The Use of Virtual Laboratory and Vedas as Photosynthesis and Respiration Learning Resources on Primary Teacher Education Students: Actualization Form of Society 5.0 Concepts

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ABSTRACT
This study aimed to describe the actualization form of society 5.0 concept through virtual laboratory and Vedas learning resources on photosynthesis and respiration, with the following detailed; 1) learning in society 5.0 era, 2) student conception profiles and 3) results of Vedic studies. This research was descriptive qualitative research. The research subjects were 45 students who took Primary Natural Science 2 class at fourth semester of Primary Teacher Education Department. Data in this research were collected by reasoned multiple choices test combined with the certainty of response index method and literature review. Data were analysed descriptively using Miles & Huberman Model. The result of this research showed that; 1) learning in the society 5.0 era intended to make students have the 21st century skills competency, 2) the conception profile formed through the application of learning resources were diverse, the highest average was the conception pattern IV (60.85%), there was a decrease in misconceptions (43.75%), 3) some of sloka in Vedas had same meaning to the scientific concepts on photosynthesis and respiration. The use of virtual laboratory and Vedas had the positive impact on learning results and interactions that suitable to be one of learning resources in society 5.0 era.

Keywords: *Virtual Laboratory and Vedas, Photosynthesis and Respiration, Learning Resources, Society 5.0*

1. INTRODUCTION

In the past, humans had the thought that rapid technological developments would improve human welfare better but apparently that is not necessarily. The rapid development of technology has brought both positive and negative sides to human life. This impact has been felt in the era of disruption or the Industrial Revolution 4.0, where it took place very quickly and erased all old standards to become a new pattern of order. Digital technology drives the movement of the Industrial Revolution 4.0, artificial intelligence combined with the Internet of Things (IoT) which are backed up with big data is capable of processing data on a giant scale and describing a situation virtually. The positive impact of the existence of these technological developments is that they can provide solutions for making the right, effective and efficient decisions. On the other hand, there is a negative side, namely the emergence of the potential for degradation of the human role [Suherman et al., 2020]. Humans will eventually be replaced by machines so that in the future some human professions will disappear or humans will lose many livelihoods.

Therefore, developed countries also take steps to make changes to anticipate these negative impacts with the concept of a human-centred and technology-based society which is developed by Japan, namely Society 5.0. This concept exists to integrate the virtual world and the real world with the help of technology in serving human needs [Dasmadi, 2023]. Based on the concept of society 5.0, existing technology becomes part of the human being so that it can make humans live more meaningful. In society 5.0, humans will be the centre while still being based on technology.

The change in the concept of Industrial Revolution 4.0 to Society 5.0 affects all areas of life, including education. Technology in the field of education is able to provide appropriate, effective and efficient solutions in learning. This is very much felt, especially during the past pandemic. In line with this, during the pandemic, the learning in I Gusti Bagus Sugriwa Denpasar State Hindu University Primary Teacher Education Students was inseparable from using the internet for face-to-face online meetings via zoom cloud meetings, google meet or

assignment submissions through online learning applications, such as google classroom. In addition, the students were also invited to study through a virtual laboratory, especially for certain abstract topics, one of which is the concepts of photosynthesis and respiration.

Based on the research results conducted between 1996 - 2017, the concepts of photosynthesis and respiration were natural science' concepts that often experience misconceptions among academics [Jayanti & Sri Rahayu, 2019]. Misconception is students' concepts that do not match on their scientific concepts (scientists' concepts) can only be accepted in certain cases and cannot be generalized [Rowlands et al., 2004]. Misconceptions can hinder the science learning process. Various conceptual change strategies can be carried out to reduce misconceptions. Efforts to improve science learning outcomes can be carried out using a virtual laboratory [Rohimat, 2021]; [Nugroho, 2021]. Practicum using a virtual laboratory can replace real practicum. A virtual laboratory is a series of electronic tools or interactive computer-based virtual laboratories that integrate various media components in the form of text, images, animation, sound and video to carry out remote collaboration and other activities. This component is a simulation combination of an experimental process that is run via the internet or CD-ROM [Angelino, 2002 in Yuniarti, 2011]. Learning activities that mostly use the internet are the answer to the challenge of utilizing innovation.

As a department that is under the Ministry of Religious Affairs, namely I Gusti Bagus Sugriwa Denpasar State Hindu University, it was appropriate to make use of learning resources related to the religious field, especially the scriptures. The scripture is the God's revelation which contains important teachings for religious people to live life. The Veda as the scripture of Hinduism is actually able to explain so much knowledge whose truth can be proven scientifically [Sastrawan, 2018]. Thus, virtual laboratories and Vedic studies can be applied in order to provide more meaningful science learning resources for the concepts of photosynthesis and respiration which are in line with learning in the Society 5.0 era.

Based on this background, through the use of virtual laboratories and Vedas as learning resources, researchers were interested to analyze and describe 1) Learning in Society 5.0 era, 2) students' conception profiles on photosynthesis and respiration concepts, 3) results of Vedic studies on photosynthesis and respiration concepts.

2. METHOD

This research was a descriptive qualitative research. The determination of research subjects was carried out by using purposive sampling technique. The subjects of the study were 45 students who took Primary Natural Science 2 class at the fourth semester of Primary Teacher Education Department, I Gusti Bagus Sugriwa Denpasar State Hindu University (UHN). Virtual laboratories and Vedas were used as learning resources, then the process of conceptual change that occurs was observed. The instrument used was a written test in the form of multiple choices Treagust Model [1986] which has been modified with the certainty of response index method [Setiawati et al., 2014]. Data were collected by researchers as key instruments and also some other data such as test results, verses in the Vedas, books and journal articles related to Society 5.0. Data analysis was carried out based on the Miles and Huberman Model [Sugiyono, 2018], which consisted of several stages namely; data collection, data reduction, data presentation, and also conclusions and verification.

Analysis of conceptual change patterns was carried out by comparing pairs of student conceptions on each test result. To find out the process of conceptual change, namely students' initial and final conceptions of photosynthesis and respiration, the data on student answers were analysed qualitatively (percentage calculations by the number of right/wrong/misconception answers on each item divided by the total number of subjects x 100%). The types of photosynthesis and respiration misconceptions obtained as research findings were statements of student misconceptions that have a percentage of ≥ 10%. This research went through a data validity test to ensure that the research findings were stated to be valid or in accordance with the actual situation in the field. Testing validity of the data in this study included; internal validity test (credibility), external validity (transferability), reliability (dependability) and objectivity (confirmability).

3. FINDINGS AND DISCUSSION

3.1. Learning in Society 5.0 Era

The development of science and technology caused humans to enter an era where the information flow and data were so fast, namely the Industrial 4.0 era. This society has been affiliated with digital technology (industry)

in various fields of life. One of them is education. Disruption cases in education as a result of digitalization, for example, are students being able to study without meet directly with teachers and classmates. Only by accessing various online learning applications and online learning meeting can be carried out. In addition, all questions in the learning process can be searched through a browser or internet search without teacher' help. Seminars or conferences on a local, national, regional or international scale can be easily held through an online application. It can even be with utilize live facilities on social media. In this way, it is able to be efficient in time, effort and cost, so that information on activities can be conveyed to the wider community.

Nonetheless, the flow of scientific and technological developments also has a negative impact on society, including the loss of boundaries between privacy and information that is for public consumption. In addition, Industry 4.0 also causes various human mental health problems. This is exacerbated by the potential degradation of the human role by technology in the form of machines. Based on these considerations, Japan proposed a human-centred and technology-based society known as the concept of Society 5.0.

Society 5.0 is a society that can solve various social challenges and problems by utilizing various innovations born in the Industrial Revolution 4.0 era such as the Internet on Things (IoT), artificial intelligence and large amounts of data and robots to improve the quality of human life. In Society 5.0, a human-centred society that balances economic progress with solving social problems by a system that integrates cyber space and physical space. Society 5.0 is also a concept to overcome problems arising from the rapid development of technology [Suherman et al., 2020].

The implications of the Society 5.0 concepts for education include the demands for competency renewal that are taught to students who must be in accordance with the needs of humans in the Society 5.0 era. The renewal of the learned competencies is the competence of 21st century life skills. Thus, learning in the Society 5.0 era is intended so that everyone has 21st century life skills competencies [Usmaedi, 2021; Harun, 2021]. Afandi & Sajidan [2018] state that the purpose of these competencies is to encourage each individual to be able; think critically in choosing valid and relevant information, innovate creatively, work independently and in groups, solve everyday problems and most importantly have a deep knowledge base and understanding to become lifelong learners.

The 21st century life skills consist of the ability to communicate, be creative, think critically, and collaborate or known as the "Four Cs", namely communicators, creators, critical thinkers, and collaborators [Usmaedi, 2021; Harun, 2021; Suwono, 2017]. Within the framework of 21st century education, The Partnership for the 21st Century reveals that there are several competencies that must be possessed, namely; critical thinking and problem solved skills, communication and collaboration skills, creative and innovative skills, information and communication technology literacy, contextual learning skills, and information skills and media literacy. In Indonesia, to complete the basic framework for 21st century education in accordance with the demands of prospective teachers, a study was carried out on the basic framework for 21st century education from The Partnership for the 21st Century, the National Education System Law document, Nawacita, and the RPJMN for Basic, Middle and Higher Education so as to obtain two standards. In addition to the 21st century life skills competencies, namely character building and spiritual values [Afandi & Sajidan, 2018].

To be able to master the 21st century life skill competencies in facing the Society 5.0 era, education must give the ways of thinking, not only science to students. The teacher acts as a facilitator who guides students in obtaining solutions in the form of creativity and innovation. For example, by using a mobile phone or tablet with an internet connection that can be utilized in learning activities. Students can obtain teaching materials such as learning materials or videos from various educational sites such as; Wikipedia, Rumah Belajar, Merdeka Belajar, etc. In addition, you can also take advantage of sites to conduct virtual experiments or practicums through virtual laboratories. There are many and varied learning resources which are provided by internet. They need to be chosen wisely to give positive meaning to learning activities.

Suherman et al. [2020] stated that in facing Society 5.0, the concept of learning in schools needs to be developed into the following components. (1) The ability of Higher Order Thinking Skills (HOTS), namely the ability to solve complex problems, think critically and creatively. This can be trained by providing real problems such as the environment and health by utilizing science and technology. (2) Updating a futuristic learning orientation, which can be done by introducing learning related to utilization for the advancement of Society 5.0. (3) Application of learning models that encourage students to build creativity and critical thinking, student-centred and experiment-based, such as; discovery learning, project-based learning, problem-based learning and inquiry. (4) Development of teacher competencies by increasing their competence in the cognitive, affective and psychomotor domains to be able to adapt to Industry 4.0 and Society 5.0. (5) Provision of facilities and infrastructure as well as learning resources as needed. The facilities and infrastructure needed are based on

information technology in the form of classes, libraries and laboratories supported by IoT and artificial intelligence so that they can support learning resources and learning media for students.

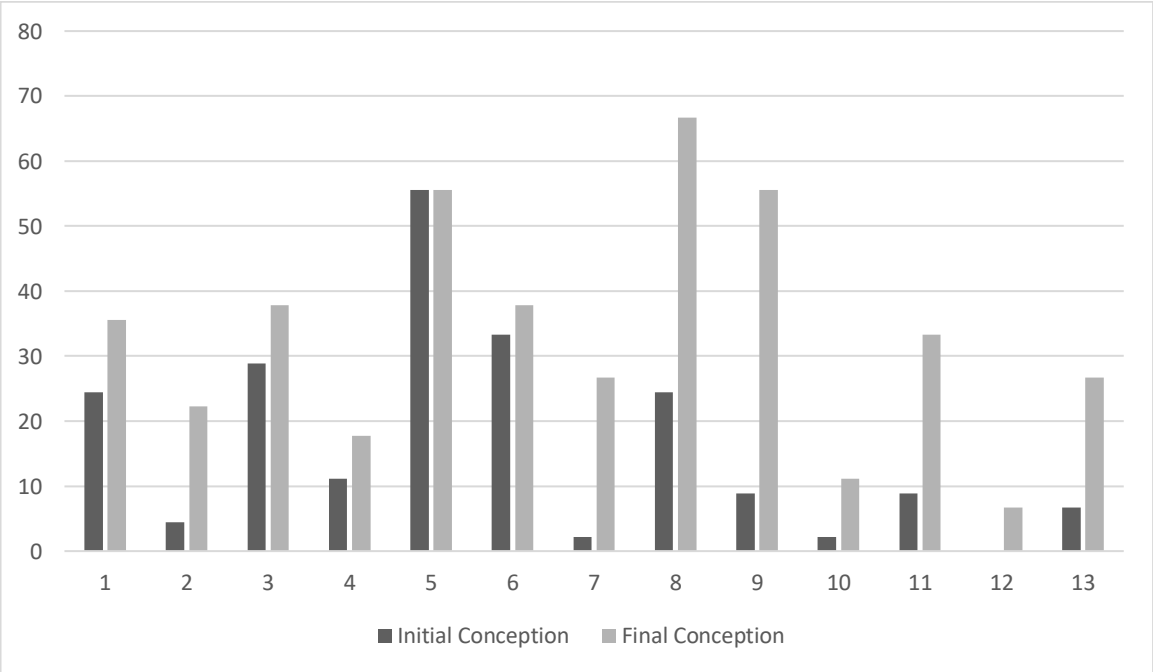
For fourth semester students of Primary Teacher Education Department, I Gusti Bagus Sugriwa Denpasar State Hindu University (UHN), a study was conducted by applying virtual laboratory and Veda learning resources as a form of actualization of Society 5.0. The results of the research are contained in two sub-discussions, namely (1) students' conception profiles and (2) results of Veda studies on photosynthesis and respiration.

3.2. Student Conception Profile on Photosynthesis and Respiration Concepts

The concept contained in the mind is called a conception. In addition, conception can also be interpreted as an embodiment of one's interpretation of an object being observed. Learning conceptions can be divided into two groups, namely preconceptions and misconceptions [Duit, 1996]. In learning, these preconceptions are important, but it will be a problem when students' preconceptions are different from scientific concepts so that they hinder the learning process. Errors in understanding caused by previous learning and errors related to preconceptions are called misconceptions [Huseyin & Sabri, 2007]. Misconceptions can hinder the science learning process so it needs to be minimized by implementing a process of conceptual change [Muchyar et al., 2015].

Conceptual changes occur when students feel dissatisfied because their concepts cannot be used to understand an event. The other three conditions needed to replace old ideas with new ones are understandable (intelligible), reasonable (plausible) and beneficial (fruitful) [Dahar, 2006 in Muchyar et al., 2015]. The process of conceptual change can be identified by determining the pattern of conceptual change in students.

About 45 students who took the Primary Natural Science 2 class at fourth semester of Primary Teacher Education Department had carried out learning through virtual laboratory and Veda learning resources. The conception profile that occurred in students can be observed in Figure 1.



Description: Concept 1 (O_2 gas), Concept 2 (Respiration' required factor), Concept 3 (CO_2 gas), Concept 4 (Respiration results), Concept 5 (Photosynthesis reaction equation), Concept 6 (Photosynthesis' required factor), Concept 7 (Benefits of photosynthesis), Concept 8 (Definition of respiration), Concept 9 (The site of respiration in plants), Concept 10 (Definition of respiration in plants), Concept 11 (Respiration time in plants), Concept 12 (Respiration reaction equation), Concept 13 (The difference between photosynthesis and respiration).

Figure 1. Conception Profiles that Occurred in Students Before Learning (Initial Conception) and After Learning (Final Conception) Through Virtual Laboratory and Vedas Learning Resources

From Figure 1 it could be seen that generally the final conception had increased. Students who answered according to scientific concepts in most of the concepts experienced an increase from the initial conception to the final

conception. This indicated that students experienced conceptual changes. The process of conceptual change can be identified by determining the pattern of student conceptual change in Table 1.

Table 1. Percentage Recapitulation of Student Conception Patterns for each Concept in Photosynthesis and Respiration

No.	Concepts	Conceptual Changes (Initial Conception-Final Conception) (%)			
		I (-,+)	II (+,-)	III (+,+)	IV (-,-)
1.	O_2 gas	24,44	13,33	11,11	51,11
2.	Respiration' required factor	20,00	2,22	2,22	75,56
3.	CO_2 gas	22,22	13,33	15,56	48,89
4.	Respiration result	13,33	6,67	4,44	75,56
5.	Photosynthesis reaction equation	15,56	15,56	40,00	28,89
6.	Photosynthesis' required factor	11,11	6,67	26,67	55,56
7.	Benefits of photosynthesis	26,67	2,22	0,00	71,11
8.	Definition of respiration	46,67	4,44	20,00	28,89
9.	The site of respiration in plants	48,89	2,22	6,67	42,22
10.	Definition of respiration in plants	11,11	2,22	0,00	86,67
11.	Respiration time in plants	28,89	4,44	4,44	62,22
12.	Respiration reaction equation	6,67	0,00	0,00	93,33
13.	The difference between photosynthesis and respiration	22,22	2,22	4,44	71,11
Averages		22,91	5,81	10,43	60,85

The analysis results showed that the student conceptual change pattern that occurred actually included the four patterns of conceptual change, namely positive change, negative change, positive persistence and negative persistence. Conception pattern I, namely positive change, is a pattern that indicates a change in student conceptions that were initially inappropriate (wrong/misconceptions) to become scientific conceptions. Conception pattern II, namely the negative change, is a conception pattern that shows changes in student conceptions that were initially appropriate to become different from scientific conceptions. Conception pattern III, namely the positive persistence, is a pattern that shows the initial and final conceptions that are in accordance with scientific conceptions. Conception pattern IV, namely the negative persistence, is a pattern that shows no conceptual change in the students' initial conception and this initial conception is not in suitable with scientific conceptions.

Through Table 1, the average pattern of student conceptual changes was obtained. The highest average was in the conception pattern IV, which is 60.85%. This indicated that students tend to maintain initial conceptions that were not suitable with scientific conceptions. This negative-valued conception come from conceptual errors and misconceptions that were persistent in students. This finding was in line with Piaget's opinion that cognitive interaction will occur as long as the reality was structured through the cognitive structure created by the subject. The concept that has been contained in the mind of the learner depends on the learner himself. This was also in line with the statement of Suratno [2008] in Mardiyah et al. [2020] that the meaning of learning in a constructivist perspective involved conceptual changes, especially when a learner experienced alternative acceptance or better known as misconceptions.

Furthermore, the second highest average was the first conception pattern which was equal to 22.91%. This showed that students in their cognitive structure tried to achieve scientific conceptions through the learning process, so that the previously negative conceptions become positive. The next highest average was in the conception pattern III which was equal to 10.43%, which showed that students tend to maintain their initial conception. Conception pattern II had the smallest average of 5.81%. This showed that few students experienced negative conceptions at the end of learning, even though they had scientific conceptions before. This was in line with the results of Muchyar et al. [2015] which showed that students could take action to defend scientific conceptions. With the high average conception pattern IV caused by statements with negative values, the misconception which was the main cause of low student learning outcomes was a very important factor to analyse. This was because misconceptions characteristics were very difficult to change on students.

The analysis also obtained the types of misconceptions experienced by the subject which were presented in Table 2 and Table 3. Types of student misconceptions about photosynthesis and respiration were conceptual patterns in the form of misconceptions that had a percentage of $\geq 10\%$.

Tabel 2. List of Student Misconceptions' Types on Photosynthesis and Respiration Before Learning

No.	Misconception
1	Oxygen is a waste gas from the photosynthesis process that is not utilized in the respiration process in plants
2	Respiratory plants produce O_2 gas
3	When there is light, plants only photosynthesize and do not respire
4	Respiration in plants occurs when there is no light
5	Photosynthesis in plants can occur even in the absence of light
6	Chlorophyll plants need O_2 gas to make food
7	When there is no light, plants respire to produce O_2 gas
8	Organisms that do not have chlorophyll, such as fungi, can also photosynthesize
9	The most important benefit of photosynthesis for plants is to produce energy
10	The most important benefit of photosynthesis for plants is the removal of CO_2 in the air
11	Respiration occurs only in plants to obtain energy
12	Plant respiration only occurs in leaves because only leaves have stomata
13	Plant respiration is a process of exchanging CO_2 and O_2 gases through the stomata
14	When breathing, plants need CO_2 gas and produce O_2
15	Plants photosynthesize during the day and breathe only at night
16	Respiration in plants requires CO_2 and water to produce energy and the residual in the form of glucose and O_2

Tabel 3. List of Student Misconceptions' Types on Photosynthesis and Respiration After Learning

No.	Misconception
1	Oxygen is a waste gas from the photosynthesis process that is not utilized in the respiration process in plants
2	Photosynthesis in plants can occur even in the absence of light
3	Photosynthesis in plants can occur at any time, even in the absence of light
4	Respiration in plants takes place when there is light and requires CO_2
5	When there is no light, plants respire to produce O_2 gas
6	The most important benefit of photosynthesis for plants is to produce energy
7	Plant respiration is a process of exchanging CO_2 and O_2 gases through the stomata
8	When breathing, plants need CO_2 gas and produce O_2
9	Respiration in plants requires CO_2 and water to produce energy and the residual in the form of glucose and O_2

Misconceptions decreased after the implementation of the virtual laboratory and Vedic study that was carried out, namely 43.75%. This finding was in line with the results of Muchyar et al. [2015] which showed that conceptual change can occur through effective instructional activities, in this case in the form of implementing virtual laboratory and Vedic studies. The existence of concepts that continue experienced misconceptions may be due to these concepts were difficult to change by instructional activities. This was accordance with the research results of Mardiyah et al., [2020] which showed changes in students' understanding in a better direction can be implemented by having an alternative in the learning process.

3.3. Results of Vedic Studies on Photosynthesis and Respiration Concepts

The application of Vedic studies is also important to students' conceptual changes. Vedic Studies is an innovation in learning, especially in learning materials that are not directly related to Hinduism. The Veda is scripture that Hindus believe to be a collection of revelations from God capable of explaining natural science whose truth can be proven scientifically [Sastrawan, 2018]. Students need scientific concepts that are appropriate or compatible with their experience which can be pursued by integrating Vedic teachings into science learning to make the two understandings harmonize [Setiawati, 2021]. Through this research, a study was carried out on several slokas that were able to explain the concepts of photosynthesis and respiration, which were derived from the Vedas, including; Yajurveda, Atharvaveda, Rigveda, Samaveda and Bhagavad Gita.

Through the explanation above, it could be proven that the use of virtual laboratory and Vedas as learning resources had a positive impact, both through learning outcomes and interactions. This is in line with [Halimah, 2020] which stated that innovation in the learning process was realized by the efforts of the teacher to prepare a learning process that was relevant to his abilities and beneficial for the students' life.

Table 4. Sloka in the Vedas Which Show the Concepts of Photosynthesis and Respiration

No.	Vedas' Sloka	Sloka Meaning in Indonesian	Scientific Conception
1.	*"Devas tva savita madhva-anaktu supippalabhyas-tva-osadhibhyah"* Yajurveda VI.2	Ya, tanaman, hendaknya matahari memperkaya engkau dengan vitalisasi (daya hidup) dan buah buahan yang mengandung banyak air.	One of the main functions of photosynthesis is to provide the energetic basis (food) for the whole ecosystem. The resulting carbohydrates are converted into proteins, fats, nucleic acids and other organic molecules.
2.	"*Susunah suryarasmis candrama-gandharvah*" Yajurveda XVIII.40	Sinar matahari yang disebut susumna, menerangi bulan.	The sun is a source of light (energy), while the moon, which is a planet, is not a source of light. So the moon and planets need light (energy) from the sun.
3.	"*Apam rasam udvayasam surye santam samahitam, apam rasasya yo rasah*" Yajurveda IX.3	Intisari yang paling halus yang membentuk air ada di matahari.	The essence is hydrogen gas (H_2), where H_2 and O_2 form water (H_2O).
4.	"*Agnisomau Bibhratiapa It Tah*" Atharvaveda III.13.5	Air terdiri atas oksigen dan hidrogen	Water (H_2O) is the reaction product of oxygen gas (O_2) and hydrogen gas (H_2) reaction
5.	"*Suryasya rasmasyah para patanti asumat*" Atharvaveda VI.106.3.	Sinar matahari terpancar dengan dengan kecepatan sangat tinggi.	The speed of sunlight is the speed of light propagating, which is 3×10^8 m/s.
6.	*"Virudho vaisva devir ugrah purusa jivanih"* Atharvaveda VIII. 7.4	Tumbuh-tumbuhan yang memiliki sifat seperti Dewa mereka adalah para juru selamat umat manusia.	The process of photosynthesis has many functions, such as; utilize solar energy, stimulate the fixation of CO_2 into carbohydrates and provide an energetic basis (food) for the whole ecosystem, including for humans as one of the ecosystem components
7.	*"Ugra ya visa-dhusanih osadhih"* Atharvaveda VIII.7.10	Tumbuhan-tumbuhan menghancurkan pengaruh atmosfir yang beracun.	Through plant photosynthesis, carbon dioxide gas (CO_2) is needed while oxygen gas (O_2) is produced. It is beneficial to living things.
8.	*"Avir vai nama dewata, rtena-aste parivrta, tasya rupena – ime vrksah, harita haritahsrajah"* Atharvaveda X.8.31	Warna hijau pada daun tumbuh-tumbuhan karena mengandung klorofil di dalamnya. Zat klorofil itu menyelamatkan hidup. Hal ini ditetapkan zat yang ada dalam tumbuh-tumbuhan. Karena adanya zat itu tumbuh-tumbuhan menjadi amat berguna sebagai bahan makanan dan obat-obatan.	Chlorophyll is the green color pigment in photosynthetic plants, algae and bacteria. These compounds play a role in the photosynthesis process of plants by absorbing and converting sunlight energy into chemical energy.
9.	"*Somena aditya balinah*" Atharvaveda XIV.1.2	Matahari menghasilkan energi dari soma (hidrogen).	Energy is produced by the sun through the reaction of the sun's core involving hydrogen gas (H_2)
10.	"*Yah puspisis ca prasvas ca dharmana-adhi dane vyavanir adharayah*" Rigveda II.13.7	Matahari dengan sinar-sinarnya menghidupkan (menyegarkan) tanam-tanaman dan tumbuh-tumbuhan berkhasiat obat yang sedang berbuah dan berbunga.	Sunlight is used by plants for photosynthesis. The process of photosynthesis produces nutrients and oxygen needed by plants and other living things.
11.	"*Dharayanta adityaso jagat stha*" Rigveda II.27.4	Sinar matahari menopang seluruh alam semesta.	The sun is a source of energy for life. The heat warms the earth, forms a climate, while the light illuminates the earth which plants use for photosynthesis. Without the sun there is no life on earth.
12.	*"Indra ya dyava osadhir uta-apah, Rayim raksanti jirayo vanani"* Rigveda III.51.5	Yang berikut ini adalah para pelindung kekayaan alam: atmosfer, tanam-tanaman dan tumbuh-tumbuhan berkhasiat obat, sungai-sungai, sungai kecil-kecil, sumber-sumber air dan hutan-hutan blantara.	Photosynthesis is a vital process for living things as a provider of energetic basis(food) for ecosystems. The occurrence of photosynthesis requires components including; atmosphere (CO_2), plants (chlorophyll) and water (H_2O) and the environment (sunlight).
13.	*"Sam vato vatu te hrde"* Rigveda VIII. 2. 14	Udara yang segar bermanfaat untuk jantungmu.	Through photosynthesis plants produce oxygen gas (O_2). The gas supports respiration in humans where oxygen (O_2) is needed and carbon dioxide (CO_2) is released.

14.	*"Adhuksat pipyusim isam urjam, suryasya sapta rasmibhih"* Rigveda VIII. 72.16	Tumbuh-tumbuhan memperoleh energi dari cahaya matahari	Sunlight plays a role in the photosynthesis process so that nutrients are obtained which later become a source of energy for plant life and other living things through the respiration process.
15.	*"Osadhir iti mataras-tad Vo devir-upa bruve"* Rigveda X.97.4	Tanam-tanaman memberi makan dan melindungi alam semesta, oleh karenanya mereka disebut para ibu.	Plants can make their own food through the process of photosynthesis. The results of photosynthesis are used by these plants and other living things
16.	*"Tam it samanam vaninas ca virudho-antarvatis ca suvate ca vivaha".* Samaveda III.14	Tumbuh-tumbuhan memancarkan udara vital yang dinamakan samana (oksigen) secara teratur.	Oxygen (O_2) is the result of photosynthesis reactions which are very useful for life, including for breathing.
17.	*"Yad ado vat ate grhe Amrtam nihitam guho"* Samaveda 1824	Ya udara engkau berisi nektar (oksigen) ditempat kediamanmu.	The air on earth or called the atmosphere is composed of oxygen gas (O_2) about 20.95%. Oxygen (O_2) is needed by living things for the process of respiration.
18.	*"Annaad bhavanti bhuutaani, Prajnyaad annasambhavad, Yadnyad bhavati parjanyo, Yadnyah karma samudbhavad"* Bhagavadgita III.14	Mahluk hidup berasal dari makanan. Makanan berasal dari tumbuh-tumbuhan. Tumbuh-tumbuhan berasal dari hujan. Hujan berasal dari yadnya. Yadnya itu adalah karma.	Photosynthesis reaction requires atmosphere (CO_2), water (H_2O), chlorophyll and the environment (sunlight). It produces food and oxygen, where it plays a role for the plant itself (for respiration) and other living things.

4. CONCLUSION

Learning in the era of Society 5.0 is intended for students to have 21st century life skill competencies. In Indonesia, 21st century life skill competencies consist of critical thinking skills and problem solving, the ability to communicate and work together, the ability to create and update, information and communication technology literacy, contextual learning skills, and information skills and media literacy as well as character building and spiritual values. The profile of the conception that was formed from the application of learning resources was diverse and in general there was a positive conceptual change. The highest average was the IV conception pattern (60.85%), there was a decrease in misconceptions (43.75%). Through study, a number of slokas were found which had meanings in line with the concepts of photosynthesis and respiration originating from the Vedas; Yajurveda, Atharvaveda, Rig Veda, Samaveda and Bhagavad Gita.

AUTHORS' CONTRIBUTIONS

The suggestions from this research are; responses to natural science concepts are generally varied so that concept strengthening is needed to train scientific thinking patterns, learning should be managed to give students' skills to face the Society 5.0 era, and further studies are needed to compare conceptual changes in learning with other learning resources or media.

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