

## Imparting Value Based Education Through Gurukul Methodology for Achieving Sustainable Development Goals

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### Abstract

In the conditions of a global crisis value education represents the most efficient way of forming a social and intellectual basis for the achievement of sustainable development goals and coevolution ideas. Due to mounting problems related to sustainable development the need of value education for sustainable development continues growing. The proposed research will explore contemporary state of education and suggest possible ways for imparting value-based education through Gurukul methodology for achieving sustainable development goals.

Value education for sustainable development is regarded as a way of forming of new consciousness and behaviour through which human development course should be adjusted.

The Gurukul education system is an immortal part of our country's rich traditions and cultural heritage. It is indeed one of the most valued and famous education and life learning systems practiced in ancient India.

A Gurukul is a residential education system in India which dates to 5000 BC. Under this system, all are considered as equals and no fee is charged. The Shishyas or students are taught life lessons and a cultured way of life in natural surroundings. Also, humanity, love, peace and discipline are essential components of the Gurukul education.

Gurukul education which focuses on applied knowledge, practical learning and personality development. It also emphasizes on thoughtfulness, respect for planetary boundaries, social equality and justice. This Sustainable Gurukul Education system prepares the Shishyas in all aspects of life in future.

Sustainable development requires the interplay of all three areas: knowledge, values, and education, influencing individual and then collective decision-making, behavior, and action.

We want to create a more sustainable world, with stable economies and more just and inclusive societies. A difficult but not unattainable target if we can count on the involvement of governments, institutions, businesses, and, above all, a responsible and committed public.

Integration among the three elements is essential for sustainable development. Scientific knowledge without values can produce materialism, exploitation and destruction. Religious values without reason can lead to superstition and fanaticism. Education must bring both knowledge and values together to be effective. Sustainable development goal is one among 17 goals set out by the United Nations to be achieved by 2030. India is ranking 121 in the world for sustainable development ranking. These goals are directed towards ending poverty, inequality, climate change and peace for all. So, every country in the world is responsible to achieve these agendas.

Besides, the idea of Atmanirbhar Bharat or Azadi ka Amrit Kaal cannot be actualised without making youth capable of contributing sustainability towards industrial revolution. The proposed research will explore various methods of imparting value-based education through Gurukul Methodology for achieving sustainable development goals.

This kind of research in much needed in the current scenario. This research will try to explore the various dimensions of sustainable development which are linked with value education, so that people will have a better understanding of value education & its importance in sustainable development. The proposed research will be an in-depth study on how Gurukul Methodology can pave a way for sustainable development. It will develop a systematic review of literature on the value education through Gurukul Methodology & its importance in sustainable development, which is yet lacking. Researcher will try to develop a model through which value education can be imparted using Gurukul Methodology which results in sustainable development.

**Keywords:** Collective Decision-Making, Critical Thinking, Development, Education, Environmental Ethics, Global Transition, Gurukul Methodology, Sustainability, Sustainable Development, Value.

## 1. Introduction

In the conditions of a global crisis value education represents the most efficient way of forming a social and intellectual basis for the implementation of sustainable development principles and coevolution ideas. Due to mounting problems related to sustainable development the need of value education for sustainable development continues growing.

The proposed research will explore contemporary state of education and suggest possible ways for Imparting Value Based Education Through Gurukul Methodology for Achieving Sustainable Development Goals.

Value education for sustainable development is regarded as a way of forming of new consciousness and behaviour through which human development course should be adjusted.

We want to create a more sustainable world, with stable economies and more just and inclusive societies. A difficult but not unattainable target if we can count on the involvement of governments, institutions, businesses, and, above all, a responsible and committed public.

This concept is about the educational process that instils moral standards to create more civil and democratic societies. Values education therefore promotes tolerance and understanding above and beyond our political, cultural and religious differences, putting special emphasis on the defense of human rights, the protection of ethnic minorities and the most vulnerable groups, and the conservation of the environment.

Values education is the responsibility of us all and not just of schools. The family, universities, businesses and sport, for example, are all ideal contexts to teach those ethical principles. Even so, for a few years now, countries like Australia and the UK have actually been contemplating including values education as part of compulsory education.

There is also an institutional responsibility, divided between government and business or private owners, for the equitable and sustainable management of natural resources for the benefit of all humanity. Sustainability requires respect for the limits of the life support systems of this planet. This is an institutional responsibility to inculcate value education at a global scale for sustainable development which institutions need to be developed or strengthened.

Sustainable development requires the interplay of all three areas: knowledge, values, and education, influencing individual and then collective decision-making, behavior, and action.

There is ample of opportunities to inculcate value education among the population and that can give boost up to the economic development and make it sustainable.

The Gurukul education system is an immortal part of our country's rich traditions and cultural heritage. It is indeed one of the most valued and famous education and life learning systems practiced in ancient India.

A Gurukul is a residential education system in India which dates back to 5000 BC. Under this system, all are considered as equals and no fee is charged. The Shishyas(students) are taught life lessons and a cultured way of life in natural surroundings. Also, humanity, love, peace and discipline are essential components of the Gurukul education.

Gurukul education which focuses on applied knowledge, practical learning and personality development. It also emphasizes on thoughtfulness, respect for planetary boundaries, social equality and justice. This Sustainable Gurukul Education system prepares the Shishyas in all aspects of life in future.

Sustainable development goal is one among 17 goals set out by the United Nations to be achieved by 2030. India is ranking 121 in the world for sustainable development ranking. These goals are directed towards ending poverty, inequality, climate change and peace for all. So, every country in the world is responsible to achieve these agendas.

Besides, the idea of Atmanirbhar Bharat or Azadi ka Amrit Kaal cannot be actualized without making youth capable of contributing sustainability towards industrial revolution.

The proposed research will try to explore the impact of value education on empowering sustainable development in southern Rajasthan. This kind of research is much needed in the current scenario.

This research will try to explore the various dimensions of sustainable development which are linked with value education, so that people will have a better understanding of value education & its importance in sustainable development. The proposed research will be an in-depth study on how value education can pave a way for sustainable development. It will develop a systematic review of literature on the value education & its importance in sustainable development, which is yet lacking. Through this proposed research work, researcher will try to develop a model based on Gurukul Methodology for imparting value education & sustainable development. Various Variables of value education that are expected to play a critical role in sustainable development will be identified & linked with the Gurukul Methodology of imparting Education. Gap if exists will be identified between perceived sustainable development & actual sustainable development.

## 2. Objectives:

1. To understand the Gurukul Methodology for Imparting Value Based Education.
2. To analyze present methodology of education system.
3. To compare present education system with Gurukul Methodology of education.
4. To develop a framework for implementing Gurukul Methodology for imparting value-based education for achieving sustainable development goals.

### 3. Background

Today's Indian youths are little bit confused because of the bombarding of the new technological devices, information explosion and violent news by the press & media. To inculcate the value system in their confused minds and make them value-oriented-powerful leaders, educational. Institutions should take the initiative to impart Value Based Spiritual Knowledge to this new generation.

The researcher was interested to study values because they are essential pillars of culture in every society. They are one of the main components of the individual's character, and they represent a strong motive to direct his behavior (Abu al-'Einain, 1986).

A study by Rossi (1995) & Arcury (1990) required merging and enforcing the educational curricula with the sustainable development standards to make the learners aware of the relationship between the demographic, economic, social, cultural, environmental and political aspects.

These two concepts have dominated the international development policy arena for over two decades now. In the policy arena, recent events such as climate change, the race to reduce fossil fuel emission, the transition to renewable energy, and the transition to a circular economy, have intensified the push towards sustainability and sustainable development (Aven 2020; Leal Filho et al. 2019; Ozili 2021; Wackernagel, Hanscom, and Lin 2017).

Emerging studies in the Oceania region show that sustainable development has become a discursive device for advocating compact city policies and collaborative approaches to policymaking in Western Australia (Hopkins 2013). This has been possible due to the availability of environmentally friendly (green) material, financial incentives to clients and contractors, government policy for implementation, and overall awareness about sustainable development within the industry (Khalfan et al. 2015)

Gurukul is a traditional method of teaching that has been practiced in India for centuries. The word "gurukul" literally means "home of the guru," and it refers to a type of school where students live and study with their teacher in a residential setting.

Gurukul education is based on the belief that the guru, or teacher, is the source of knowledge and the students should be in close proximity to the guru in order to receive the best education. The guru is considered to be a spiritual guide as well as a teacher and the students are expected to treat them with respect and reverence.

The curriculum in a gurukul typically includes subjects such as Vedic literature, Sanskrit, mathematics, and other traditional Indian sciences. The students are taught these subjects through a combination of lectures, recitations, and hands-on practice. The guru is responsible for imparting knowledge to the students through these methods, but the students are also encouraged to ask questions and engage in discussions with the guru.

One of the key aspects of gurukul education is the emphasis on character development. Students are taught the importance of honesty, compassion, and self-control, and are expected to practice these values in their daily lives. The guru is also responsible for ensuring that the students are following these values and will take corrective action if necessary.

In addition to academic and character development, gurukul education also places a great emphasis on physical fitness. Students are encouraged to participate in physical activities such as yoga and martial arts, which help to develop strength, agility, and discipline.

In conclusion, gurukul is a traditional method of teaching that has been practiced in India for centuries. It is based on the belief that the guru is the source of knowledge, and the students should be in close proximity to the guru in order to receive the best education. The curriculum in a gurukul typically includes subjects such as Vedic literature, Sanskrit, mathematics, and other traditional Indian sciences. The students are taught these subjects through a combination of lectures, recitations, and hands-on practice. The guru is also responsible for ensuring that the students are following values of honesty, compassion and self-control, and places a great emphasis on physical fitness.

### 4. Present Methodology of Education System

Educational methodology refers to the peculiar way of implementing functions and activities oriented to the attainment of educational objectives.

The education system too has undergone a change during this time. The traditional chalk boards are now almost replaced by white boards and smart boards. Nowadays, the number of schools have almost increased exponentially in the last century. The content of books have also changed. Nowadays, students are not only taught about science and mathematics, but they are also given classes on subjects like history of the world, moral values, geography, etc in schools as well.

But it is disheartening to see that even though the books we use in the education have changed, but there has been almost no change in the methodology of education. The teachers, even today, teach the students the art of "parrot learning" rather than helping them develop the concepts about the topics they are taught about. The exams too are based on testing how well a student is able to memorize what he was taught in class, rather than testing how well they have understood a topic and testing their knowledge and concepts. Students study in this manner thinking that they ought to memorize things and not try to understand the concepts behind them. The parents also pressurize and expect their children to follow the same.

The few students who actually want to learn about the concepts of the various phenomenons and ask their teachers about the same are often rebuked and asked to follow the trend that their peers follow. These students begin to feel that their approach to studies is wrong and they too, many-a-times, follow the example of their peers.

Education has been a continuously evolving field. In a country like India, we have seen our education system evolve for many decades. The history of the Indian Education system dates back to the 10th century. Even though modern universities as an official form of education started building up in the 20th century, we have been known for our Vedic teaching methods and *Puranas* for a long time. Right from the point when we were pioneers of education and attracted students from all over the world to Nalanda university and Takshshila University to the peak of the Gurukul era to classroom teaching and now the everyday evolving digital learning space. Even though we have come a long way in garnering the digitalization of education to the students, we still have a long way to go in order to shed certain tentacles of the traditional or age-old education methodology that has been so stubbornly embedded into our minds.

#### **4.1 Age-old teaching methodology of the Indian Education System?**

As the name suggests, this is our traditional teaching methodology that has been followed ever since the concept of teaching emerged. It is a rooted method of teaching wherein the teacher stands in front of the class and addresses the class and is designated to complete a certain portion of the syllabus which has been already decided as per an academic calendar. The students are individually responsible to fulfill the assignments and homework and are subjected to the marking system. Though everything comes with its own share of mishaps and boons, we still have to see the silver lining in our rooted teaching methodology even though there will be a few. Let us have a look into some of the key advantages of the Indian Education system.

#### **4.2 Direct Interaction with the teachers as opposed to a digital mode.**

Even though the advantages are generic in nature we still need to necessitate them as they are necessary for maintaining a certain decorum in the class. Now let us dive into some of the key disadvantages of our Indian Education System.

- Most of the curriculum is legacy and it has not been changed for years. There is zero significance given to the practical mode of Education in our daily life.
- There is no focus given on character building, etiquette and mannerisms are not taught in school and this creates an awkward bridge in the corporate workspace.
- The Homeworks are not fun. They are extremely tedious and subject students to a copious amount of stress.
- There is a lesser focus on student's learning and an undue focus on the grades.
- There is no learning and enhancement curve that is being followed.
- Our learning methodology is rather stagnant with end focus given to the examinations.

#### **4.3 Adjusting the chaos:**

As we have seen from the above-mentioned factors, our Indian Education system has been in some mess for quite a while. However, with the emergence of digitalization, there are several changes that have been implemented in the teaching methodology. It has brought a form of order to not only the method of teaching but also making students a more involved part of the learning process. Digitalization in classrooms has changed the education system. Some factors have really hit hard and some just had a brush of change wave, but there has been a viable change as a result of it.

The emergence of the Indian Education system through digitalization:

Let us look into some of the aspects that have been hit by this change wave brought to the Education system in India:

#### **4.4 Student-Centered**

The digitalization of education has made education totally student-centric. All the chapters, the dips, and the deviations have been designed across gauging the interest of the students. Be it motion chapters or 3d based explanations, the entire learning faucet has been designed to keep in mind the engagement value of the students. Even the instruction strategy is not memory-focused, it is more focussed on learning.

#### **4.5 Flexible Progression**

Digital learning is mainly about flexible chapter progression of the syllabus, unlike the traditional learning method, which mainly focuses on a prescribed progression. A prescribed and locked progression is bound around completing a certain aspect of the syllabus no matter if it proliferates learning or not. This lockstep method of completion takes away from the charm of natural learning.

#### 4.6 Multisensory Stimulation

Digital and technical learning are all about a plethora of various modes of sensory stimulation. Unlike its counterpart, it is not about handling just one mode of stimulus which involves the blackboard and makes learning rather monotonous. After all, colors are all about enriching your visual stimuli. **Digitalization involves rich media modes** such as video learning, animated chapters, 3d chapters which entices your visual stimuli and attention to the fullest. They make the classes enriched and entertaining.

#### 4.7 Real-World Collaborations

Digitalization helps in keeping the students hands-on with all gadgets and devices on which they are required to access their notes, connect with peers for collaborative project efforts and build multi-faceted presentations with infographics. This not only enhances their personal skills but also enhances their technical skills. It prepares them for the world of tomorrow unlike the traditional method wherein there is no scope of any technical and collaborative hands-on learning.

#### 4.5 Learner's Construct

E-Learning and digital classrooms are more about enhancing the way students can learn. It captures different aspects of the same chapter and different ways in which a particular terminology/explanation can make sense. It is more about adopting an all-in-all pragmatic approach to learning. The construct of digital classrooms is solely dependent on the ease of the learner unlike the traditional method of learning which mainly passes its knowledge from limited and authoritative sources. Teaching can be defined as **engagement with learners to enable their understanding and application of knowledge, concepts and processes**. It includes design, content selection, delivery, assessment and reflection.

India has always boasted of a rich tradition in the area of learning and education since ancient times. It is well known that people from other nations such as Europe, the Middle East, and Portugal came to India to get a quality education. One of the famous educational systems practised in India in the ancient times was The Gurukul System. You might wonder what exactly a Gurukul system is. Let's find out more about it.

### 5. What is a Gurukul System?

It was a residential schooling system whose origin dates back to around 5000 BC in the Indian subcontinents. It was more prevalent during the Vedic age where students were taught various subjects and about how to live a cultured and disciplined life. Gurukul was the home of teacher or Acharya and was the centre of learning where pupils resided till their education got complete. All were considered equal at the Gurukul and *guru* (teacher) as well as *shishya* (student) resided in the same house or lived near to each other. This relationship between guru and shishya was so sacred that no fee was taken from the students. However, the student had to offer a *gurudakshina* which was a token of respect paid to the teacher. It was mainly in the form of money or a special task that the student had to perform for the teacher.



#### 5.1 The importance of the Gurukul system in present times

The main focus of Gurukuls was on imparting learning to the students in a natural surrounding where the *shishyas* lived with each other with brotherhood, humanity, love, and discipline. The essential teachings were in subjects like language, science, mathematics through group discussions, self-learning etc. Not only this, but the focus was also given on arts, sports, crafts, singing that developed their intelligence and critical thinking. Activities such as yoga, meditation, mantra chanting etc generated positivity and peace of mind and made them fit. It was also mandatory to do daily chores on own with a motive to impart practical skills in them. All these helped in the personality development and increased their confidence, sense of discipline, intellect and mindfulness which is necessary even today to face the world that lay ahead.

## 5.2 Flaws in the present education system

Unfortunately, the above concept has disappeared, and the modern system of education brought to India in the year 1835 by Lord Macauley is all about rat race to be ahead of others. There is a total absence of personality development, creation of moral conscience and ethical training. One of the biggest flaws about this education is that it is more commercial in nature rather than an institutional concept that should impart holistic learning to the students. It devotes very less time for physical activity and the development of other skill sets that can assist a student to become a better human being.

### 6. Do we need a Gurukul system back in India?

Many people may consider the gurukul system to be quite unstructured and a bizarre concept. The thought of living with a teacher, absence of a curriculum or a set routine can make people wonder how exactly will a child learn anything? However, the modern-day educationalist has taken a backward look and realized that there are many teaching approaches from the Gurukul system that can be inculcated in the present-day educational system. Here is a list to it that will also help us realize why the gurukul system is important.

- Modern infrastructure – Robust learning of the students can only take place when focus is given on practical knowledge. But alas our present-day education just believes in bookish knowledge and cramming which is not sufficient. The Gurukul system focused on applied knowledge that prepared the students in all fields of life. In present times it can be done by creating a perfect combination of academics and extracurricular activities along with teaching around mindfulness and spiritual awareness to make the students better individuals.
- Holistic education – The present-day education mainly focuses on a rank-based system which is driven by animosity towards their peers. More fuel is added by the over-ambitious parents who judge the knowledge of students only by academic performance. The application of the Gurukul system instead can work on a value-based system where focus can be given on the uniqueness of child so that they can excel in their area of interest. This will also build a good character which is far away from fierce competition and increased stress levels that usually leads to depression.
- The relation between teacher and student- The need of present times is to ensure that teachers and students share a friendly relation and respect. This is as when the children feel secure and have trust in the caregiver then they are most likely to emulate the same. This was present in the Gurukul system which can be inculcated today through use of activities, training workshops to bond with the students.

### 7. Conclusion:

Digital learning or Modern learning by a method is an integrated model of learning. It works best when we can combine traditional resources with technology. Neither can technology alone reap wonders on to a mind neither can a restrictive curriculum. However, if both chuck their differences behind and build a 360-degree collaborative learning environment then nothing can beat our country to become once again one of the greatest pioneers of learning.

Overall, the idea of inculcating a Gurukul system in Indian education is just to assist the children in understanding the concept of a balanced life. This very ideology of balance should be taught to the kids from a young age so that they make informed decisions about work, food, exercise and the way they wish to live their life.

### 8. Significance of research work

Integration among the three elements i.e education, value & education is essential for sustainable development. Scientific knowledge without values can produce materialism, exploitation and destruction. Religious values without reason can lead to superstition and fanaticism. Education must bring both knowledge and values together to be effective. . Since sustainability is many things to many people, we need to extract from our understanding a sense of common purpose which can be shared by all peoples.

The proposed research will try to create awareness about Gurukul Methodology for Imparting Value Education. Through this research present methodology of education system & advantages & disadvantages of same will be studied. Researcher will make a comprehensive comparison of compare present education system with Gurukul Methodology of education. Through proposed research a framework for implementing Gurukul Methodology for imparting value-based education for achieving sustainable development goals will be developed.

So that in future human development course should be adjusted in such a way which leads to play a positive role of in the creation and development of value education for sustainable development.

### References:

1. Abu al-'Einain, A.(1986). *Islamic education and development*. Saudi Arabia, The Arab Bureau of Education for Gulf States, no. 22, seventh year.
2. Rossi, R. (1995). *Les questions de population dans l'enseignement secondaire en Italie*. R. Rossi (Ed. ) Les questions de population dans l'enseignement secondaire, EOPEI Studies and Documents Nu1.

3. Arcury, T. (1990). *Environmental attitude and environmental knowledge* Human Organization, 49, 300–4.
4. Atul B Kathole, Dr.Dinesh N.Chaudhari, " Fuel Analysis and Distance Prediction using Machine learning," 2019,International Journal on Future Revolution in Computer Science & Communication Engineering, Volume: 5 Issue: 6
5. Allen, C., M. Reid, J. Thwaites, R. Glover, and T. Kestin. 2020. 'Assessing National Progress and Priorities for the Sustainable Development Goals (sdgs): Experience fromAustralia.' *Sustainability Science* 15 (2): 521–38.
6. K. N. Vhatkar and G. P. Bhole, "Improved rider optimization for optimal container resource allocation in cloud with security assurance," *International Journal of Pervasive Computing and Communications*, vol. 16, no. 3, pp. 235–258, 2020, doi: 10.1108/IJPC-12-2019-0094.
7. Aven, T. 2020. 'Climate Change Risk –What Is It and How Should It Be Expressed?' *Journal of Risk Research* 23 (11): 1387–404.
8. Leal Filho, W., S. K. Tripathi, J. B. S. O. D. Andrade Guerra, R. Gine- Garriga,V. Orlovic Lovren, and J. Willats. 2019. 'Using the Sustainable Development Goals towards a Better Understanding of Sustainability Challenges.' *International Journal of Sustainable Development & World Ecology* 26 (2): 179–90.
9. Kumbhare, S. , B.Kathole, A. , Shinde, S., "Federated learning aided breast cancer detection with intelligent Heuristic-based deep learning framework", *Biomedical Signal Processing and Control* Volume 86, Part A, September 2023, 105080 <https://doi.org/10.1016/j.bspc.2023.105080>  
<https://www.sciencedirect.com/science/article/pii/S174680942300513X>
10. Lee, C. T., J. S. Lim, Y. Van Fan, X. Liu, T. Fujiwara, and J. J. Klemeš. 2018. 'Enabling Low-Carbon Emissions for SustainableDevelopment in Asia and Beyond.' *Journal of Cleaner Production* 176:726–35.
11. K. Netaji Vhatkar and G. P. Bhole, "Self-improved moth flame for optimal container resource allocation in cloud," *Concurrency and Computation: Practice and Experience*, vol. 34, no. 23, Oct. 2022, doi: 10.1002/cpe.7200.
12. Ozili, P. K. 2021. 'Circular Economy, Banks, and Other Financial Institutions: What's in It for Them?' *Circular Economy and Sustainability* 1(3): 787–98.
13. K. N. Vhatkar and G. P. Bhole, "A comprehensive survey on container resource allocation approaches in cloud computing: State-of-the-art and research challenges," *Web Intelligence*, vol. 19, no. 4, pp. 295–316, 2021, doi: 10.3233/WEB-210474.
14. Wackernagel,M., L. Hanscom, and D. Lin. 2017. 'Making the Sustainable Development Goals Consistent with Sustainability.' *Frontiers in Energy Research* 5.<https://doi.org/10.3389/fenrg.2017.00018>.
15. Hopkins, D. 2013. 'Sustainability Narratives and Planning Agendas: Chart-ing the Influence of Sustainable Development Discourse on Planning Policy in Western Australia.' *International Journal of Society Systems Science* 5 (3): 245–60.
16. S. Nagaraj ,Atul B. Kathole ,Leena Arya,Neha Tyagi ,S. B. Goyal, Anand Singh Rajawat ,Maria Simona Raboaca ,Traian Candin Mihaltan ,Chaman Verma and George Suciuc , "Improved Secure Encryption with Energy Optimization Using Random Permutation Pseudo Algorithm Based on Internet of Thing in Wireless Sensor Networks", *Energies* 2023, 16(1), 8; <https://doi.org/10.3390/en16010008>. <https://www.mdpi.com/1996-1073/16/1/8>
17. Khalfan,M., M. A. Noor, T.Maqsood, N. Alshabri, and A. Sagoo. 2015. 'Perceptions towards Sustainable Construction amongst Construction Contractors in State of Victoria, Australia.' *Journal of Economics, Business and Management* 3 (10): 940–47.
18. [https://www.ijmra.us/project%20doc/2019/IJRSS\\_APRIL2019/IJMRA-15426.pdf](https://www.ijmra.us/project%20doc/2019/IJRSS_APRIL2019/IJMRA-15426.pdf)
19. <https://www.ijsr.net/archive/v11i4/SR22423214048.pdf>