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EVOLUTION OF PEDAGOGICAL APPROACHES IN AYURVEDIC EDUCATION: A HOLISTIC EXAMINATION OF TRADITIONAL WISDOM AND MODERN INNOVATIONS

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ABSTRACT

Innovation in teaching and learning methods aimed at development of creativity and original thinking skills are rarely adopted in Ayurveda. Various teaching, learning as well as debating methods have been narrated by our ancient *Acharyas* to gain and update one's own knowledge. In Ancient India, the "*Gurukula*" system of education was the method of the Ayurvedic training that was generally followed. Today, the teacher of Ayurveda is expected not only to be well versed in the theoretical concepts of books; he/she is expected to be a practically oriented. The 'memory oriented' teaching in Ayurveda has to become 'understanding oriented'. The classics of Ayurveda have explained in detail about the various means to attain the knowledge both helpful for the teacher as well as the learner. So this present evaluation highlights the teaching and learning methodology adopted by our ancient *Acharyas*. **Aim**: Exploring how the methods of teaching and learning in Ayurvedic education have evolved over time, blending traditional wisdom with contemporary innovations. **Methodology: Critical Examination:** Analyzing ancient teaching and learning methods from Ayurvedic classics

1. **Innovative Modifications**: Proposing changes to traditional methods without altering the core principles of teaching and learning

KEYWORDS: Comprehensive nature of ancient knowledge; Methodology for Ayurveda *shastra*; Modern aspect of teaching and learning.

INTRODUCTION

In this study emphasizing the evolving role of Ayurveda teachers, suggesting a shift from a memory-oriented approach to a more understanding-oriented one. This transition implies that teachers should not only possess theoretical knowledge but also practical expertise. The classics of Ayurveda, it appears, provide guidance on effective methods for acquiring knowledge, benefiting both teachers and learners. In the context of Ayurveda, an understanding-oriented approach may involve not just memorizing information but comprehending the underlying principles, practical applications, and holistic perspectives of this traditional system of medicine. This approach aligns with the holistic nature of Ayurveda, which emphasizes the balance of mind, body, and spirit.

Importance of theoretical and practical knowledge

Theoretical and practical training held equal importance in the educational system. Lack or deficiency in either theoretical or practical knowledge rendered a person unfit for medical practice. Theoretical knowledge should precede practical skill development. In ancient India a physician who successfully acquired both theoretical and practical knowledge was considered worthy of honor by kings.[1]

A person who only possessed theoretical knowledge without practical skills could become confused when faced with real-life medical situations. Conversely, someone skilled in practice but lacking theoretical understanding did not gain approval from respected individuals.[2] Described individuals with an imbalance as being like birds with only one wing – lacking completeness and proficiency.

Comprehensive nature of ancient knowledge

The knowledge expected from medical aspirants in ancient times was comprehensive, covering both theoretical understanding and practical skills. Suggested that the educational standards of ancient medical aspirants surpassed those commonly seen in the contemporary medical profession.

Charaka Samhita, shedding light on the initial steps and the unique style of the ancient texts. The first step in learning is acquiring theoretical knowledge, mastering the texts thoroughly.

Theoretical knowledge is imparted by an ideal teacher, emphasizing the importance of a knowledgeable and skilled instructor.[3]

The texts were written in a concise style known as *Sutra* style. This suggests brevity and precision in conveying information. The texts were a combination of both prose and verse. Prose was concise, while verses were mostly in the simplest Anusthup form. The concise prose and simple verses were designed for oral transmission, highlighting the oral tradition of passing down knowledge. The described method of oral transmission was a practice adopted not only for Ayurvedic science but also for the acquisition of *Vedic* knowledge.[4]

Methodology for Ayurveda *shastra*

To understand Ayurveda *Shastra* and attain proficiency, a specific method is recommended. Explore how the theoretical knowledge is practically applied in the learning process. Consider how interaction between the teacher and student was facilitated in this methodology. Discuss if there were any traditional assessment methods used to evaluate the students' understanding. Explore how the cultural context of that era influenced the teaching and learning methodologies.

This description provides insights into the pedagogical approach of *Charaka Samhita*, highlighting the sequential nature of learning and the distinctive style of the texts. Further exploration of practical applications and cultural nuances would enhance the understanding of these methodologies.

Three methods of attaining knowledge and proficiency in the context of Ayurveda, emphasizing learning (*Adhyayanam*), teaching (*Adhyapana*), and discussions with knowledgeable individuals (*Tadvidhya Sambhasha*). Additionally, it describes the learning and teaching methods in detail.

***Adhyayanam* (Learning):** Involves the process of learning. Students should sit on an even and clean ground, concentrate their minds, repeat aphorisms in order, understand their meanings fully, correct their reading faults, and recognize the measure of those in the reading of others. Concentration of the mind is highlighted as a crucial aspect of the learning process.[5] Adhyayan vidhi includes setting and concentration, repetition and understanding and self-correction.

***Adhyapana* (Teaching):** Involves the process of teaching others. Teaching is done through exposition, expounding the subject before the students. It is regarded as important for clarifying the subject for both the teacher and the students. Teaching is described as an exposition, involving a detailed explanation of the subject before the students. Teaching is considered important not only for the understanding of the subject by the teacher but also for enabling others to comprehend the science properly. A teacher who imparts knowledge to worthy disciples will obtain auspicious fruits of teaching, including qualities for both the teacher and the disciple. Emphasizes the significance of learning directly from the preceptor for a better understanding of the science. The science of Ayurveda is deemed to be better learned through repeated studies and practical application.[6]

***Tadvidhya Sambhasha* (Discussions):** Involves discussions with individuals well-versed in the subject. Engaging in discussions with knowledgeable individuals to enhance understanding and proficiency.[7]

In the context of *Astanga Hrudaya*, the teaching and learning methodologies involve three key components: *Paatha, Avabodha* and *Anusthana.*[8]

***Paatha* (Repetition/Recitation):** *Paatha* involves the process of making information "by heart" through repeated reading or reciting of *Shlokas* (verses) from the *Astanga Hrudaya*. This method aims to instill knowledge through memorization, allowing students to internalize the content and become familiar with the textual aspects of the Ayurvedic teachings.

***Avabodha* (Understanding):** *Avabodha* refers to the pattern of understanding the *Shastra* (text or scripture). It goes beyond mere memorization and emphasizes comprehension. This aspect involves delving into the meanings of the verses, understanding the underlying concepts, and grasping the nuances of the Ayurvedic principles presented in the *Astanga Hrudaya*.

***Anusthana* (Implementation/Application):** *Anusthana* is the practical application of the knowledge acquired from the texts. It involves "doing as directed" or following the methods and guidelines outlined in the Astanga Hrudaya. This component encourages students to implement the conceptual understanding gained through Paatha and Avabodha in real-life situations. It bridges the gap between theory and practice, making the teachings applicable in the field of Ayurveda.

The teaching and learning methodologies in *Astanga Hridaya* encompass not only the memorization of verses (*Paatha*) but also understanding the content (*Avabodha*) and applying the knowledge in practical scenarios (*Anusthana*).

In *Charaka Samhita*, the approach to understanding and explaining the text involves three key aspects: *Vakyasha, Vakyarthasha*, and *Arthavayavasha.*[9]

***Vakyasha*:** Reading the *Sutra* (sentence or verse) as it is stated in the treatise. Purpose of this is to grasp the literal and direct meaning of the text without interpretation.

***Vakyarthasha*:** Obtaining the meaning after appropriate understanding and interpretation of a *Vakya* (sentence or verse). Purpose is to delve deeper into the text, going beyond the literal meaning and gaining a comprehensive understanding through interpretation.

***Arthavayavasha*:** Refers to the words that are difficult to understand and require special attention. Purpose is to identify and focus on specific words or concepts that may be challenging, ensuring a more thorough comprehension of the text.

Overall Process is that a person is expected to explain the entire text, its various sections, chapters, and specific topics in each chapter distinctly, use *Vakyasha* for a straightforward reading of the *Sutras*, employ *Vakyarthasha* to interpret and understand the deeper meaning of sentences, pay special attention to *Arthavayavasha*, addressing difficult words or concepts.

This approach indicates a systematic and meticulous method of studying and explaining the text, ensuring that the reader not only grasps the surface-level meaning but also delves into the pronounces and complexities of the content. It reflects a commitment to thorough comprehension and interpretation of the knowledge presented in *Charaka Samhita*.

To the study or interpretation of a text we should use following methods according to *Vagbhata*[10]

Padatah meaning Word to word, an approach where the text is understood or explained by focusing on each individual word.

Arthatah meaning of the word, Involves understanding and explaining the intended meaning or significance of individual words within the context of the text.

Prayojanatah to explain utility, Focuses on elucidating the practical or functional significance of the content, emphasizing its utility or application.

Chodyatah to raise doubts/questions, Involves encouraging the reader to question and engage critically with the text, fostering a deeper understanding.

Pariharatah to clarify the doubts, Addresses and resolves any doubts or questions raised, ensuring a clearer comprehension of the text.

Sambandhatah is the relation with the aim, the connection between the content and the overall objective or goal of the text or study.

Abhidheyatah is the subject matter to be explained, Identifies and explains the main subject or topic of the text, ensuring a comprehensive understanding of the content.

Overall this process indicates The terms outline a systematic process of studying and interpreting a text, covering aspects from word-level analysis to broader contextual understanding, Encourages an interactive approach, involving questioning, clarification of doubts, and exploring the practical utility of the content. This method appears to be a structured and comprehensive way of approaching the study of a text, fostering both a detailed understanding of individual components and a broader appreciation of the text's overall purpose and relevance.

The practices outlined in *Sushrut Samhita* for learners and researchers emphasize a holistic approach to education and intellectual development. These practices, mentioned in *Sushrut Chikitsa* 28/27, are considered as activities that promote intelligence and intellectual engagement[11]:

Satat Adhyayan encourages learners and researchers to maintain a continuous and dedicated study regimen. Consistent learning is crucial for acquiring and deepening knowledge.

Partantra Avlokan is the studying parallel subjects, integrated approach. Advocates for a well-rounded education by studying related or parallel subjects. An integrated approach can provide a more comprehensive understanding of the subject matter.

Vada is the professional discussion. Highlights the importance of engaging in professional discussions. Dialogues and debates can foster critical thinking, exchange of ideas, and the refinement of one understands through interaction with peers.

Tadvidya denotes participation in seminars, symposia, etc. Encourages active participation in academic events like seminars and symposia. Such forums provide opportunities to share knowledge, learn from others, and stay updated on advancements in the field.

Acharya Seva resembles as Constant interaction with *Acharya* (teacher), serving him. Emphasizes the importance of maintaining a close and respectful relationship with the teacher

or mentor. Constant interaction and service to the *Acharya* contribute to the overall learning experience.

Buddhi Medhakaro Gano denotes activities that promote intelligence and intellectual activities. These practices are seen as endeavors that stimulate and enhance intellectual capabilities. They are designed to nurture a sharp and discerning mind, fostering qualities such as critical thinking and analytical skills.

The practices outlined in *Sushrut Samhita* promote a holistic and interactive learning experience. Continuous study, integration of knowledge, professional discussions, active participation in academic events, and close interaction with mentors are considered essential for intellectual development. By incorporating these practices into their educational journey, learners and researchers are expected to cultivate a well-rounded and intellectually vibrant approach to their studies and research.

Holistic approach of Practical Teaching Process

Acharya Sushruta stresses the importance of combining theoretical knowledge with practical instruction to make a medical student proficient. For hands-on clinical practice (*karmabhyas*), students should witness demonstrations of various procedures. For instance, cutting procedures (*Chhedana karma*) can be performed on materials like *Kushmanda* and *Alabu*. Splitting or dividing techniques (*Bhedana*) should be demonstrated using bellows, animal urinary bladders, or leather sacs. Scraping methods (*Lekhana karma*) involve using a leather sheet with hairs, while puncturing techniques (*Vedhana*) utilize veins from dead animals or Lily plant stalks.[12]

Modern aspect of teaching

The roles of a teacher have indeed evolved to encompass various responsibilities, reflecting the dynamic nature of education. In addition to the traditional roles of information provider, role model, facilitator, assessor, planner, and resource developer, 21st-century educators are expected to possess and foster certain skills that align with the changing landscape of education and the needs of contemporary learners.

The 21st-century skills of a teacher include[13]

Critical Thinking: Ability to analyze, evaluate, and synthesize information to make informed decisions

Creativity: Fostering imaginative thinking, problem-solving, and the ability to generate innovative ideas.

Collaboration: Promoting teamwork, communication, and cooperation among students and colleagues.

Communication: Effective verbal and written communication skills to convey ideas clearly and engage learners.

Information Literacy: Ability to locate, evaluate, and use information from various sources critically.

Media Literacy: Understanding and critically analyzing media messages and leveraging media for educational purposes.

Technology Literacy: Competence in using and integrating technology tools for teaching and learning.

Flexibility: Adaptability and openness to change in response to evolving educational needs.

Leadership: Guiding and inspiring students, colleagues, and stakeholders towards common educational goals.

Initiative: Proactively taking steps to enhance the learning environment and address challenges.

Productivity: Efficiently managing time and resources to maximize teaching and learning outcomes.

Social Skills: Building positive relationships, fostering inclusivity, and promoting social awareness.

These skills collectively contribute to creating an enriched learning environment that prepares students for the challenges and opportunities of the 21st century. Teachers with these skills are better equipped to engage and empower their students, preparing them for a rapidly changing world.

Instructional System Design (ISD) refers to the systematic process of developing educational experiences and materials to facilitate effective learning. Several instructional design models have been developed to guide educators through the process of creating learner-centered and effective learning modules: Here are some prominent models.

ADDIE Model[14]

Analysis: Identifying learning needs, objectives, and constraints.

Design: Creating a blueprint for the learning solution

Development: Producing the instructional materials or content.

Implementation: Delivering the instructional solution

Evaluation: Assessing the effectiveness of the instruction and making improvements

SAM (Successive Approximation Model)[15]

Approach: Iterative and flexible model, Divided into successive cycles of design, prototype, and review and Emphasizes collaboration and constant refinement.

ASSURE MODEL[16]

Analyze Learners: Understanding the characteristics of the learners

State Objectives: Clearly define the instructional objectives

Select Methods, Media, and Materials: Choose appropriate tools and resources

Utilize Media and Materials: Implement the instructional plan

Require Learner Participation: Engage learners in the learning process

Evaluate and Revise: Assess the effectiveness and make improvements

DICK and CAREY Model[17]

Identify Instructional Goals: Define the overall objectives

Conduct Instructional Analysis: Analyze the content and learner characteristics

Define Entry Behaviors and Learner Characteristics: Specify prerequisites

Write Performance Objectives: Detail the expected outcomes

Develop Assessment Instruments: Create tools for evaluation

Develop Instructional Strategy: Design the instructional plan

Develop and Select Instructional Materials: Choose or create appropriate resources

Design and Conduct Formative Evaluation: Test the instruction during development

Revise Instruction: Make improvements based on feedback

Conduct Summative Evaluation: Assess the overall effectiveness

Bloom's taxonomy[18]

Bloom's Taxonomy is a framework developed by educational psychologist Benjamin Bloom in the 1950s that categorizes educational objectives into different levels of cognitive complexity. The taxonomy is often represented as a pyramid, with each level building upon the one below it. The six levels, from the most basic to the most complex, are:

Remembering (Knowledge): This is the foundation level, where students recall or recognize information. It involves the ability to remember facts, terms, concepts, or answers.

Understanding (Comprehension): At this level, students demonstrate their comprehension of the material by interpreting, explaining, or summarizing it. Understanding goes beyond mere memorization to grasp the meaning and significance of the information.

Applying (Application): In this stage, students apply their acquired knowledge and understanding to solve problems or carry out task. This may involve using acquired information in a new context or in a practical way.

Analyzing (Analysis): At the analysis level, students break down information into its component parts and examine their relationships. This involves identifying patterns, organizing information, and making connections.

Evaluating (Synthesis): Synthesis involves combining elements to form a new whole or generating new ideas, solutions, or perspectives. Students at this level are required to make judgments based on criteria and standards.

Creating (Synthesis): This is the highest level of Bloom's Taxonomy, where students demonstrate their ability to create something new. This could involve generating original ideas, designs, or products.

Educators use Bloom's Taxonomy to guide lesson planning, assessment design, and the overall structure of educational objectives. By incorporating activities and assessments at various levels of the taxonomy, educators aim to encourage higher-order thinking skills in their students. This approach fosters critical thinking, problem-solving, and creativity, moving beyond simple rote memorization.

The taxonomy is a valuable tool for creating a well-rounded and effective curriculum that addresses different cognitive skills and helps students develop a deeper understanding of the subject matter.

By incorporating modern methods into your perspective study, you'll provide a well-rounded understanding of how Ayurvedic education is evolving to meet the needs of contemporary learners and the challenges of the digital age.

Each of these models provides a systematic approach to instructional design, guiding educators through the process of creating engaging, effective, and learner-centered modules. The choice of a model depends on factors such as the nature of the content, the characteristics of the learners, and the learning environment.

Methods of learning[19]

Innovative learning approaches are designed to enhance engagement, critical thinking, and practical application.

Crossover learning: Involves integrating different subjects or disciplines to create a holistic learning experience. Recognizes that real-world challenges often require knowledge from multiple domains. Encourages interdisciplinary thinking and problem-solving.

Learning through argumentation: Focuses on developing critical thinking skills through structured argumentation. Encourages students to analyze information, express opinions, and defend their positions. Fosters communication skills and the ability to construct evidence-based arguments.

Incidental learning: Learning that occurs unintentionally or spontaneously through everyday experiences. Emphasizes the importance of creating environments where learning is embedded in various activities. Capitalizes on curiosity and exploration.

Learning by Doing Science: Emphasizes hands-on, experiential learning in the field of science. Students actively engage in experiments, investigations, and practical applications of scientific principles. Enhances understanding and retention of scientific concepts.

Embodied learning: Involves using the body and physical experiences as a learning tool. Recognizes the connection between physical movement and cognitive processes. Integrates movement, gestures, and other bodily experiences to enhance learning.

In conclusion, embracing innovative learning approaches is crucial for fostering a dynamic and effective educational environment. Crossover learning encourages a holistic understanding by integrating various disciplines, preparing students for the interdisciplinary nature of real-world challenges. Learning through argumentation sharpens critical thinking and communication skills, empowering students to construct well-supported arguments. Incidental learning recognizes the value of spontaneous, everyday experiences in the learning

process, nurturing curiosity and exploration. Learning by doing science emphasizes hands-on, experiential engagement, deepening students' understanding of scientific concepts through practical application. Embodied learning acknowledges the connection between physical experiences and cognitive processes, offering a holistic approach to education that includes movement, gestures, and bodily engagement.

Methods of teaching[20]

Lecture Method: Traditional method involving a teacher presenting information to students. Passive learning where students listen and take notes.

Activity Method: Involves hands-on activities to reinforce learning. Encourages student participation and engagement.

Project Method: Students work on a long-term project, promoting research, problem-solving, and collaboration. Encourages practical application of knowledge.

DISCUSSION

Facilitates interaction and exchange of ideas among students and between students and the teacher. Develops critical thinking and communication skills.

Discovery Method: Emphasizes self-directed learning and exploration. Encourages students to discover concepts on their own.

Demonstration: Teacher illustrates concepts through practical examples or experiments. Visual and hands-on learning approach.

Field Trip: Learning that occurs outside the classroom, typically at a site related to the subject being studied. Provides real-world context and application.

Role Play: Students act out roles to simulate real-life situations. Students act out scenarios, enhancing understanding and application of concepts. Promotes communication skills, empathy, and creativity.

Experimentation: Hands-on approach where students conduct experiments to learn scientific principles. Develops practical skills and scientific thinking.

Peer Teaching: Students teach each other under the guidance of the teacher. Reinforces understanding and promotes collaboration.

Team Teaching Method: Multiple teachers collaborate to present information. Diverse perspectives and expertise.

Play Way Method: Learning through play and games. Particularly effective for younger students, making learning enjoyable.

Teachers often use a combination of these methods, known as a blended or integrated approach, to cater to different learning styles and maximize the effectiveness of the learning experience. The choice of method depends on the learning objectives, subject matter, and the needs of the students.

Other methods of teaching are[21]

Audio-Visual Tools: Utilizing multimedia resources such as videos, presentations, and interactive content. Appeals to different learning styles and enhances understanding through visual and auditory stimuli.

Brainstorm: Encourages open and creative thinking. Students generate ideas collectively, fostering a collaborative and inclusive learning environment.

Welcome New Ideas: Encourages students to express and explore their thoughts and ideas. Fosters a culture of openness and innovation.

Puzzles and Games: Incorporating interactive games and puzzles into lessons. Makes learning enjoyable and can enhance problem-solving skills.

Refer Books on Creativity: Recommending books that inspire creativity and critical thinking. Expands students' perspectives and encourages independent exploration.

Introduce Lessons Like a Story: Presents information in a narrative format. Makes content more engaging and memorable.

By incorporating these methods, educators can create a dynamic and inspiring learning environment that caters to diverse learning styles and encourages students to actively participate in their own education. The combination of passion, creativity, and interactive

teaching approaches can contribute to a positive and effective learning experience. These innovative learning approaches aim to move away from traditional, passive learning methods and instead focus on active participation, real-world application, and the development of critical skills.

DISCUSSION

Indeed, the concept of teaching as an art and a continuous quality improvement learning process is not a new idea. The methodologies mentioned by *Acharya Charaka* and *Sushruta* in ancient times reflect timeless principles that are still considered relevant in modern education. Their teachings highlight the enduring nature of effective pedagogical practices. Some key aspects of their teaching and learning methodologies include:

Continuous Learning: The emphasis on continuous quality improvement aligns with the idea that learning is a lifelong process. In the contemporary educational context, the recognition of the need for ongoing learning and improvement is essential for educators to stay current and effective

Art of Teaching: Describing teaching as an art implies a nuanced and skillful approach to imparting knowledge, emphasizing creativity, empathy, and adaptability. The acknowledgment of teaching as an art resonates with the idea that effective teaching involves more than just transmitting information; it requires the cultivation of a dynamic and engaging learning experience.

Acceptable Methodologies: The fact that the methodologies mentioned by *Acharya Charaka* and *Sushruta* are still considered acceptable suggests their enduring value and adaptability. Recognizing and incorporating time-tested teaching methodologies into modern educational practices can contribute to the effectiveness and success of the learning process.

Teaching and Learning Principles: The teachings of *Acharya Charaka* and *Sushruta* likely include principles such as active participation, practical application, and interactive learning. These principles align with contemporary pedagogical approaches that emphasize student engagement, experiential learning, and the application of knowledge.

The continuity and relevance of these ancient teaching and learning methodologies underscore the universality of effective educational practices. While the tools and technologies may have evolved, the fundamental principles of fostering a dynamic and

learner-centered environment remain constant. Recognizing and incorporating such timeless wisdom into modern education can contribute to the development of well-rounded and adaptable learners.

CONCLUSION

The methodologies attributed to *Acharya Charaka* and *Sushruta* from ancient times serve as a testament to the timeless principles that underpin effective pedagogical practices. Their teachings have transcended generations, retaining relevance in the context of modern education. The enduring nature of these principles emphasizes the importance of certain fundamental aspects of teaching that go beyond specific time periods or technological advancements. Effective communication, student engagement, hands-on learning experiences, and the cultivation of critical thinking have consistently been valued components of successful teaching, as evidenced by the teachings of *Acharya Charaka* , *Vagbhata* and *Sushruta*.

By recognizing the historical roots of effective pedagogy, educators today can draw inspiration from these timeless principles while also adapting to the unique challenges and opportunities presented by contemporary education. This integration of proven methodologies with innovative approaches contributes to the ongoing improvement and evolution of teaching practices, ensuring that education remains a dynamic and effective force in shaping the minds of future generations.

In conclusion, embracing these innovative learning approaches is not just a choice but a necessity for creating effective educational environments. The integration of crossover learning, argumentation, and incidental learning enriches the learning experience, preparing students to navigate a rapidly changing world. As educators continue to explore and implement these approaches, they contribute to the ongoing evolution of education, ensuring that it remains relevant, engaging, and impactful for the learners of today and tomorrow.

Compliance with ethical standards

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