



## Heutagogy as Alternative Approach for Learning at Elementary School in the Era of Industrial Revolution 4.0

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**Abstract:** This study aimed to explore more deeply about heutagogy as a learning approach for students in elementary schools in the era of the industrial revolution 4.0 with all the dynamics of the conditions that occurred. The research method used bibliographic research by prioritizing the integrity and accuracy of sources, relationships, meaning relations, and conformity with the research focus. The data collection technique of this research was by studying the documentation of articles related to heutagogy and analyzed descriptively and qualitatively. The results of this study indicated that: (1) Heutagogy was an alternative learning that can be developed by teachers in elementary schools because this approach provided more optimal space and learning expectations for students, by making themselves the control of learning, (2) This approach heutagogy made the atmosphere and learning outcomes more interesting and motivates students to bring out all their abilities in the principles of humanity in the corridor of democratic education, and (3) The application of the heutagogy approach in elementary schools was a very wise alternative because students, facilitated by teachers, can choose and determine something they wanted to learn, without neglecting the general principles of formal learning.

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### Introduction

The world is now entering the era of the industrial revolution 4.0 where information technology has become the basis of human life. The industrial revolution 4.0 is something that has never been experienced in history because it has an impact on almost all aspects of human life (Schwab, 2016). Everything becomes borderless with the use of unlimited computing power and data because it is influenced by the development of the internet and massive digital technology as the backbone of the movement and connectivity of humans and machines. This era will also disrupt various human activities, including the fields of science and technology as well as education.

The Industrial Revolution 4.0 is expected to have a positive impact on human life in the world. This era makes the production process of social life run with the internet as the main support. All objects are equipped with sensor-assisted technology devices and are able to communicate independently with information technology systems (Kohler & Weisz, 2020). It is an era that is colored by artificial intelligence, the era of super computers, genetic engineering, nanotechnology, automatic cars, innovation, and changes that occur at an exponential speed that will have an impact on the economy, industry, government, politics, even opened a debate over the definition of man himself as to place the world as a global village (Lasmawan, 2020).

In the midst of unstoppable world progress, suddenly a global disaster was triggered by the Corona-19 outbreak in the Wuhan province of China. The movement of the Covid-19



virus has occurred massively and penetrated five continents in less than a year (Satgas Covid-19, 2020). Indonesia as one of the countries experiencing the corona pandemic, stately has taken several policies to control the movement of the outbreak. Almost all sectors of people's lives are affected by this COVID-19 pandemic (Kemenkes RI, 2020). All regions in Indonesia are trying to comply with the central government's appeal to suppress the rate of development of the virus, including Bali. One of the regencies in Bali, namely Buleleng, starting Tuesday, March 17, 2020, will not hold a face-to-face teaching and learning process (PBM) directly in schools after the spread of the corona virus. Due to the rapid rate of Covid-19 cases in Bali, the Governor of Bali issued circular letter No. 10 of 2021 concerning the Implementation of Emergency Community Activity Restrictions (PPKM), with one point that the implementation of non-essential activities was closed and 100% work from home was enforced (Gubernur Bali, 2021).

All segments of people's lives, especially in the education segment, now seem to be forced to adapt and innovate more quickly, even though it feels really hard. This Covid-19 pandemic period, if taken on the positive side, can be used as an opportunity to be technology literate. The hope is that after the Covid-19 pandemic, the people will become accustomed to the current system as a learning culture in education (Fitriah, 2020). This prolonged pandemic situation has also made awareness of the importance of cultivating an attitude of independence and high-level thinking skills as early as possible in accordance with the demands of the industrial revolution era 4.0. Independence is an important factor in the growth and development of children. Practically, independence is the ability of children to think and do things by themselves to meet their needs to make them no longer dependent on others (Sa'diyah, 2017), this case, the child will be able to direct, control himself in thinking and acting and automatically, the child will be able to do simple things on his own, take the initiative, always try something new that provokes his ability to think critically. Relying on the quote above, this paper is more focused on efforts to describe the importance of heutagogy-based learning which has been reflected in several elements of innovative learning models in elementary schools.

Heutagogy which is also called a learning approach where students can determine what they are learning and how to learn and know what they need in learning a certain concept, it is a new thing in the world of education which is believed to be able to accommodate and develop the independence and critical reflective attitude of students. Blaschke (2016) states that actually a student needs to reflect critically on themselves, know how to act, learn in a way that is believed to be able to solve problems that have the potential to be a source of problems within him. As an alternative learning approach, heutagogy implemented by teachers in elementary schools is expected to provide more optimal space and learning expectations for students, by making themselves the control of learning. Learning can also be packaged innovatively by combining heutagogy with other learning models according to the topic of discussion to make the student learning atmosphere becomes fun. When the learning atmosphere is fun, students' motivation will be greater to learn and find a concept for themselves. With heutagogy-based learning, the atmosphere and learning outcomes will be more interesting and encourage students to bring out all their abilities and initiatives in learning. In addition, students will be able to choose and determine what they want to learn with the facilitation of the teacher, without ignoring the general principles of formal learning. With this rationale, this approach is believed to be in accordance with the needs of today's basic education and has important implications for educational practice in the 21st century, especially in the development of individual abilities.



## Research Method

This study used the bibliographic method by making books, magazine articles, and other related documents as subjects and objects of research. The data collection instrument used a documentation study guide and a check list for the suitability of meaning. Literature study is a research activity carried out by collecting information and data with the help of various materials in the library such as reference books, similar previous research results, articles, notes, and various journals related to the problem to be solved. Activities were carried out systematically to collect, process, and conclude data using certain methods/techniques in order to find answers to the problems encountered (Sari, 2020).

The data collection process was carried out on an ongoing basis, by making a number of articles, books, and other references indexed by Scopus, with the reputation of Sinta, Google Scholar and Garuda and every reference or source of information positioned parallel, to search for academic knots, until a conclusion was drawn on the contents of all the references reviewed were in accordance with the objectives of this study. The entire data was analyzed using qualitative descriptive analysis, namely by describing and outlining the data through several expert opinions which are expected to provide comprehensive facts (Moto, 2019). The similarities, differences, and complementarities, especially those related to the focus of the research carried out, were then drawn a final conclusion as a result of searching for information and described systematically in accordance with scientific principles.

## Results and Discussion

### Heutagogy, An Alternative

The industrial revolution 4.0 also triggered a new educational paradigm, namely education 4.0, which gave rise to a new terminology, namely heutagogy (Sulistya, 2019). This approach is an alternative solution in increasing effectiveness in learning. Hase and Kenyon introduced the term heutagogy in 2004. Heutagogy (pronounced *hyo-toh-goh-jee*) comes from the Greek 'heuriskein' which means 'to discover'. Based on this, the term heutagogy is defined as a learning approach that allows students to discover for themselves (Ilieva et al., 2019). The essence of heutagogy is that in some learning situations, the focus should be on what and how the learner wants to learn, not on what will be taught Curriculum with a flexible heutagogy approach can be implemented at all levels of education (Saepudin, 2019). This is important to underline because heutagogy is an approach that is available to students of all ages to make the elementary school level as the first and main door of education, really needs an approach that is in accordance with the demands of globalization. Blaschke, who focused on exploring heutagogy in one of his articles entitled Strategies for Implementing Self Determined Learning (Heutagogy) emphasized that children are capable enough to be independent and they must be prepared from a young age to be able to carry out this heutagogy-based learning (Blaschke & Hase, 2016).

Heutagogy is a progression from pedagogy to andragogy. Students in carrying out this heutagogy approach will be more independent, while students who do not understand need more guidance from educators (Richardson et al., 2017). Furthermore, the differences between pedagogy, andragogy and heutagogy are also explained as follows:

*First*, pedagogy is learning that depends, is entrusted or processed by educators. The role of educators is to design learning, as well as identify learning materials and learning resources. Learners depend on educators, and have little responsibility for learning. Learning is done linearly and sequentially. Learning focuses on the material and must meet a specific curriculum. The learning motivation of students is extrinsic, such as parents, educators and others.



*Second*, andragogy (independent learning), students have autonomy in their own learning process. Students try to accept more responsibility in learning to make students seek guidance in learning. The focus of learning is on the achievement of learning objectives. Learning encourages interdisciplinary and autonomous thinking. Students' learning motivation comes from within themselves (intrinsic), where students like the increase in self-esteem that comes from learning. Meanwhile, educators only function as facilitators who assign tasks to encourage students to use various methods or paths in identifying solutions.

*Third*, in heutagogy students are problem seekers and enthusiasts of challenges, to make the learning patterns are not linear and not sequential. Students are fully responsible for their learning activities and the focus of learning is based on inquiry, then the learning process is aimed at the long term. The motivation of students flows and they know how they learn. In addition, students look for unusual situations as a source of learning to acquire adaptive competence. The function or role of educators is to foster and encourage collaboration and student curiosity.

The development of heutagogy as a process of learning activities applies at least four principles, namely: First, according to the concept of self-determined learning, learning must reflect the learning situation in which most of the process is determined by the students themselves. Second, in accordance with the key concepts of the heutagogy approach, learning includes a “two-way learning process” and self-reflection. Third, each material must contain 4 elements of learner-centeredness, namely (a) learner-defined learning contracts, (b) flexible curriculum, (c) learner-directed questions, and (d) flexible and negotiated assessment. Fourth, in accordance with the objectives of the heutagogy approach, the learning process must emphasize the development of autonomous learning capacities and competencies of learners in the context of lifelong learning (Redjeki & Moedzakir, 2017).

### **Packing Heutagogy as Learning in Elementary School**

Heutagogy can be packaged with a learning design that puts forward the principles of honing critical thinking skills (critical thinking), collaborating (collaboration), creativity (problem solving), and independence in learning activities. Three learning designs and instructional strategies that can be used as a supporting capacity for 21st century educator competencies and efforts to achieve 21st century skills are: (1) Project Based Learning , (2) Project Based Learning, and (3) Cooperative Learning (Prayogi & Estetika, 2019). Several research results show data that online learning activities during the pandemic lead to the principles of heutagogy with learning that applies critical, collaborative, and creative thinking skills through Project Based Learning, Problem Based Learning, and Cooperative Learning models that can be assisted by various technologies. information and communication.

There are 10 research articles in elementary schools that took place during the Covid-19 pandemic and were in accordance with the elements of heutagogy and had been published in an accredited e-journal of Sinta which was assisted in its application by various information and communication technologies, shown in the table as follows.

**Table 1. Application of Heutagogy Elements in Learning Models along with Description of Research Results**

No	Research Type	Research Title	Research Result
1	Classroom Action Research	Model Pembelajaran Daring Berbasis Proyek Untuk Meningkatkan Rasa Percaya Diri Peserta Didik Kelas I SD Negeri Rejodadi (Nuraini et al., 2020).	In the first cycle the confidence level of students was 57% and the results in the second cycle the students' confidence level





				had reached the target of 88%.
2	Classroom Research	Action	Model pembelajaran <i>Project Based Learning</i> Berbantuan <i>Platform Zoom Meeting</i> Pada Siswa Kelas V SD 1 Pecangan (Fadhililla & Dirgantara, 2020).	Completeness of thematic learning in online learning by applying the Project Based Learning model assisted by the Zoom Meeting Platform increased from cycle I 47% to 88% after cycle II
3	Classroom Research	Action	Model <i>Problem Based Learning</i> Meningkatkan Hasil Belajar Siswa Sekolah Dasar Kelas IV di SD Negeri Karangwuni 03 (Mulyani, 2020).	There was an increase in student learning outcomes from cycle I to cycle II, namely the value of cognitive, affective, and psychomotor learning outcomes
4	Classroom Research	Action	Penerapan Model <i>Problem Based Learning</i> Untuk Meningkatkan Motivasi Belajar IPA Siswa Kelas IV Sekolah Dasar Siklus II (Yasmini, 2021)	The increase in students' learning motivation in the first cycle with classical completeness of 82.35% increased in the second cycle to 100%,
5	Classroom Research	Action	Penerapan <i>Online Problem Based Learning</i> Meningkatkan Keterampilan Menulis dan Kepercayaan Diri Siswa Kelas V Sekolah Dasar Pageron, Kabupaten Purworejo (Nurussyifa, 2021)	The improvement of students' writing skills was 63.11% in the first cycle, 74.71% in the second cycle, and 86.62% in the third cycle. Students' self-confidence also increased by 62.53% in the first cycle, 71.86% in the second cycle, and 83.66% in the third cycle.
6	Classroom Research	Action	Penerapan <i>Problem Based Learning</i> Dalam Pembelajaran Daring Pada Siswa kelas VI Ngrawoh Kecamatan Kradenan Kabupaten Blora Semester 1 Tahun Pelajaran 2020/2021 (Yuniati, 2021).	The increase in student learning outcomes with the acquisition of an average score in the first cycle is 68.75%. While in the second cycle, students obtained learning outcomes with an average value of 86.25%.
7	Classroom Research	Action	Upaya Peningkatan Hasil Belajar Siswa Dalam Pembelajaran Daring Melalui Model <i>Problem Based Learning</i> Siswa Kelas IV SDN Sambeng Tahun 2020/2021 (Ismoyo, 2020)	The average score in the first cycle was 71.3 with 46.67% classical completeness, an increase in the second cycle with an average value of 82.68 with 80% classical completeness.
8	Survey Research		Implementasi <i>Problem Based Learning</i> (PBL) dalam	The <i>Problem Based Learning</i> model in distance

		Pembelajaran Jarak Jauh di MI Al-Mursyidiyyah Selama Masa Pandemi (Camelia & Maknun, 2021)	learning during the Covid-19 pandemic obtained questionnaire results that as many as 66.7% expressed enthusiasm and enthusiasm and 33% stated that they were quite enthusiastic and enthusiastic in online learning.
9	Experimental Research	Penerapan Pembelajaran Daring dengan Metode <i>Cooperative Tipe Make a Match</i> Terhadap Meningkatkan Hasil Belajar Siswa Pada Mata Pelajaran IPA kelas V di SD Muhammadiyah Karangploso (Purwanti & Saputri, 2020)	improve student learning outcomes in science subjects for class V at SD Muhammadiyah Karangploso with the results of the calculation of tcount being greater than ttable, namely $10.514 > 2.036$
10	Library Research	Model Cooperative Learning Tipe Think-Pair-Share Untuk Meningkatkan Efektivitas Pembelajaran Siswa Sekolah Dasar Di Era New Normal (Fanny et al., 2021)	The TPS type of Cooperative Learning model is proven to be effective in learning in elementary schools

There is complete learning with the Project Based Learning learning model in online learning because during PBL, teachers share how, during a pandemic, their students continue to work on projects in order to make learning can be meaningful. Students work on projects and activities that are interesting and relevant to their lives. In addition, disclosing problems as the beginning of learning makes them able to think more critically, then collect and integrate new knowledge based on their experiences to make the inquiry process can be raised with a guiding question. Educators also provide guidance to students in a collaborative project that integrates various materials in the curriculum (Tirtawati, 2020; Hira & Anderson, 2021).

Furthermore, with the PBL model, students gain benefits, namely; improve critical thinking, analytical, argumentative, and problem solving skills (Ismoyo, 2020; Yuniati, 2021; Camelia & Maknun, 2021). The application of the Problem Based Learning model in distance learning improves learning outcomes, improves learning activities, and increases students' learning motivation because in problem-based learning, students are given the opportunity to learn actively, seek information, think critically and solve the problems they face to make them more sensitive. , are more independent and actively develop their own skills and are even able to face all the challenges of the times (Loppies et al., 2021; Choon et al., 2021).

This learning model has practical steps and can be implemented without a crowd of students. This is in accordance with the new normal conditions that are currently being undertaken. Therefore, the TPS type Cooperative Learning model is suitable to be applied to learning in the new normal era (Fanny et al., 2021). Improving learning outcomes with the cooperative learning model during the Covid-19 pandemic causes students to connect with each other in cyberspace which led students experience difficulties in collaborating, but with the Cooperative Learning model the character of the collaboration can be implemented, and students gain meaningful learning and can be used as equip them to find solutions to the problems they face by collaborating positively which causes them to interact and

communicate more to strengthen their responsibilities as students (Firnanti & Marzuki, 2021).

Research that took place in elementary schools during the Covid-19 pandemic was in line with the principles of heutagogy and supported by rapid technological advances in the era of the industrial revolution 4.0, heutagogy provides a promising framework to take advantage of this growing trend, referring to the theory of learner-centered education strongly emphasizes the autonomy of learners in line with the principles of heutagogy or self-determined learning. The main principles of heutagogy which are learner-centered, self-efficacy, ability, reflection and metacognition, and multiple-cycle learning provide the basis for designing and developing a learning ecology, whose potential can be further maximized through the use of digital media (Blaschke et al., 2019).

Based on the research findings above, a common thread can be drawn regarding the linkage of the educational process in the 4.0 era with the basic elements that have been the hallmarks of the heutagogy approach as shown in the following table.

**Tabel 2. Elements of Heutagogy**

<b>Element</b>	<b>Description</b>
<i>Exploration</i>	Learning; create a culture of discovery and inquiry.
<i>Creativity</i>	Development of new content by building on what has been learned.
<i>Collaboration</i>	Work with others to build and build new knowledge and content.
<i>Connection (Community)</i>	Connect with others both inside and outside the classroom to create new networks to support learning; create a personal learning environment for lifelong learning.
<i>Reflection</i>	Connect with others both inside and outside the classroom to create new networks to support learning; create a personal learning environment for lifelong learning.
<i>Assessment</i>	Consider how and whether learning has occurred both individually and as a group; establish ways to assess learning
<i>Openness (Sharing)</i>	Share new content with others in the community; display the acquisition of skills and competencies

(Blaschke, 2016)

According to Hase, from the various elements needed to support heutagogy, creativity and communication greatly influence the concept of heutagogy. These two aspects have four elements of need. Aspects of creativity include the ability to (1) develop ideas, (2) the ability to express creative ideas, (3) the ability to adapt to new environments, and (4) the ability to create independently (Putra et al., 2019). Communication aspects include the ability to convey information, the ability to convey ideas, the ability to receive opinions, and the ability to master various communication techniques. Furthermore, heutagogy has characteristics that are influenced by critical thinking and collaboration. Aspects of critical thinking include the ability to evaluate, the ability to identify problems, the ability to solve problems well, and the ability to provide facts from the assessment. Collaborative aspects include the ability to cooperate, the ability to take full responsibility, the ability to respect opinions, and the ability to interact interactively.

As expressed in heutagogy, students need to be involved in negotiations about what and how they learn, flexible curriculum, focus on students and the implications of the



learning to be taken, evaluation can include participatory forms that allow students to learn, complement each other others and through self-reflection (Blaschke & Hase, 2015). Practically, similar views regarding the principle of heutagogy are also presented as follows: (1) learning objectives are determined by students, (2) students are the main agents, (3) student learning independence, (4) the spirit of long life education, (5) learning innovation, (6) student learning independence, (7) teacher as a guide, and (8) internet use (Samin, 2019). Based on the results of research that has been carried out with a learning model that is in accordance with the principles of heutagogy, it can also be said that heutagogy is a holistic approach that teaches students how to learn and acquire the competencies and skills they need for their chosen field (Halupa, 2015). This is also relevant to achieving the ideal education in the era of the industrial revolution 4.0 because education is carried out to help humans in order to actualize or realize themselves (Wahyudin, 2007). Education is not to shape humans as educators want by ignoring the dimensions of human individuality (students) but humans according to their individuality are given full opportunity to express themselves in accordance with choices that are decided by themselves based on certain considerations.

### Conclusion

Based on the results of research that has been carried out by prioritizing the bibliographic method as the basis for surgery on the overall data that has been obtained, it can be concluded as follows: (1) the heutagogy approach is an alternative learning that can be developed by teachers in elementary schools because the approach provides space for more optimal learning space and expectations for students, by making themselves the control of learning, (2) the heutagogy approach makes the atmosphere and learning outcomes more interesting and motivates students to bring out all their abilities in humanitarian principles in the corridor of democratic education, and (3) the application of the heutagogy approach in elementary schools is a very wise alternative, especially during a pandemic because students with teacher facilitation can choose and determine what they want to learn without ignoring the general principles of formal learning.

### Recommendation

Reviewing the three research findings, several things can be recommended to elementary school teachers, namely: (1) the use of the heutagogy approach should be harmonized with the characteristics of the material and students, while still prioritizing the main principle of learning, namely humanizing humans humanely, and (2) the application of heutagogy will be very meaningful and present a class atmosphere that attracts students to learn more optimally when juxtaposed with innovative learning models based on information processing, such as problem solving, case studies, role playing, projects, and others.

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