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Review Article

Siddhanta

An evidence based application of Siddhanta in the pre university subjects of Biology, Physics and Chemistry

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Adhyayana and Adhyapana are the interrelated processes where one facilitates the other. Adhyapana involves sharing knowledge, skills, and values, while Adhyayana is the acquisition of those same elements through study, experience, or instruction. Both processes are active, requiring engagement and interaction to be effective. One of the Adhyayana and Adhyapana method to enhance the proof and navigate the knowledge towards the broader application and understanding Evidence based Learning and Teaching (EBLT) is necessary. In Ayurvedic concept learning, this methodology has made the younger minds to apply them and understand the concepts by proofing with the subjects they have learnt in the pre university levels. Thus, an application of EBLT methodology has been applied in understanding the Siddhanta's with special application in physics, chemistry and biology.

Keywords: Ayurvedic, Evidence, Siddhanta

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Introduction

Evidence-based learning and teaching is a way to conceptualise how to take decisions to improve learning and teaching, based on concrete evidence provided by either scientific literature or experimentation, or by data and information collected through various processes. The adoption of EBLT, is a systemic approach to enhance learning and teaching, with an efficient way to improve students' learning experience. Hence, it's a catch of the time to adopt the same in the teaching of the *Ayurvedic* concepts with the EBTL for the enhanced learning of the younger minds.**[1]**

In *Ayurveda Siddhantas* are the principle's accepted after multiple investigation and study. Principles are the basic elements of any science and they help in understanding the particular science structure. In *Ayurveda* science too there are principles which are necessary for understanding its concepts.

Nirukthi* of *Siddhanta

- सिध्द + अन्त = सिध्दान्त
- अन्तिम निष्कर्ष परिणाम । SKD
- The final decision is called as

Lakshana* of *Siddhanta

अथ सिद्धान्तः- सिद्धान्तो नाम स यःपरीक्षकैर्बहुविधं परीक्ष्य हेतुभिश्च साधयित्वा स्थाप्यते निर्णयः| Cha/Vi/8/37

Siddhanta's are the final theories/principles established by multiple examinations, multiple persons and multiple reasoning's.

Types of *Siddhanta*

- *Sarvatantra*
- *Prathitantra*
- *Adhikarana*
- *Abyupagama*

Need of *Siddhantas*

1. Improve memory
2. Increasing the knowledge
3. Get proper knowledge
4. Research
5. Understand *Shastras* well
6. To add new concepts.

Discussion

Present generation of education needs the newer and evidence-based application of the knowledge whatever they learn. Hence the application of the *Ayurvedic Siddhantas* in relation the pre university subject is a must for better understand of the newer language and the subject to understand. Here are few topics has been taken which can be made easy to understand the subject and apply for better utilisation of the knowledge gained in relation to *Siddhantas*.

Sarva Tantra Siddhanta

Sarva Tantra: accepted by all the treaties by all the disciples ***Sarva:*** This *Sanskrit* word means "all," "every," or "universal, ***Tantra:*** This refers to science or *Shastra*

In term of biology

- The nervous system regulates and coordinates the functions of the digestive system.
- The immune system interacts with the circulatory system to protect the body from infections

In terms of chemistry

The **Periodic Table** is a prime example of *Sarva Tantra* in chemistry because it organizes all known chemical elements in a structured, systematic way based on their atomic number, electron configuration, and recurring chemical properties.

In terms of Physics

Newton's law of gravitation and law of conservation of energy could be the example for the *Sarva Tantra* as they are applicable to whole universe

Prati Tantra Siddhanta

Prati* -** which generally means "against," "towards," or "in response to. "Tantra* -** which refers to a system, method. Theories pertaining to particular treatise of same discipline, It could refer to an opposing method to a specific technique or practice.

In terms of biology

- Immune System Response
- Homeostasis
- Stress Responses in Cells
- Circadian Rhythms

In terms of Physics

- Newton's Third Law of Motion (Action and Reaction)
- Electrostatic Forces (Attraction and Repulsion)

In terms of Chemistry

- Acid-Base Neutralization Reactions
- HCl + NaOH → NaCl + H2O
- Buffer Solutions

Adhikarna Siddhanta

- Contextual theory brought to explain present topic, Acceptance of another theory for the narration of present concept clearly

In terms of Biology

- Digestive Enzymes
- Inherited Traits
- Photosynthesis in Plants

In terms of Physics

- Newton's Laws of Motion describe the relationship between a body and the forces acting on it, and how the body responds to those forces. These laws apply specifically in the context of non-relativistic systems and classical conditions.
- The law of conservation of momentum applies specifically to closed systems

In terms of Chemistry

Le Chatelier's Principle is a key concept that applies to reversible chemical reactions. It states that if a system at equilibrium is disturbed by changing the concentration of reactants or products, temperature, or pressure.

Abhyupagama Siddhanta

Abhyupagama **-** It refers to admission or assumption of a proposition or fact. It involves accepting or acknowledging something as true, usually in the context of a discussion, argument, or logical reasoning.

In terms of Biology

- Theory of Evolution (Darwinian Evolution)
- Cell Theory
- Genetic Inheritance

In terms of Physics

- Ideal Gas Assumptions (Ideal Gas Law)
- Frictionless Surface Assumption

In terms of chemistry

- Atomic Models (Bohr Model)
- Homogeneous Mixture Assumption in Solution Chemistry

Conclusion

Evidence-based learning and teaching promotes informed decision-making and continuous improvement in education by prioritizing research and data to guide instruction and curriculum development. It's not about replacing innovation but rather providing a solid foundation for testing and implementing new ideas, ultimately enhancing student outcomes and overall learning quality.

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