi, U, “Future Service in Industry 5.0”. Jurnal Sistem Cerdas, vol 2(1), pp 67-79, 2019.
  - [23] Bhakti, C. P., & Rahman, F. A. “Android Application Development of Exploration Career Based on Multiple Intellegence: A model Hypothetical”, Journal of Physics Conference Series, vol 1470, pp 1-11, 25-27 July 2019
  - [24] Veronica, Nia, Purwanta, Edi & Astuti, Budi. “Design and development of a mobile learning for career planning in senior high school”, International Journal of Scientific and Technology Research, vol 9, pp 908-913 2020